This is an English convenience translation of the original Hebrew version. In case of any discrepancy, the binding version is the Hebrew original

Israel Corporation Ltd.

Registrar Number: 520028010

Form 121
Public

Date of Transmission: February 23, 2022

Reference: 2022-01-022135

To:
The Securities Authority
www.isa.gov.il

To:
The Tel Aviv Stock Exchange
www.tase.co.il

Immediate Report

The Event: ICL - Annual Report 2021 FORM 20-F

Attached is an immediate report of ICL Group Ltd - Annual Report 2021 FORM 20-F.

The Company is not a shell company as defined in the Stock Exchange Regulations

The date when the event first became known to the corporation: February 23, 2022
Time: 13:15

Name of report authorized signatories who are authorized to sign in the name of the corporation:

	Name of the signor	*Position*
1	*Maya Alcheh Kaplan*	*Other* *Vice President, General Counsel and Company's Secretary*
2	*Sagi Kabla*	*CFO*

Name of report authorized signatory and name of authorized signatory electronic signatory: Maya Alcheh-Kaplan
Position: Vice President, General Counsel and Company's Secretary
Signing Date: February 23, 2022

Name of Electronic Reporter: Maya Alcheh-Kaplan. Position: Vice President, General Counsel and Company's Secretary. Address: Aranha 23, Millennium Tower. Tel Aviv 61204. Phone – 03-6844517 Fax: 03-6844587.
E-mail: mayaak@israelcorp.com.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 20-F

(Mark One)

☐ **REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2021

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

☐ **SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Date of event requiring this shell company report________________

For the transition period from________________to_______________.

Commission File Number: 001-13742

ICL GROUP LTD.
(Exact name of Registrant as specified in its charter)

N/A
(Translation of Registrant's name into English)

Israel
(Jurisdiction of incorporation or organization)

Millennium Tower, 23 Aranha Street, P.O. Box 20245 Tel Aviv, 61202 Israel
(Address of principal executive offices)

Aya Landman
VP, Company Secretary & Global Compliance
Millennium Tower, 23 Aranha St.
Tel-Aviv 6120201 Israel
Tel: +972 (3) 6844440
(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Ordinary Shares, par value NIS 1.00 per share	**ICL**	**The New York Stock Exchange**

Securities registered or to be registered pursuant to Section 12(g) of the Act:

None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act:

None

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report.

The number of outstanding shares as of December 31, 2021 was:

Title of Class	Number of Shares Outstanding
Ordinary shares	**1,287,150,942**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☒ No ☐

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes ☐ No ☒

Note – Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of “large accelerated filer,” “accelerated filer,” and “emerging growth company” in Rule 12b-2 of the Exchange Act:

Large Accelerated Filer ☒ Accelerated Filer ☐ Non-accelerated Filer ☐
Emerging Growth Company ☐

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards† provided pursuant to Section 13(a) of the Exchange Act. ☐

† The term “new or revised financial accounting standard” refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management’s assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

☐ U.S. GAAP

☒ International Financial Reporting Standards as issued by the International Accounting Standards Board

☐ Other

If “Other” has been checked in response to the previous question, indicate by check mark which financial statement item the Registrant has elected to follow.

☐ Item 17 ☐ Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ No ☒

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court.

Yes ☐ No ☒

Annual Report

For the Period Ended December 31, 2021

ICL Group Ltd

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report contains statements that constitute “forward-looking statements,” many of which can be identified by the use of forward-looking words such as “anticipate,” “believe,” “could,” “expect,” “should,” “plan,” “intend,” “estimate”, "strive", "forecast", "targets" and “potential,” among others. The Company is relying on the safe harbor provided in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, in making such forward-looking statements.

Forward-looking statements appear in several places in this Annual Report and include, but are not limited to, statements regarding our intent, belief or current expectations. Forward-looking statements are based on our management’s beliefs and assumptions and on information currently available to our management. Such statements are subject to risks and uncertainties, and the actual results may differ materially from those expressed or implied in the forward-looking statements due to various factors, including, but not limited to, those identified in “Item 3 - Key Information— D. Risk Factors” in this Annual Report. These risks and uncertainties include factors relating to:

Changes in exchange rates or prices compared to those we are currently experiencing; loss or impairment of business licenses or mineral extractions permits or concessions; volatility of supply and demand and the impact of competition; the difference between actual reserves and our reserve estimates; natural disasters; failure to "harvest" salt which could lead to accumulation of salt at the bottom of the evaporation Pond 5 in the Dead Sea; construction of a new pumping station; disruptions at our seaport shipping facilities or regulatory restrictions affecting our ability to export our products overseas; general market, political or economic conditions in the countries in which we operate; price increases or shortages with respect to our principal raw materials; delays in the completion of major projects by third party contractors and/or termination of engagements with contractors and/or governmental obligations; the inflow of significant amounts of water into the Dead Sea could adversely affect production at our plants; labor disputes, slowdowns and strikes involving our employees; pension and health insurance liabilities; the ongoing COVID-19 pandemic, which has impacted, and may continue to impact our sales, operating results and business operations by disrupting our ability to purchase raw materials, by negatively impacting the demand and pricing for some of our products, by disrupting our ability to sell and/or distribute products, impacting customers' ability to pay us for past or future purchases and/or temporarily closing our facilities or the facilities of our suppliers or customers and their contract manufacturers, or restricting our ability to travel to support our sites or our customers around the world; changes to governmental incentive programs or tax benefits, creation of new fiscal or tax related legislation; changes in our evaluations and estimates, which serve as a basis for the recognition and manner of measurement of assets and liabilities; higher tax liabilities; failure to integrate or realize expected benefits from mergers and acquisitions, organizational restructuring and joint ventures; currency rate fluctuations; rising interest rates; government examinations or investigations; disruption of our, or our service providers', information technology systems or breaches of our, or our service providers', data security; failure to retain and/or recruit key personnel; inability to realize expected benefits from our cost reduction program according to the expected timetable; inability to access capital markets on favorable terms; cyclicality of our businesses; changes in demand for our fertilizer products due to a decline in agricultural product prices, lack of available credit, weather conditions, government policies or other factors beyond our control; sales of our magnesium products being affected by various factors that are not within our control; our ability to secure approvals and permits from the authorities in Israel to continue our phosphate mining operations in Rotem Amfert; volatility or crises in the financial markets; uncertainties surrounding the withdrawal of the United Kingdom from the European Union; hazards inherent to mining and chemical manufacturing; the failure to ensure the safety of our workers and processes; cost of compliance with environmental regulatory legislative and licensing restrictions; laws and regulations related to, and physical impacts of climate change and greenhouse gas emissions; litigation, arbitration and regulatory proceedings; exposure to third party and product liability claims; product recalls or other liability claims as a result of food safety and food-borne illness concerns; insufficiency of insurance coverage; closing of transactions, mergers and acquisitions; war or acts of terror and/or political, economic and military instability in Israel and its region; filing of class actions and derivative actions against the Company, its executives and Board members; The Company is exposed to risks relating to its current and future activity in emerging markets; and other risk factors discussed under "Item 3 - Key Information— D. Risk Factors".

Forward-looking statements speak only as of the date they are made, and we do not undertake any obligation to update them in light of new information or future developments or to release publicly any revisions to these statements in order to reflect later events or circumstances or to reflect the occurrence of unanticipated events.

CAUTIONARY NOTE TO INVESTORS REGARDING MINERAL AND RESOURCES ESTIMATES

The U.S. Securities and Exchange Commission (the "SEC"), adopted final rules in 2018 to amend and modernize the mineral property disclosure requirements for issuers whose securities are registered with the SEC under the U.S. Securities Act of 1933, as amended ("Securities Act"), or the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"). These amendments, which we refer to as the SEC Mining Modernization Rules, became effective February 25, 2019, with compliance required for the first fiscal year beginning on or after January 1, 2021. The SEC Mining Modernization Rules rescinded the historical property disclosure guidance for mining registrants included in SEC Industry Guide 7 and replaced them with the disclosure requirements in subpart 1300 of SEC Regulation S-K ("S-K 1300"). As a result of the adoption of the SEC Mining Modernization Rules, the SEC now recognizes estimates of "Measured Mineral Resources," "Indicated Mineral Resources" and "Inferred Mineral Resources." Accordingly, ICL presents new information with respect to its mining and operation plants in this Annual Report, including resource and reserve estimates, which differ materially from the reserve estimates presented historically by ICL.

A Mineral Resource is a reasonable estimate of mineralization, taking into account relevant factors, such as cut-off grade, likely mining dimensions, location or continuity that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled." The Mineral Resources presented in this Annual Report are not Mineral Reserves and do not reflect demonstrated economic viability. The estimates of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors at the corresponding properties change from those currently assumed by ICL.

Mineral Reserves are reported as the economically mineable portion of a Measured Mineral Resource and/or Indicated Mineral Resource, and take into consideration the mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the "modifying factors") that may be applicable to the deposit. Mineral Resources that are not Mineral Reserves do not meet the threshold for reserve modifying factors, such as estimated economic viability, that would allow for conversion to Mineral Reserves. There is no certainty that all or any part of a Mineral Resource will be converted into a Mineral Reserve. Estimates of Inferred Mineral Resources have significant geological uncertainty, and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to the Measured or Indicated categories.

Figures related to our mineral and resource estimates are rounded to reflect the relative accuracy of the estimates, and totals may not add correctly. In addition, the Mineral Resource and Reserve estimates are based on the factors related to the geological and grade models discussed in "Item 4 - Information on the Company— D. Property, Plant and Equipment," and the criteria for reasonable prospects of eventual economic extraction as described therein. The Mineral Resource and Reserve estimates may be affected, positively or negatively, by additional exploration that expands the geological database and models of the properties described. The Mineral Resource and Reserve estimates could also be materially affected by any significant changes in the assumptions regarding forecast product prices, mining efficiency, process recoveries, or production costs. If the price assumptions decrease or the assumed production costs increase, then the cut-off grade would increase. The potential impacts on the Mineral Resource and Reserve estimates may be material and such estimates may need to be re-evaluated. The Mineral Resource and Reserve estimates are also based on certain critical assumptions, such as requisite mining permits continuing to be granted as-needed, tax rates remaining stable, and the absence of additional regulations on the corresponding properties. Except as described in "Item 4 - Information on the Company— D. Property, Plant and Equipment" and the Technical Report Summary (defined below), Wardell Armstrong International Ltd ("Wardell"), our qualified persons, are not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimates.

INTRODUCTION

The financial information included in this Annual Report has been prepared in accordance with the International Financial Reporting Standards ("IFRS"), as issued by the International Accounting Standards Board ("IASB"). None of the financial information in this Annual Report has been prepared in accordance with accounting principles generally accepted in the United States.

This Annual Report contains translations of certain currencies amounts into US dollars at specified rates solely for your convenience. Unless otherwise indicated, we have translated NIS amounts as of December 31, 2021, into US dollars at an exchange rate of NIS 3.110 to $1.00, the daily representative exchange rate reported by the Bank of Israel as of December 31, 2021. Euro amounts were translated into US dollars at an exchange rate of €0.884 to $1.00.

Market data and certain industry data used in this Annual Report were obtained from internal reports and studies, where appropriate, as well as estimates, market research, publicly available information and industry publications, including publications, reports or releases of the International Monetary Fund ("IMF"), the U.S. Census Bureau, the Food and Agriculture Organization of the United Nations ("FAO"), the International Fertilizers Association ("IFA"), the United States Department of Agriculture ("USDA"), the United States Geological Survey, the CRU Group ("CRU") and Fertecon, the Fertilizer Association of India ("FAI"). Industry publications generally state that the information they include has been obtained from sources believed to be reliable, but that the accuracy and completeness of such information is not guaranteed. Similarly, internal reports and studies, estimates and market research, which we believe to be reliable and accurately extracted by us for use in this Annual Report, have not been independently verified. However, we believe such data is accurate. There is only a limited amount of independent data available about certain aspects of our industry, market, and competitive position. As a result, some data and information about our market rankings in certain product areas are based on our good faith estimates, which are derived from our review of internal data and information, information that we obtain from our customers, and other third-party sources. We believe these internal surveys and management estimates are reliable; however, no independent sources have verified such surveys and estimates.

In presenting and discussing our financial position, operating results and net income results, the management uses certain non-IFRS financial measures. These non-IFRS financial measures should not be viewed in isolation or as alternatives to the equivalent IFRS measures and should be used in conjunction with the most directly comparable IFRS measures. A discussion of non-IFRS measures included in this Annual Report and a reconciliation of such measures to the most directly comparable IFRS measures are contained in this Annual Report under "Item 5 – Operating and Financial Review and Prospects— A. Operating Results".

In this Annual Report, unless otherwise indicated or the context otherwise requires, all references to "ICL," the "Group," the "Company," "we," "our," "ours," "us" or similar terms refer to ICL Group Ltd., together with its consolidated subsidiaries. When we refer to our "parent Company" or to "Israel Corp.," we refer to our controlling shareholder, Israel Corporation Ltd. Unless otherwise indicated or the context otherwise requires, references in this Annual Report to "NIS" are to the legal currency of Israel, "US dollars", "$" or "dollars" are to United States dollars, "euro" or "€" are to the euro, the legal currency of certain countries of the European Union, and "British pound" or "£" are to the legal currency of the United Kingdom. See "Item 4 - Information on the Company— A. History and Development of the Company". We own or have rights to trademarks or trade names that we use in conjunction with the operation of our business. Solely for convenience, trademarks and trade names referred to in this Annual Report may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent of the law, our rights or the rights of the applicable licensor to these trademarks and trade names. In this Annual Report, we also refer to product names, trademarks, and trade names that are the property of other companies. Each of the trademarks and trade names of other companies appearing in this Annual Report belongs to its owners. Our use or display of other companies' product names, trademarks, or trade names is not intended to and does not imply a relationship with, or endorsement or sponsorship by us of, the product, trademark, or trade name owner, unless we otherwise indicate.

GLOSSARY OF SELECTED TERMS

The following is a glossary of selected terms used in this Annual Report.

Bromine	A chemical element used as a basis for a wide variety of uses and compounds, and mainly as a component in flame retardants or fire prevention substances. Unless otherwise stated, the term "bromine" refers to elemental bromine.
CDP	Carbon Disclosure Project – A leading non-profit organization in the greenhouse gas emissions reporting field.
CFR	Cost and Freight. In a CFR transaction, the prices of goods to customer include, in addition to FOB expenses, marine shipping costs and all other costs that arise after the goods leave the seller's factory gates and up to the destination port.
CLP	Classification, Labeling and Packaging of Substances and Mixtures– EU regulation.
CPI	The Consumer Price Index, as published by the Israeli Central Bureau of Statistics.
CRU	Intelligence company that provides information on global mining, metal and fertilizers market.
ICL ADS	ICL América do Sul (formerly Compass Minerals América do Sul S.A.).
Dead Sea Bromine	Dead Sea Bromine Company Ltd., included in the Industrial Products segment.
MAP	Monoammonium Phosphate, a fertilizer containing nitrate and phosphorus oxide.
GTSP	Granular Triple Superphosphate, used as fertilizer, a source of high phosphorus.
GSSP	Granular Single Superphosphate, used as a phosphate fertilizer.
Green Hydrogen	Hydrogen produced by splitting water into hydrogen and oxygen using renewable electricity.
DAP	Diammonium Phosphate - a fertilizer containing nitrate and phosphorus oxide.
EPA	US Environmental Protection Agency.
FAO	The Food and Agriculture Organization of the United Nations.
FOB	Free on-Board expenses are expenses for overland transportation, loading costs and other costs, up to and including the port of origin. In FOB transaction, the seller pays the FOB expenses, and the buyer pays the other costs from the port of origin onwards.
CPT	Cost Per Ton.
CIF	Cost, Insurance, and Freight. In CIF transaction, the price of goods includes, as well as FOB expenses, the expenses for insurance, shipping and any other costs that arise after the goods leave the factory gates and up to the destination port.
ICL Haifa (Fertilizers & Chemicals)	Fertilizers and Chemicals Ltd., included in the Innovative Ag Solutions segment.
GHG	Greenhouse Gases – air emissions contributing to climate change.
Granular	Fertilizer having granular particles.
ICL Boulby	A United Kingdom subsidiary included in the Potash segment.
ICL Iberia (Iberpotash)	Iberpotash S.A., a Spanish subsidiary included in the Potash segment.
IC	Israel Corporation Ltd.
Indicated Mineral Resource	That part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.
Inferred Mineral Resource	That part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project and may not be converted to a mineral reserve.
DSW	Dead Sea Works Ltd., included in the Potash segment.
DSM	Dead Sea Magnesium Ltd., included in the Potash segment.
ICL Neot Hovav	Subsidiaries in the Neot Hovav area in the south of Israel, including facilities of Bromine Compounds Ltd included in the Industrial Products segment.
Rotem Israel	Rotem Amfert Negev Ltd., included in the Phosphate Solutions segment.
IFA	The International Fertilizers Industry Association, an international association of fertilizers manufacturers.
ILA	Israel Land Authority.

IMF	International Monetary Fund.
K	The element potassium, one of the three main plant nutrients.
KNO_3	Potassium Nitrate, a soluble fertilizer containing N&P used as a stand-alone product or as a key component of some water-soluble blends.
KOH	Potassium hydroxide 50% liquid.
MGA	Merchant grade phosphoric acid.
Measured Mineral Resource	That part of a mineral resource for which quantity and grade or quality are estimated on the based on conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.
Mineral Reserve	An estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
Mineral Resource	A concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.
MoEP	Israel Ministry of Environmental Protection.
N	The element nitrogen, one of the three main plant nutrients.
P	The element phosphorus, one of the three main plant nutrients, which is also used as a raw material in industry.
NPK	Complex fertilizer comprised primarily of 3 primary nutrients (N,P,K).
NYSE	The New York Stock Exchange.
Phosphate	Phosphate rock that contains the element phosphorus. Its concentration is measured in units of P_2O_5.
Polyhalite	A mineral marketed by ICL under the brand name Polysulphate™, composed of potash, sulphur, calcium, and magnesium. Used in its natural form as a fully soluble and natural fertilizer, which is also used for organic agriculture and as a raw material for production of fertilizers.
Probable Mineral Reserve	The economically mineable part of an Indicated and, in some cases, a Measured Mineral Resource. Quantity, grade and/or quality of Probable Mineral Reserves are computed from information similar to that used for Proven Mineral Reserves, but the sites for survey, sampling and measurement are further apart or are otherwise less efficiently spaced. The degree of assurance, although lower than that for proven reserves, is high enough to assume continuity between points of observation.
Proven Mineral Reserve	The economically mineable part of a Measured Mineral Resource. Proven Mineral Reserve quantities are computed from information received from explorations, channels, wells, and drilling; grade and/or quality are computed from the results of detailed sampling. The sites for inspection, sampling and measurement for proven reserves are spaced so closely to each other so that the geologic character is well defined so the size, shape, depth and mineral content of reserves can be reliably determined.
Chlorine	A chemical, raw material in various productions process. A byproduct of Dead Sea Magnesium production.
Sylvinite	A byproduct from the production of Magnesium from the raw material – Carnallite. Transferred to DSW as an additional source for potash production.
Polymer	A chemical compound containing a long chain of repeating units linked by a chemical bond and created by polymerization.
Potash	Potassium chloride (KCl), used as a plant's main source of potassium.
P_2O_5	Phosphorus pentoxide.
P_2S_5	Phosphorus pentasulfide.
TCFD	Task Force on Climate-Related Financial Disclosures.
SASB	Sustainability Accounting Standards Board.
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals, a framework within the European Union.
Reserves	The part of a mineral deposit that could be economically and legally extracted or produced at the time of the Mineral Reserve determination. Reserves are divided between "proven reserves" and "probable reserves".
Salt	Unless otherwise specified, sodium chloride (NaCl).
S	Sulphur – a chemical used for the production of sulfuric acid for sulfate and phosphate fertilizers, and other chemical processes.
Soluble NPK	Soluble fertilizer containing the three basic elements for plant development (nitrogen, phosphorus and potash).
Standard	Fertilizer having small particles.
Tami	Tami (IMI) Research and Development Institute Ltd., the central research institute of ICL.
TASE	Tel Aviv Stock Exchange, Ltd.
USDA	United States Department of Agriculture.
WPA	White Phosphoric Acid, purified from MGA.
Urea	A white granular or pill solid fertilizer containing 46% nitrogen.
YTH/YPC	The Chinese partner in the Company's joint venture YPH in China.
4D	Clean green phosphoric acid, used as a raw material for purification processes.
PM	Particular Matter

Item 1 – IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISORS

Not Applicable.

Item 2 – OFFER STATISTICS AND EXPECTED TIMETABLE

Not Applicable.

Item 3 – KEY INFORMATION

A. SELECTED FINANCIAL DATA

We have derived the consolidated statements of income data for the years ended December 31, 2021, 2020 and 2019 and the consolidated statements of financial position as of December 31, 2021, 2020 and 2019 from our audited consolidated financial statements which have been prepared in accordance with IFRS, as issued by the IASB for the years ended, December 31, 2021, 2020 and 2019. You should read the consolidated financial data set forth below in conjunction with our consolidated audited financial statements and related notes and the information under "Item 5 - Operating and Financial Review and Prospects", appearing elsewhere in this Annual Report. Our reporting currency is the US dollar. Our historical results are not necessarily indicative of our results to be expected in any future period.

Selected financial data:

	For the Year Ended December 31,		
	2021	2020	2019
	US$ millions		
Sales	6,955	5,043	5,271
Gross profit	2,611	1,490	1,817
Operating income	1,210	202	756
Income before taxes on income	1,092	49	628
Net income attributable to the shareholders of the Company	783	11	475
Earnings per share (in dollars):			
Basic earnings per share	0.61	0.01	0.37
Diluted earnings per share	0.60	0.01	0.37
Weighted average number of ordinary shares outstanding:			
Basic (in thousands)	1,282,807	1,280,026	1,278,950
Diluted (in thousands)	1,287,051	1,280,273	1,282,056
Dividends declared per share (in dollars)	0.21	0.09	0.22

	For the Year Ended December 31,		
	2021	2020	2019
	US$ millions		
Statements of Financial Position Data:			
Total assets	11,080	9,664	9,173
Total liabilities	6,344	5,576	5,112
Total equity	4,736	4,088	4,061

Adjustments to reported operating and net income (non-GAAP financial measures)

We disclose in this Annual Report non-IFRS financial measures titled adjusted operating income and adjusted net income attributable to the Company’s shareholders. Our management uses these adjusted measures to facilitate operating performance comparisons from period to period. We calculate our adjusted operating income by adding certain items, as set forth in the reconciliation table below. Some of these items may recur. We calculate our adjusted net income attributable to the Company’s shareholders by adding certain items, as set forth in the reconciliation table below, excluding the total tax impact of such adjustments.

You should not view adjusted operating income or adjusted net income attributable to the Company’s shareholders as a substitute for operating income or net income attributable to the Company’s shareholders as determined in accordance with IFRS, and you should note that our definitions of adjusted operating income and adjusted net income attributable to the Company’s shareholders may differ from those used by other companies. Additionally, other companies may use other measures to evaluate their performance, which may reduce the usefulness of our non-IFRS financial measures as tools for comparison. However, we believe adjusted operating income and adjusted net income attributable to the Company’s shareholders provide useful information to both management and investors by excluding certain items that management believes are not indicative of our ongoing operations. Our management uses these non-IFRS measures to evaluate the Company's business strategies and management's performance. We believe that these non-IFRS measures provide useful information to investors because they improve the comparability of our financial results between periods and provide for greater transparency of key measures used to evaluate our performance.

The table below reconciles total adjusted operating income and total adjusted net income attributable to the shareholders of the Company, to the comparable IFRS measures:

	For the Year Ended December 31,		
	2021	2020	2019
	US$ millions		
Operating income	1,210	202	756
Dispute and other settlement expenses (1)	5	-	7
Divestment related items and transaction costs from acquisitions (2)	(22)	-	-
Impairment and disposal of assets, provision for closure and restoration costs (3)	1	229	(3)
Provision for early retirement (4)	-	78	-
Total adjustments to operating income	(16)	307	4
Adjusted operating income	1,194	509	760
Net income attributable to the shareholders of the Company	783	11	475
Total adjustments to operating income	(16)	307	4
Total tax adjustments (5)	57	(60)	-
Total adjusted net income - shareholders of the Company	824	258	479

(1) For 2021, the amount reflects settlement costs related to the termination of partnership and arbitration proceedings between ICL Iberia and Nobian and reimbursement of arbitration costs related to the Ethiopian potash project, which was partially offset by a reversal of a VAT provision following a court ruling in Brazil.

(2) For 2021, the amount reflects a capital gain related to the sale of an asset located in the industrial area of Ashdod, Israel and to the divestment of the Zhapu site (China) from the Industrial Products segment, which was partially offset by an earnout adjustment relating to prior years' divestment, as well as transaction costs related to the acquisitions in Brazil.

(3) For 2021, the amount reflects a disposal of a pilot investment, which will not materialize in Spain and an increase in restoration costs, offset by a reversal of an impairment due to the strengthening of phosphate prices at Rotem Israel.

For 2020, the amount reflects an impairment and write-off of certain assets in Rotem Amfert Israel, following low phosphate prices and the discontinuation of the unprofitable production and sale of phosphate rock activity, which also led to an increase in the provision for asset retirement obligation (ARO) and in facility restoration costs. In addition, it reflects an impairment of assets and an increase in closure costs resulting from closure of the Sallent site (Vilafruns) in Spain.

For 2019, the amount reflects an agreement for the sale of assets, a partial reversal of impairment loss related to assets in Germany which was incurred in 2015 and an increase of the provision for the Sallent site closure costs as part of the restoration solution, together with an increase of the provision for the removal of prior periods waste in bromine production facilities in Israel.

(4) For 2020, the amount reflects an increase in the provision following the implementation of an efficiency plan, primarily through an early retirement plan, at Israeli production facilities (Rotem Israel, Bromine Compounds and Dead Sea Magnesium).

(5) For 2021, the amount reflects the tax impact of the adjustments made to the operational income and tax expenses related to the release of trapped earnings of the Company and certain Israeli subsidiaries. For 2020, reflects the tax impact of the adjustments made to operational income.

B. CAPITALIZATION AND INDEBTEDNESS

Not Applicable.

C. REASONS FOR THE OFFER AND USE OF PROCEEDS

Not Applicable.

D. RISK FACTORS

Summary of Risk Factors

Our business, liquidity, financial condition and results of operations could be adversely affected, and even materially so, if any of the risks described below occur. As a result, the trading price of our securities could decline, and investors could lose all or part of their investment. Our actual results could differ materially and adversely from those anticipated, due to of certain factors, including the risks facing the Company as described below and elsewhere in the Annual Report. This Annual Report contains forward-looking statements that involve risks and uncertainties, see "Special Note Regarding Forward-Looking Statements". Material risks that may affect our business, operating results and financial condition include, but are not necessarily limited to, those relating to:

- Our ability to operate and/or expand our production and operating facilities worldwide is dependent on our receipt of, and compliance with, permits issued by governmental authorities. A decision by a government authority to deny any of our permit applications may impair the Company's business and its operations.

- As a leading global specialty minerals company, we are exposed to various legislative, regulatory and licensing restrictions in the areas of environmental protection and safety. Related compliance costs and liabilities may adversely affect the results of our operations.

- Our mineral extraction operations are dependent on concessions, licenses and permits granted to us by the respective governments in the countries in which we operate.

- Securing the future of the phosphate mining operations at Rotem Israel depends on obtaining several approvals and permits from the authorities in Israel.

- Current and future laws and regulations regarding climate change and greenhouse gas (GHG) emissions, as well as the physical impacts of climate change, may affect our operations and businesses.

- The continued spread of the COVID-19 pandemic has affected and may in the future materially and adversely affect our financial condition and results of operations.

- Our operations and sales are exposed to volatility in supply and demand, mergers of key producers\customers\suppliers, expansion of production capacity and competition from some of the world's largest chemical and mining companies.

- Our operations could be adversely affected by price increases or shortages with respect to water, energy and our principal raw materials.

- The accumulation of salt at the bottom of Pond 5, the central evaporation pond in our solar evaporation ponds system used to extract minerals from the Dead Sea in Israel, requires regular harvesting salt to maintain a fixed brine volume and thereby sustain the production capacity of extracted minerals and prevent potential damage to the foundations and structures of hotels and other buildings situated close to the edge of the pond.

- The receding water level in the Northern Basin of the Dead Sea, may require capital and/or operational expenses to enable the continuation of the Company's operations in the Dead Sea.

- We are exposed to risks associated with our international sales and operations, which could adversely affect our sales to customers as well as our operations and assets in various countries. Some of these factors may also make it less attractive to distribute cash generated by our operations outside Israel to our shareholders, use cash generated by our operations in one country to fund our operations or repayments of our indebtedness in another country and support other corporate purposes or the distribution of dividends.

- Changes in our evaluations and estimates, which serve as a basis for analyzing our contingent liabilities and for the recognition and measurement of assets and liabilities, including provisions for waste removal and the reclamation of mines, may adversely affect our business results and financial condition.

- Our tax liabilities may be higher than expected.

- Due to the nature of our operations, we are exposed to administrative and legal proceedings, both civil and criminal, including as a result of alleged environmental contamination caused by certain of our facilities.

Risks Related to Our Business

Our mineral extraction operations are dependent on concessions, licenses and permits granted to us by the respective governments in the countries in which we operate

Our mineral extraction businesses depend on concessions granted to us by the respective governments in the countries in which we operate. Loss of concessions, licenses and/or permits, as well as material changes to the conditions thereof, could materially and adversely affect our business, financial condition and results of operations.

We extract potash, phosphate, bromine, magnesium and certain other minerals in Israel, potash and salt in Spain, Polysulphate®, salt, and certain other minerals in the United Kingdom and phosphate in China, pursuant to concessions and permits in those countries.

Israel

Pursuant to the Israeli Dead Sea Concession Law, 1961 (hereinafter – the Concession Law), as amended in 1986, and the concession deed attached as an addendum to the Concession Law, DSW was granted a concession to utilize the resources of the Dead Sea and to lease the land required for its plants in Sodom for a period ending on March 31, 2030, accompanied by a priority right to receive the concession after its expiration, should the Government decide to offer a new concession. There is no assurance that the Company will continue to hold the concession beyond that period.

In accordance with section 24 (a) of the Supplement to the Concession Law, it is stated, among other things, that at the end of the concession period all the tangible assets at the concession area will be transferred to the government, in exchange for their amortized replacement value – the value of the assets as if they are purchased as new at the end of the concession period, less their technical depreciation based on their maintenance condition and the unique characteristics of the Dead Sea area.

There is no certainty as to the manner of interpretation of the provisions of the Concession Law in this context that would be adopted in a legal proceeding, to the extent such proceeding were to occur. For further information, see Note 18 to our Audited Financial Statements.

We mine phosphate rock from phosphate deposits in the Negev desert in accordance with a mining concession from the State of Israel, which is valid until the end of 2024. For further information see Note 18 to our Audited Financial Statements. In addition, Rotem Israel has two lease agreements in effect until 2024 and 2041 and an additional lease agreement of the Oron plant, which the Company has been working to extend since 2017, by exercising the extension option provided in the agreement.

There is no certainty that these concessions and leases will be extended and/or renewed under the same terms or at all. Failure to renew said concessions and leases or different terms could materially and adversely affect our business, financial condition and results of operations. For further information see Note 18 to the Company's Audited Financial Statements.

Our existing phosphate mines in the Negev desert hold limited reserves of phosphate rock designated for phosphoric acid production. The Company is working to promote a plan for mining phosphates in Barir field, which is located in the southern part of the South Zohar deposit in the Negev Desert in Israel. There is no certainty regarding the timelines for the submission of the plan, its approval, or further developments with respect to the Barir field site. Failure to obtain such approval or a significant delay in receiving it, or in finding alternative sources of phosphates in Israel, will have a significant negative impact on our future mining reserves and business. As a result, our financial condition and results of operations will be adversely affected, even materially. For further information, see "Item 3 - Key Information— D. Risk Factors— Securing the future of the phosphate mining operations at Rotem Israel depends on obtaining several approvals and permits from the authorities in Israel", "Item 4 - Information on the Company— D. Property, Plant and Equipment— Mineral Extraction and Mining Operations - Negev", "Concessions and Mining Rights" and "Reserves", and Note 18 to our Audited Financial Statements.

<u>Spain</u>

ICL Iberia was granted mining rights based on legislation of Spain's Government from 1973 and the regulations accompanying this legislation. Further to the legislation, the government of the Catalonia region published special mining regulations whereby ICL Iberia received individual licenses for each of the 126 different sites that are relevant to current and possible future mining activities. Some of the licenses are valid until 2037 and the remainder are effective until 2067. The concession for the "Reserva Catalana", an additional site where mining did not commence, expired in 2012. The Company is acting in cooperation with the Spanish Government to obtain a renewal of the concession. According to the Spanish authorities, the concession period is valid until a final decision is made regarding the renewal. Maintaining the mining activity in Spain also requires municipal and environmental licenses. If such licenses are not renewed once expired, this would likely have an impact, possibly in a substantial manner, on the mining activity in certain sites in Spain and the Company's financial results. For further information, see "Item 4 - Information on the Company— D. Property, Plant and Equipment— Mineral Extraction and Mining Operations" and "Concessions and Mining Rights" and "Reserves", and Note 18 to our Audited Financial Statements.

<u>United Kingdom</u>

The mineral leases of ICL Boulby, ICL's subsidiary in the United Kingdom (hereinafter – ICL Boulby), are based on approximately 74 mineral leases and licenses for extracting various minerals, in addition to numerous easements and rights of way from private owners of land under which ICL Boulby operates, and mineral lease rights under the North Sea granted by The Crown Estates. The mineral lease rights with The Crown Estates, include provisions to explore and exploit all targeted and known polyhalite mineral resources of interest to ICL Boulby. Said leases cover a total area of about 822 square kilometers (onshore leases total around 32 square kilometers and offshore leases from the Crown Estates cover around 790 square kilometers). All the lease periods, licenses, easements and rights of way are effective, some until 2022 and others until 2038. The Company is acting to renew the rights necessary for the mining operation which expire in 2022, or, alternatively, to seek ownership of these rights. Regarding ICL Boulby's planning permit for mineral exploitation, which is valid until 2023, in December 2021, the North York Moors Park Authority Planning Committee approved ICL Boulby Mine's application for the continuation of polyhalite and salt production for an additional 25 years, commencing 2023. Nevertheless, in the event such rights are not obtained, the mining activity in the UK may be substantially affected as well as the Company's financial results. For further information, see "Item 4 - Information on the Company— D. Property, Plant and Equipment— Mineral Extraction and Mining Operations" and "Concessions and Mining Rights", and Note 18 to our Audited Financial Statements.

China

YPH, ICL's subsidiary in China, which is equally owned with Yunnan Phosphate Chemicals Group Corporation Ltd. ("YYTH"), holds two phosphate mining licenses that were issued in July 2015, by the Division of Land and Resources of the Yunnan district in China: (1) a mining license for the Haikou Mine (hereinafter – Haikou) which the Company operates and which is valid until January 2043, and (2) a mining license for the Baitacun Mine, which was renewed in 2021, and is valid until 2023. The Company intends to conduct a risk survey to assess the feasibility and profitably of mining the site. If Haikou's license is not renewed once expired, this would likely to have an impact, possibly in a substantial manner, on our mining activity in China and the Company's financial results. For further information, see "Item 4 - Information on the Company— D. Property, Plant and Equipment— Mineral Extraction and Mining Operations" and "Concessions and Mining Rights" and "Reserves", and Note 18 to our Audited Financial Statements.

Our ability to operate and/or expand our production and operating facilities worldwide is dependent on our receipt of, and compliance with, permits issued by governmental authorities. A decision by a government authority to deny any of our permit applications may impair the Company's business and its operations

Existing permits are subject to challenges with respect to their validity, revocation, modification and non-renewal, including as a result of environmental events or other unforeseeable occurrences. Any successful challenges could lead to significant costs and materially adversely affect our operations and financial condition. In addition, a failure to comply with the terms of our permits could result in payment of substantial fines and subject the Company and its managers to criminal sanctions.

Furthermore, our production processes generate byproducts, some of which are saleable while others must be reused or disposed of as waste. Storage, transportation, reuse and waste disposal are generally regulated by governmental authorities in the jurisdictions in which we operate. Permits issued by governmental authorities are contingent on our compliance with relevant regulations in the jurisdictions in which we operate. If the validity of our permits or the revocation, modification or non-renewal of our permits occurs as a result of our noncompliance with regulations relating to storage, transportation, reuse and waste disposal, production may be interrupted or even ceased, which can lead to significant costs adversely affecting our operations and financial condition.

Our operations and sales are exposed to volatility in supply and demand, mergers of key producers\customers\suppliers, expansion of production capacity and competition from some of the world's largest chemical and mining companies

In addition to seasonal and cyclical variations, the Company's businesses are exposed to fluctuations caused, in part, by factors on the supply side, such as entry into the market of new manufacturers and products, mergers of key players (producers\suppliers), expansion of the production capacity of existing manufacturers, and changes on the demand side, such as mergers or collaborations between key customers. Our competitors include some of the world's largest chemical and mining companies, some of which are state-owned or government-subsidized. The potential production capacity is currently greater than the global demand, which has affected price levels. Due to the fact that some of our products are commodities available from several sources, the primary competitive factor with respect to our products is price. The prices of some of our products are influenced by prices prevailing in the market, while oversupply as compared to demand constitutes a negative factor in the field of commodity prices such as potash and phosphates, as do low prices in the agricultural sector. Additional competitive factors include product quality, customer service and technical assistance. If we are unable to compete effectively with these companies, our results of operations would almost certainly be significantly and adversely affected.

For example, our Polysulphate® business at the ICL Boulby mine in the UK, is exposed to new potential producers entering the market. Polysulphate® is the basis for many of the products in the Company's FertilizerpluS premium fertilizers business line. It should be noted, in this context, that a new potential producer, AngloAmerican Plc, holds a concession to develop a polyhalite mine with an undetermined capacity, located in the same area as our Boulby mine. According to its recent announcement, the engineering design, capital budget and project schedule are expected to be completed by the end of 2022 with an additional capital investment of approximately $700 million. If the development of the new mine materializes, ICL will cease to be the sole producer of Polysulphate® and may not be the market leader in terms of production throughput, which is inconsistent with the Company's strategy to obtain a leadership position in all its activities. We continuously monitor our competitive environment and will continue to seek ways to adhere with our strategy. If we are unable to compete effectively with new producers, our business, financial condition and results of operations could be materially and adversely affected. For further information, see "Item 4 – Information on the Company — B. Business Overview — Segment Information – Potash Segment".

Moreover, some of our products are marketed through distributors, mainly as pertains to the activity of our Phosphate Solutions segment and Specialty Fertilizers business. Any replacement of, or modification to the composition of our distributors might adversely affect our competitive ability and result in a decrease in sales in certain markets, at least in the short term.

Overestimation of mineral and resource reserves could result in lower-than-expected sales and/or higher than expected costs and may have a material adverse effect on our business, financial condition and results of operations

We base our estimates of mineral resources and reserves on engineering, economic and geological data that is compiled and analyzed by our engineers and geologists. However, resource and reserves estimates are by nature imprecise and rely to some extent on statistical inferences drawn from available drilling data, which may prove unreliable/inaccurate. There are numerous inherent uncertainties in estimating quantities and qualities of mineral deposits, resources and reserves, as well the quality of the ore, and the costs of mining recoverable reserves and the economic feasibility thereof, including many factors beyond our control. Estimates of economically feasible commercial reserves necessarily rely on several factors and assumptions, all of which may vary considerably from the actual results, such as:

- Geological and mining conditions and/or effects of prior mining that may not be fully identified/assessed within the available data or that may differ from those based on our experience;

- Assumptions concerning future prices of products, operating costs, updates to the statistical model and geological parameters according to past experience and developing practices in this field, mining technology improvements, development costs and reclamation costs; and

- Assumptions concerning future effects of regulation, including the issuance of required permits and taxes imposed by governmental agencies.

If these factors and assumptions change, we may need to revise our mineral resource and reserves estimates.

Any revisions to our previous resource or reserve estimates or inaccuracies in our estimates related to our existing mineral resources and resource reserves could result in lower-than-expected sales and/or higher than expected costs and may have a material adverse effect on our business, financial condition and results of operations.

Following the SEC final rule from October 2018 to adopt new regulations to replace SEC Industry Guide 7 with new disclosure requirements that are more closely aligned with current industry and global regulatory practices and standards, beginning with this annual report, we are reporting according to SK-1300. In light of the aforesaid disclosure requirements, we present information regarding estimates of mineral reserves and resources that, which differs from reserves estimates presented in the past.

For further information, see "Item 4 - Information on the Company— D. Property, Plant and Equipment— Reserves".

The locations of some of our mines and facilities expose us to various natural disasters, including as a result of climate change

We are exposed to natural disasters, such as flooding and earthquakes which may cause material damage to our business, and climate change has tended to cause certain types of natural disasters to become more severe or frequent. For example, in Israel, some of our plants are located in the Jordan Rift Valley, or Syro-African Depression, a seismically active area. Furthermore, in recent years sinkholes and underground cavities have been discovered, in the area of the Dead Sea, which could cause harm to our Company's plants. In addition, an "undermining" process has begun in the northern part of the Arava stream, at the end of which, on both banks, are the evaporation ponds of the Company's plants at the Dead Sea. There is a risk that this phenomenon would jeopardize the stability of the Company's dykes and evaporation ponds. In the Sodom area, where many of the Company's plants in Israel are located, there are occasional flash floods in the streambeds. While we have insurance coverage for these types of damage, subject to payment of deductibles, the insurance may not be sufficient to cover all of these costs. In addition, we have underground mines in the United Kingdom and Spain and a mine in China. Water leakages into these mines or other natural disasters might result in disruptions to our mining activities or even a loss of the mine. We do not have full property insurance with respect to all our property/assets.

The accumulation of salt at the bottom of Pond 5, the central evaporation pond in our solar evaporation ponds system used to extract minerals from the Dead Sea, requires regular harvesting of the salt to maintain a fixed brine volume and thereby sustain the production capacity of extracted minerals and prevent potential damage to the foundations and structures of hotels and other buildings situated close to the edge of the Pond

The production process of the raw material requires that a fixed brine volume is preserved in Pond 5. Failure to maintain a constant volume of brine in Pond 5 could result in a reduction in production capacity. To this end, up to the end of 2021, the raising of the brines' level of Pond 5 was according to the rate at which the pond floor rises, while performing the salt harvest. Since the solutions' level maximum height (15.1 meters) was reached at the end of 2021, from 2022 onwards, the solutions' volume in Pond 5 will be preserved by way of harvesting the salt.

Raising the water level of Pond 5 above a certain level may cause structural damage to the foundations of hotel buildings situated close to the water's edge, to the settlement of Neve Zohar and to other infrastructure located along the western shoreline of the Pond.

Until the end of 2020, in order to ensure that Pond 5 water level does not exceed the maximum height (15.1 meters), the Government of Israel, through the Dead Sea Preservation Government Company Ltd., implemented a project for construction of coastline defenses, together with DSW (which financed 39.5% of the project's cost), as part of which the dike along the western beachfront of Pond 5, across from the hotels, was raised, together with a system for lowering subterranean water. The construction work with respect to the hotels' coastlines was completed and currently the Dead Sea Preservation Government Company Ltd. is carrying out elevation work in the intermediate area between the two hotel complexes. The "Permanent Solution", which should provide a defense at least until the end of the current concession period in 2030, was established in the agreement with the Government of Israel signed in 2012.

There is no guarantee that the said projects for maintaining the Pond's water level will be at the cost we currently estimate or will prevent damage to the surrounding infrastructure or to our operations in the Pond. Higher cost of the harvesting process or failure to provide solutions and/or any proof of damage caused could materially and adversely affect our business, financial condition and results of operations.

For further information about the coastline defenses and the permanent solution (the Salt Harvesting Project), see "Item 4 – Information on the Company — D. Property, Plant and Equipment — Mineral Extraction and Mining Operations" and Note 18 to our Audited Financial Statements.

The receding water level in the Northern Basin of the Dead Sea and the appearance of sinkholes may require capital and/or operational expenses in order to enable the continuation of the Company's operations in the Dead Sea

Due to the hydrological deficit, the water level of the Northern Basin of the Dead Sea is receding at the rate of over one meter per year. As part of our production process in Israel, we pump water from the Northern Basin of the Dead Sea through a special pumping station and deliver it through a feeding channel to the salt and carnallite evaporation ponds in the Southern Basin. As the water level recedes, we may be required to reduce our usage of minerals from the Dead Sea, which could have a material adverse effect on our business, financial condition and results of operations.

Our ability to pump water relies on an active pumping station at the water line of the Northern Basin of the Dead Sea. Due to the receding water level in this area, the water line is receding from the current pumping station area and construction of a new pumping station (hereinafter – the P-9 Pumping Station) was required. The P-9 Pumping Station commenced its operation in early 2022. The Company expects that it will be able to continue pumping water in the coming years. Failure to operate the P-9 pumping station or to extend its life in future years could have a material adverse effect on the Company's business, its financial condition and results of operations.

An additional risk related to the decline of the Dead Sea level is the erosion of Arava stream which flows along the international border between Israel and Jordan and into the Dead Sea. This erosion could endanger the stability of the eastern dykes in the future in the array of salt and carnallite ponds and any breach or damage to the salt and carnallite ponds could materially and adversely affect our business, financial condition and results of operations. We are endeavoring to analyze the matter and to find solutions to prevent or retard this occurrence in the long term. We are conducting ongoing monitoring and acting on site to protect the dykes. As part of these efforts, research was conducted, designed to gather information for the detailed planning of a project to prevent the continued erosion of the stream. The research phase was completed in 2020 and the detailed design is expected to commence in the first half of 2022. Prior to commencing the project, we must obtain permits from the authorities, due to its engineering complexity, proximity to the border, soil instability and environmental sensitivity of the entire area. Insofar as a decision was made to commence the project, we estimate that its completion is likely to take several years.

Furthermore, as a result of the decline of the Dead Sea's level, sinkholes and underground cavities have been discovered in the area of the Dead Sea. The appearance of sinkholes in the Dead Sea area is increasing over the years. Most of the sinkholes develop in the Northern Basin of the Sea, where there is little activity by ICL Dead Sea. However, in recent years there has been a steady development of sinkholes around of the feeding channel, through which water is pumped from the Northern Basin to the Southern Basin. DSW takes actions to monitor the development of these sinkholes and to fill them when they appear. The development of sinkholes in areas where we operate, together with a failure to detect and treat those sinkholes can cause significant damage and could materially and adversely affect our business, financial condition and results of operations.

Any malfunction in the transportation systems we use to ship our products, and receive raw materials could have a material adverse effect on our business, financial condition and results of operations

Part of our sales turnover is comprised of bulk products characterized by large quantities. Most of this production quantity is shipped through dedicated facilities from two seaports in Israel, one seaport in Spain and another seaport in the United Kingdom. Any significant disruption to seaport facilities and/or the array of transportation from the seaports, including port workers' strike, regulatory restrictions and changes in the rights of use of seaport facilities, may delay or prevent exports of our products to our customers, which could materially and adversely affect our business, financial condition and results of operations. In addition, any significant disruption, shortage, or unavailability in the array of transportation to the seaports and between various sites, primarily through trains and trucks, carrying our products and the raw materials we use in our business could result in customer dissatisfaction, loss of production or sales and higher transportation or equipment costs.

We rely heavily upon truck, rail, tug, barge and ocean freight transportation to obtain the raw materials we need, to distribute raw materials between our mines and facilities and to deliver our products to our customers. In addition, the cost of transportation is an important part of the final sale price of our products. Finding affordable and dependable transportation is important in obtaining our raw materials and to supply our customers. Higher costs for these transportation services or an interruption or slowdown due to factors including high demand, high fuel and energy prices, labor disputes, layoffs or other factors might materially and adversely affect the Company's operations, its financial condition and results of operations.

In addition, the Company transports hazardous materials using specialized transport facilities, such as isotanks for the conveyance of bromine. A malfunction in the transportation of hazardous materials, in one of our specialized transport facilities may have an environmental impact and\or cause harm to the welfare of local residents, and, as a result, expose the Company to lawsuits and\or administrative proceedings or fines, and also lead to a shutdown of such materials' transportation systems for a certain period until the cause for such malfunction is discovered and\or for purposes of preventative maintenance and improvement of the transportation array, and as a result may have material adverse effect on the Company's operations, financial condition and results of operations.

We are exposed to risks associated with our international sales and operations which could adversely affect our sales to customers as well as our operations and assets in various countries. Some of these factors may also make it less attractive to distribute cash generated by our operations outside Israel to our shareholders, use cash generated by our operations in one country to fund our operations or repayments of our indebtedness in another country and support other corporate purposes or the distribution of dividends

As a multinational company, we sell in many countries where we do not produce. A considerable portion of our production is designated for export. As a result, we are subject to numerous risks and uncertainties relating to international sales and operations, including:

- Difficulties and costs associated with complying with a wide variety of complex laws, treaties and regulations, including the U.S. Foreign Corrupt Practices Act (the "FCPA"), the UK. Bribery Act of 2010 and Section 291A of the Israeli Penal Law;

- Unexpected changes in regulatory environments and increased government ownership and regulation in the countries in which we operate;

- Political and economic instability, including civil unrest, inflation and adverse economic conditions resulting from governmental attempts to reduce inflation, such as imposition of higher interest rates and wage and price controls;

- Public health crises, such as pandemics and epidemics; and

- The imposition of tariffs, exchange controls, trade barriers or sanctions, new taxes or tax rates or other restrictions, including the current trade dispute between the US and China.

The occurrence of any of the above in the countries in which we operate or elsewhere could jeopardize or limit our ability to transact business there and could materially adversely affect our revenue and operating results and the value of our assets.

The continued spread of the COVID-19 pandemic has affected and may in the future materially and adversely affect our financial condition and results of operation

In March 2020, the World Health Organization declared COVID-19 a pandemic. Since then, the pandemic has continued to spread across the globe at varying infection rates and has introduced significant business and economic uncertainty and volatility to global markets. Accordingly, there has been, and may continue to be, a significant decline in global economic activity, in part, due to sporadic preventive measures taken by various governmental organizations around the world, such as travel bans and restrictions, quarantines, shelter-in-place orders and shutdowns.

The spread of the COVID-19 pandemic has led us to modify our business practices, including implementing policies, health and safety measures and procedures to protect our employees in all of our facilities and offices. We may need to take further actions for the benefit of our employees, customers, partners and suppliers, or as required by government authorities. There is no certainty that such measures will be sufficient to mitigate the risks posed by the pandemic. Furthermore, our ability to perform certain functions may be affected if we are required to take additional steps.

We expect COVID-19 to have a continues impact over the coming quarters, although the full future impact on global economy and our business is uncertain and is difficult to assess or predict. The extent of the impact of the COVID-19 pandemic on our operational and financial performance will depend on future developments, including, but not limited to:

- The duration, severity and spread of the pandemic and the actions required by government authorities or other health organizations to contain the disease or treat its impact, including the effectiveness of the vaccinations developed and already administered in most countries.

- The duration and severity of the sustained global recession, and the uncertainty as to when global economy will fully recover.

- The possibility of additional outbreaks of the virus, or the development of more harmful and resistant variants of the virus, or any possible recurrence of other similar types of pandemics, or any other widespread public health emergencies.

- Significant disruption of global financial markets and credit markets, which may reduce our ability to access capital or our customers' ability to pay us for past or future purchases, which could negatively affect our liquidity.

- The possibility of temporary closures of our facilities or the facilities of our suppliers, customers, their contract manufacturers, and the possibility of certain industries shutting down.

- The ability to purchase raw materials in times of shortages resulting from supply chain disruptions, quarantines, lockdown orders and production shutdowns.

- Lower demand and/or pricing for our products and a potential global economic recession could lead to reduced demand in our end markets, particularly bromine compounds. In addition, the significant decline in crude oil prices and the oil markets' current ability to absorb excess supplies and rebalance inventory is likely to continue to result in decreased demand for our clear brine fluids.

- The ability of our suppliers, contractors and third-party providers to meet their obligations to us at previously anticipated costs and timelines without significant disruption.

- Our ability to continue to meet the manufacturing and supply arrangements with our customers at previously anticipated costs and timelines without significant disruption.

We continue to closely monitor the effects and implications of the pandemic. The ultimate impact of the COVID-19 pandemic, or a similar health epidemic, is highly uncertain and subject to change. To the extent that the COVID-19 pandemic negatively impacts our business, results of operations, liquidity or financial condition, it may also have the effect of increasing many of the other risks described in this "Risk Factors" section.

Our operations could be adversely affected by price increases or shortages with respect to water, energy and our principal raw materials

We use water, energy and various raw materials as inputs and we could be affected by higher costs or shortages of these materials, as well as by changes in transportation prices.

For example, an increase in price or shortage of raw materials, inter alia: ammonia, sulphur, WPA and 4D (which we purchase from third parties) could adversely and materially affect our results of operations, financial position, and our business.

In addition, our phosphate facilities use large quantities of water purchased from Mekorot, Israel's national water company, at prices set by the government. If these prices rise significantly, our costs will rise as well. In our plants in Sodom, we obtain water from an independent system that is not part of the national water system. Lack of water at the water sources proximate to the plants or the imposition of additional costs/charges for water usage would force the Company to obtain water from sources located further away and/or at a higher cost.

Our plants consume large amounts of energy. Moreover, energy is a significant component of the shipping costs of a considerable share of our products. Significant price increases for energy, or energy shortages, would affect shipping costs, production costs and/or quantities.

The supply of electricity to our production processes and facilities in Israel is provided by our power station in Sodom and the national power grid. Our operations in Israel are dependent on these two sources, so significant malfunctions at the power station and/or interruption of power supply from the national grid in Israel may lead to additional financial liabilities and potential shutdowns at our production facilities, which could negatively affect ICL's ability to supply its products to both external customers and other ICL's sites using them as raw materials and reduce revenue from decreased production capacity. In addition, our magnesium plant requires a continuous supply of electricity, so any interruption in the power supply to the magnesium plant may cause significant damage to our magnesium production process.

The current supply of natural gas to our power plant and to our facilities in Israel is dependent on a narrow range of suppliers, who may prefer exporting over supplying to the domestic market and on a single gas pipeline with limited transmission capacity. In 2017, the Company signed an agreement with Energean who holds a license to develop the Karish and Tanin gas reservoirs to supply up to 13 BCM of natural gas (NG) over a period of 15 years commencing with the commercial operation of Karish and Tanin. The NG from the reservoirs will be used for operating ICL's factories and power stations in Israel. In January 2022, Energean announced that the gas supply is expected to be postponed until the third quarter of 2022. Considering the expected high demand during the summer of 2022, which may lead to potential shortages in NG, as well as the continued delays in Energean's supply, the Company is taking measures to secure its supply of NG until its full gas supply is obtained from Energean. Failure to ensure sufficient supply of NG and/or to preserve the current price environment may lead to a material impact on the Company's business, financial position and results of operations. For further information, see Note 18 to our Audited Financial Statements.

While our plants are prepared to use alternative energy sources (fuel oil and/or diesel fuel), failure to obtain NG in a timely manner or energy shortages stemming from high demand in local markets, export preference and the like, can result in an increase in our energy costs and/or in production losses, and could adversely and materially affect our business, financial condition and results of operations.

We can provide no assurance that we will be able to impose on our customers increased costs with respect to water, energy and principal raw materials. Our inability to impose such cost increases could adversely affect our margins. For further information, see "Item 4 - Information on the Company— B. Business Overview— Segment Information".

Completion of certain of the Company's major projects may be dependent on third-party contractors and/or governmental obligations. Furthermore, termination of engagements with contractors might entail additional costs

In the coming years, we plan to complete several key projects, which are of great importance to the Company's continued operation and ability to significantly improve its competitive position in certain markets. Thus, for example, we are advancing significant investments in projects to increase our production capacity for our main product lines and in environmental projects. The completion of key projects could also be dependent on third-party contractors. For example, a project in Spain incurred several delays and budget expansions that were associated, among others, with a third-party contractor. Situations wherein such contractors encounter financial or operational difficulties, or have significant disagreements with the Company, could cause a significant delay in the planned timetables for completion of a project and\or material deviations from its budget and may even jeopardize its completion altogether. This could adversely and even materially affect our business, financial condition and results of operations.

The inflow of significant quantities of water into the Dead Sea could adversely affect production at our plants

The inflow of significant quantities of water into the Dead Sea could adversely affect production at our plants and may alter the composition of the Dead Sea water, in a manner that lowers the concentration of sodium chloride (NaCl) in the water, which may adversely affect production at ICL plants, our results of operations financial position, and our business. This risk may materialize, among other things, as a result of the construction of a canal connecting the Mediterranean Sea with the Dead Sea, the inflow of water from the Sea of Galilee (Kinneret) to the Dead Sea via the Jordan River, or the construction of a canal from the Red Sea to the Dead Sea.

We are exposed to the risk of labor disputes, slowdowns and strikes

From time to time, we experience labor disputes, slowdowns and strikes. A significant portion of our employees are subject to collective labor agreements, mainly in Israel, China, Germany, United Kingdom, Spain, the Netherlands and Brazil. Prolonged slowdowns or strikes at any of our plants could disrupt production and cause the non-delivery of products that had already been ordered. Also, ramp-up time is needed to return to full production capacity at the facilities. Furthermore, due to the mutual dependency between ICL plants, slowdowns or strikes in any one of ICL's plants may affect the production capacity and/or production costs at other ICL plants. Labor disputes, slowdowns or strikes, as well as the renewal of collective labor agreements, may lead to significant costs and loss of profits, which could adversely, and even materially, affect our operating results and our ability to implement future operational changes for efficiency purposes. In the course of labor disputes, the workers union may impose certain sanctions which may include blocking or delaying the transfer of goods through the factory gates; such disputes may escalate into a strike.

Some of our employees have pension and health insurance arrangements that are our responsibility

Some of our employees have pension and health insurance arrangements that are our responsibility. Against some of these liabilities, we have monetary reserves that are invested in financial assets. Changes in life expectancy, changes in capital markets or changes in other parameters by which undertakings to employees and retirees are calculated, as well as statutory amendments, could increase our net liabilities for these arrangements. For information about our employee benefits liabilities and composition of plan assets, see Note 16 to our Audited Financial Statements.

The discontinuation, cancellation or expiration of government incentive programs or tax benefits; entry into force of new or amended legislation or regulations with respect to additional and/or increased fiscal liabilities to be imposed on us; or imposition of new taxes or changes to existing tax rates, could all adversely affect our business results

Any of the following may have a material adverse effect on our operating expenses, effective tax rate and overall business results:

- Some government incentive programs may be discontinued, expire or be cancelled;
- Governments may initiate new legislation or amend existing legislation in order to impose additional and/or increased fiscal liabilities on our business, such as additional royalties, natural resource taxes or required investments, as has occurred in Israel;
- The applicable tax rates may increase;
- We may no longer be able to meet the requirements for continuing to qualify for some incentive programs;
- Such incentive programs and tax benefits may be unavailable at their current levels;
- Upon the expiration of a particular benefit, we may not be eligible to participate in a new program or qualify for a new tax benefit that would offset the loss of the expiring tax benefit.
- Changes in trade agreements between countries, such as in the trade agreements between the United States and China.
- Changes in international taxation laws, as may be adopted by several countries we operate in, or sell to, may result in additional taxes or high tax rates being imposed on our operations.

Changes in our evaluations and estimates, which serve as a basis for analyzing our contingent liabilities and for the recognition and measurement of assets and liabilities, including provisions for waste removal and the reclamation of mines, may adversely affect our business results and financial condition

As part of the preparation and composition of our financial statements, we are required to exercise discretion, make use of evaluations and estimates and make assumptions that affect, among other things, the amounts of assets and liabilities, income and expenses. When formulating such estimates, we are required to make assumptions concerning circumstances and events that involve uncertainty, even great uncertainty, such as, legal claims pending against ICL. We exercise our discretion based on our past experience, various facts, external factors and reasonable assumptions, according to the circumstances relevant to each estimate. It should be noted that actual results may differ, and even materially so, from such estimates. Therefore, this may adversely affect our financial results. For further information, see Note 2 to our Audited Financial Statements.

Regarding pending legal matters, we are required to estimate the probability of their outcome, which could be substantially different from their actual results due to the inherent complexity and the uncertainty of such proceedings. For example, in 2015, a request was filed for certification of a claim as a class action, in the Tel Aviv-Jaffa District Court, against eleven defendants, including a subsidiary, Fertilizers and Chemical Ltd., in respect of claims relating to air pollution in Haifa Bay and for the harm allegedly caused by it to residents of the Haifa Bay area. The amount of the claim is about NIS 13.4 billion (about $4.2 billion). In the Company's estimation, based on the factual material provided to it and the relevant court decision, it is more likely than not that the plaintiffs' contentions will be rejected.

In some of our various sites of operation, concession agreements and/or licenses include obligations relating to the expiration thereof, including reclamation and clearing of the sites (restoring the site to its former state). There is uncertainty regarding the actions that would be required upon expiration of the concession and/or license period and, accordingly, the costs involved in the execution of such actions, including the scope of restoration required. For example, with respect to the estimated costs of reclamation of our mining in Israel, we are required to make assessments considering numerous assumptions, including future additional restoration requirements and the impact thereof, in light of regulatory developments in this field in recent years. It is very difficult to assess the estimates for site restoration and clearing due to the complexity of soil restoration treatments, the scope and costs required for restoration, which are occasionally discovered only during actual execution of restoration works, the absence of a single, unified global standard determining environmental restoration requirements, and the absence of any significant precedents in this matter in Israel. An additional example is estimation of the projected costs for the closure and restoration of the Sallent site – the main portion of the estimated costs for closure and restoration is attributed to restoration of the salt pile. The Company is treating the salt pile, by both utilizing the salt for production and sale for de-icing purposes, and by processing the material and removing it to the sea via a collector. The estimation is based on a long-term forecast, covering a period of more than 50 years, along with observed estimates and, therefore, the actual costs that may be required to restore the Sallent site may differ, even substantially, from the current provision. For further information, see Note 17 and 18 to our Audited Financial Statements.

Our tax liabilities may be higher than expected

Our tax expenses and the resulting effective tax rate reflected in our consolidated financial statements may increase over time as a result of changes in corporate income tax rates and/or other changes in tax laws in the various countries in which we operate. We are subject to taxes in many jurisdictions, including jurisdictions in which we have a limited presence, and discretion is required in the determination of the provisions for our tax liability. Considering recent trends in international tax law and OECD recommendations, significant changes to international tax laws and practices may be adopted by various jurisdictions. Such changes could result in us being subject to tax in jurisdictions in which we currently are not subject to tax (including jurisdictions in which we have limited or no operations other than performing sales activities). Similarly, we are subject to examination by the tax authorities in many different jurisdictions. As part of such tax examinations, the relevant tax authorities may disagree with the taxable income reported, and may also dispute our interpretation of the applicable tax legislation relating, among other things, to inter-company agreements.

The Law for Taxation of Profits from Natural Resources

The Law for Taxation of Profits from Natural Resources in Israel (hereinafter – the Law) is a new law that entered into effect with respect to the bromine, phosphate and magnesium minerals in 2016, and with regard to the potash mineral, in 2017.

As of the reporting date, no regulations under the Law have yet been enacted (except for regulations regarding advances on account of tax payments, published in July 2018), no circulars have been published and no court decisions have been rendered as to the implementation of this new Law that was imposed, to the best of the Company's knowledge, only on one other company. The financial statements of Dead Sea Works, Dead Sea Bromine and Dead Sea Magnesium (hereinafter – the Subsidiaries), serve as a basis for the mineral based financial reports (hereinafter – Surplus Profit Reports) required to be filed for tax calculation under the Law. Such calculation involves interpretations and assumptions on several significant matters, which require management's judgment.

The Company's position is that the Surplus Profit Levy should be calculated on the Dead Sea Solution, which is the natural resource used by the Company, and not for each product produced from the Dead Sea Solution. Furthermore, based on the Company's understanding of the law, the carrying amount of the property, plant and equipment, for the purpose of preparation of the financial statements for 2016 and onward of the Subsidiaries, which serve as the basis for the Surplus Profit Reports, are presented on the basis of their replacement cost (as used assets), on the date the Law entered into effect.

The Tax Authority's position could be materially different, even in very significant amounts, mainly, as a result of the different interpretation regarding the implementation of the Law, with respect to the carrying amount for natural resources tax purposes of the property, plant and equipment.

Should the ITA, and subsequently the applicable District Court, in case of an appeal, decides that the measurement of the property, plant and equipment, for this purpose, should be in accordance with depreciated historical cost, and fully rejects the Company's arguments with respect to this issue, the result can be an increase in the Company's tax liabilities.

CFC taxation

The Company operates in many countries around the world. Under certain conditions, tax laws in certain countries provide that income from passive activities (and in certain cases, active activities) from Controlled Foreign Companies ("CFC") shall be considered taxable income even if not distributed. The conditions include, among other, the ratio between active and passive income and tax rates applied in foreign countries. Although the Company is acting in accordance with the relevant tax legislation, there is a risk that tax authorities will require additional tax payments, to the extent that the Company's position regarding meeting the conditions of Controlled Foreign Companies (CFC) will not be accepted.

BEPS and Pillar and 2 proposed arrangements

The Base Erosion and Profit Shifting ("BEPS") project and other initiatives like Pillars 1 and 2 undertaken by the Organization for Economic Cooperation and Development ("OECD") may have adverse consequences to our tax liabilities. These initiatives contemplate changes to numerous international tax principles, national tax incentives and enforce other arrangements like minimum effective tax liability. These changes, when adopted by individual countries, could adversely affect our provision for income taxes. Countries have been translating the BEPS recommendations into specific national tax laws, and are expected to do so also with respect to Pillar 1 and 2, while in the EU, Pillar 2 is expected to be effective as early as of FY 2023. It remains difficult to predict the magnitude of the effect of such new rules on our financial results.

We have expanded our business by mergers and acquisitions, as well as by organizational restructuring and various initiatives designed to increase production capacity and reduce costs of our existing operations. This could result in a diversion of resources and significant expenses, a disruption of our existing business operations and an adverse effect on our financial condition and results of operations

Negotiation processes with respect to potential acquisitions or joint ventures, as well as the integration of acquired or jointly developed businesses, require management to invest time and resources, in addition to significant financial investments, and we may not be able to realize or benefit from the potential involved in such opportunities. Future acquisitions could lead to substantial cash expenditures, dilution due to issuance of equity securities, the incurrence of debt and contingent liabilities, including liabilities for environmental damage caused by acquired businesses prior to or after the date we acquired them, a decrease in our profit margins, impairment of intangible assets and goodwill; and increased governmental oversight over the Company's activity in certain areas. There is no guarantee that businesses that have been or will be acquired will be successfully integrated with our current businesses and operations, and we may not realize the anticipated benefits of such acquisitions and even incur losses as a result thereof, particularly if such acquisitions disrupt our operations.

Some of our partners or potential partners in these business initiatives are governments, governmental bodies or publicly owned companies. We may face certain risks in connection with our investments in partnerships including, for example, if our partners' needs, desires or intents change, if the government changes or if the ownership structure of our partners changes.

In addition, we are employing several initiatives to improve our existing operations, including initiatives to increase production and reduce operating costs at our facilities. For example, at ICL Iberia, our subsidiary in Spain, we consolidated our two existing mines and processing facilities into one complex which operates via a ramp instead of a shaft. The sites consolidation and the ramp project are expected to increase our production capacity to an expected annual running rate of approximately 1 million tons by the second half of 2022, while lowering cost per ton, and to reach a level of up to about 1.3 million tons per year in the future, following completion of additional necessary adjustments in surface production facilities.

If our initiatives will not succeed, our financial situation and results of business and operations, as well as competitive position, could be materially and adversely affected.

As a multinational company, our sales may be adversely affected by currency fluctuations and restrictions, as well as by credit risks

Our global activities expose us to the impact of currency exchange rate fluctuations. Our financial statements are prepared in U.S. dollars. Our sales are in a variety of currencies, primarily in U.S. dollars and euros. As a result, we are currently subject to significant foreign currency risks that affect our financial results and may face greater risks as we enter new markets. We may also be exposed to credit risks in some of these markets. The imposition of price controls and restrictions on the conversion of foreign currencies could also have a material adverse effect on our financial results. Part of our operating costs are incurred in currencies other than U.S. dollars, particularly in euros, NIS, GBP, BRL and RMB. As a result, fluctuations in exchange rates between the currencies in which such costs are incurred and the U.S. dollar may have a material adverse effect on the results of our operations, the value of the balance sheet items measured in foreign currencies and our financial condition.

We use derivative financial instruments and "hedging" measures to manage some of our net exposure to currency exchange rate fluctuations in the major foreign currencies in which we operate. However, not all of our potential exposure is covered, and certain elements of the Company's financial statements, such as operating profit, long-term employee liabilities (IAS 19), lease liabilities (IFRS 16) and equity, are not fully protected against foreign currency exposures. Therefore, our exposure to exchange rate fluctuations could have a material adverse effect on our financial results.

See "Item 11 – Quantitative and Qualitative Disclosures about Market Risk — Exchange Rate Risk".

Because some of the Company's liabilities bear interest at variable rates, we are exposed to the risk of interest rate increases, including in connection with any developments with respect to the LIBOR phase-out period

A portion of our liabilities bear interest at variable rates and therefore, we are exposed to the risk stemming from an increase in interest rates, which would increase our financing expenses and adversely affect our results. Such increase in interest rates may also occur as a result of a downgrade in our rating.

Further, a portion of our loans bear variable interest rates based on the short-term London interbank offered rate for deposits of US dollars (LIBOR) rate for a period of one to twelve months, plus a margin as defined in each loan agreement. Apart from our debt instruments, we also use LIBOR for our derivatives, such as currency swaps. LIBOR tends to fluctuate based on general interest rates, rates set by the Federal Reserve and other central banks, the supply of and demand for credit in the London interbank market and general economic conditions. In July 2017, the Financial Conduct Authority ("FCA") (the authority that regulates LIBOR) announced that it intends to stop compelling banks to submit rates for the calculation of LIBOR after 2021. In March 2021, the IBA released the LIBOR cessation statement, pursuant to which the IBA publicly announced that it intends to cease publication of euro, sterling, Swiss franc and Japanese yen and 1 week and 2-month USD LIBOR settings on December 31, 2021, and the remaining USD LIBOR settings on June 30, 2023. In addition, the FCA provided that starting January 1, 2022, new use of USD LIBOR is banned, subject to limited exceptions. In accordance with recommendations from the Alternative Reference Rates Committee, U.S. dollar LIBOR is currently being replaced with the Secured Overnight Financing Rate ("SOFR"), a new index that measures the cost of borrowing cash overnight, backed by U.S. Treasury securities. Given that SOFR is a secured rate backed by government securities, it is a rate that does not take into account bank credit risk (as is the case with LIBOR). SOFR is therefore likely to be lower than LIBOR and is less likely to correlate with the funding costs of financial institutions. As a result, parties may seek to adjust the spreads relative to such reference rate in underlying contractual arrangements. These reforms may cause existing loan agreements using LIBOR to perform differently than in the past or to disappear entirely. The consequences of these developments with respect to LIBOR cannot be entirely predicted but may result in the level of interest payments on the portion of our indebtedness that bears interest at variable rates to be affected, which may adversely impact the amount of our interest payments under such debt. To the extent these interest rates increase, our interest expense will increase, in which event we may have difficulties making interest payments and funding our other fixed costs, and our available cash flow for general corporate requirements may be adversely affected. See "Item 11 – Quantitative and Qualitative Disclosures about Market Risk — Interest Rate Risk".

In anticipation of LIBOR's phase-out, we initiated preliminary discussions with our lenders to negotiate a replacement benchmark for LIBOR. There can be no assurance that we will be able to reach any agreement on a replacement benchmark, and there can be no assurance that any agreement we reach will result in effective interest rates at least as favorable to us as our current effective interest rates. The failure to reach an agreement on a replacement benchmark, or the failure to reach an agreement that results in an effective interest rate at least as favorable to us as our current effective interest rates, could result in a significant increase in our debt service obligations, which could adversely affect our financial condition and results of operations. In addition, the overall financing market may be disrupted as a result of the phase-out or replacement of LIBOR, which could have an adverse impact on our ability to refinance, reprice or amend our existing loans, or incur additional indebtedness on favorable terms or at all.

We are exposed to material fines, penalties and other sanctions and other adverse consequences arising out of FCPA investigations and related matters

We are required to comply with the U.S. Foreign Corrupt Practices Act (the "FCPA"), the UK Bribery Act and similar anti-corruption laws in other jurisdictions around the world, in the countries where we operate. We operate and sell in countries that may be considered as high risk in this regard. Compliance with these laws has been subject to increasing focus and activity by regulatory authorities, both in the United States and elsewhere, in recent years. Actions by our employees, as well as third party intermediaries acting on our behalf, in violation of such laws, whether carried out in the United States or elsewhere in connection with the conduct of our business, could expose us to significant liability for violations of the FCPA or other anti-corruption laws and accordingly may have a material adverse effect on our reputation and our business, financial condition and results of operations.

Significant disruptions in our, or our service providers', information technology systems or breaches of our, or our service providers', information security systems could adversely affect our business

Information technology (IT) systems, including our hardware, software and telecommunications networks, as well as data centers and other information technology systems of third parties are critical to the operation of our business and essential to our ability to successfully perform day-to-day operations. Our operations also depend on the timely maintenance, upgrade and replacement of such systems, as well as pre-emptive expenses to mitigate the risks of failures. An intrusion, interruption, breakdown or destruction of our, or our service providers', information technology systems and/or infrastructure by authorized or unauthorized persons could adversely affect our business and operations and in some cases even lead to environmental damage. In addition, a significant disruption to our, or our service providers', computerized systems could cause harm of damage to the civilian population located in the vicinity of our production facilities. Moreover, we could experience business interruption, information or money theft and/or reputational damage as a result of cyber-attacks, which may compromise our, or our service providers', systems, lead to data leakage and to disruption of sensitive production facilities and/or the security thereof, whether internally or at our third-party providers. Our, and some of our service providers', systems have been, and are expected to continue to be, the target of malware and other cyber-attacks. Despite our investment in measures to reduce these risks, we cannot guarantee that these measures will be successful in preventing compromise and/or disruption of our information systems and related data or that such systems and data held and operated by our service providers will be secure. We have a limited ability to control the operations and security of the information systems used on our behalf or provided to us by our service providers and may have limited recourse with such service providers in the event an issue arises. As we become more dependent on information technologies to conduct our operations, and as the number and sophistication of cyber-attacks increase, the risks associated with cyber security increase. These risks apply both to us, and to third parties on whose systems we rely for the conduct of our business. Cyber threats are persistent and constantly evolving and include, but are not limited to, installation of malicious software, ransomware, viruses, social engineering (including phishing attacks), denial of service or other attacks, employee theft or misuse, unauthorized access to data and other electronic security breaches. Threats may derive from human error, fraud or malice on the part of employees or third parties or may result from accidental technological failure. Such threats have increased in frequency, scope and potential impact in recent years, which increased the difficulty of detecting and successfully defending against them. As cyber threats continue to evolve, we may be required to incur additional expenses in order to enhance our protective measures or to remediate any information security vulnerability. Cyber-attacks and other intrusion, interruption, breakdown or destruction of our information technology systems and/or infrastructure could also require significant management attention and resources, expose us to legal liabilities, negatively impact our reputation among our customers, business partners and the public, and cause us to incur significant costs, any of which could have a material adverse effect on our business, financial condition and results of operations.

Our operations depend, among other things, on the timely maintenance, upgrade and replacement of networks, equipment, and information systems, as well as pre-emptive expenses to mitigate the risks of failures. We regularly evaluate the need to upgrade and/or replace our information systems to protect our information technology environment, to stay current on vendor supported products and to improve the efficiency and scope of our systems and information technology capabilities. The implementation of new systems and information technology could adversely impact our operations by requiring substantial capital expenditures, diverting management's attention, and/or causing delays or difficulties in transitioning to new systems. In addition, our systems implementations may not result in productivity improvements at the levels anticipated. Systems implementation disruption and any other information technology disruption, if not anticipated and appropriately mitigated, could have an adverse and material effect on our business.

Failure to retain and\or recruit personnel for key operational/professional positions, or to attract additional executive and managerial talent, could adversely affect our business

Given the complexity of our businesses and their global reach, we rely upon our ability to recruit and retain skilled management and other employees, including engineers, agronomists, scientists, technical equipment operators, programmers, data scientists, and other employees with special expertise. Much of our competitive advantage is based on the expertise, experience and know-how of our key management personnel. Any loss of service of key members of our organization, or any diminution in our ability to continue to attract high-quality employees may delay or prevent the achievement of major business objectives and may have a material adverse effect on our business, financial condition and results of operations.

We may not succeed in reducing our operating expenses within the framework of various efficiency programs implemented by the Company in its various sites

To cope with the challenging business environment prevailing in recent years and the increasing level of competition, we constantly review our total expenses and cost structure, and accordingly implement, from time to time, various efficiency programs designed to reduce costs. Such programs are subject to risks and uncertainties, and actual results may differ, even materially, from those planned or expected, and might adversely affect our operations, as well as our ability to realize other aspects of our strategy.

The Company relies on access to the capital markets as it borrows money from various sources to fund its operations and it frequently engages in refinancing activities

The level at which the Company is leveraged could affect our ability to obtain additional financing for acquisitions, refinancing of existing debt, working capital or other purposes, could adversely affect our credit rating, and could make us more vulnerable to industry downturns and competitive pressures, as well as to interest rate and other refinancing risks. In addition, capital markets have been more volatile in recent years. Such volatility may adversely affect our ability to obtain financing on favorable terms at times in which we need to access the capital markets. Our ability to refinance existing debt and meet our debt service obligations will be dependent upon our future performance and access to capital markets, which will be subject to financial, business and other factors affecting our operations (including our long-term credit ratings), many of which are beyond our control. Our credit rating may be downgraded, among other things, due to our future performance, the degree we are leveraged and deterioration of the business environment.

The instruments relating to our debt contain covenants and, in some cases, require us to meet certain financial ratios. Failure to comply with financial covenants could result in an event of default under the applicable instrument, which could result in the related debt and the debt issued under other instruments becoming immediately due and payable. In such event, we would need to raise funds from alternative sources, which may not be available to us on favorable terms or at all. Alternatively, any such default could require us to sell our assets or otherwise curtail operations in order to satisfy our obligations to our creditors.

In September 2021, the Company entered into a new sustainability linked loan (SLL) agreement, which includes sustainability performance targets. Any failure to comply with these targets may result in penalties and impede our efforts to raise funds, which may not be available to us on favorable terms or at all, especially as such loans become increasingly common.

The Company is exposed to risks relating to its current and future activity in emerging markets

We operate in several emerging markets and may have future activities in additional emerging markets. Activity in these regions is exposed to the socioeconomic conditions, as well as to the laws and regulations governing the agricultural, food and industrial sectors in these countries. The additional risks entailed in operating in emerging markets include, but are not limited to, high inflation rates; extreme fluctuations in exchange rates, martial law, war or civil war; social unrest; organized crime; expropriations and nationalizations; rescindment of existing licenses, approvals, permits and contracts; frequent and significant changes in taxation policies; restrictions on the use and trade of foreign currency. Governments in certain jurisdictions often intervene in the country's economy, and at times even introduce significant changes to policy and regulations. Changes in the policies governing the food, agricultural and industrial sectors or changes in political attitudes in the countries wherein we operate could adversely affect our operations or profitability. Our operations could be affected at various degrees by governmental regulations relating to production limitations, price controls, controls of export, currency transfer, product imports and supply, taxes and royalties, divesture of property, licenses, approval and permits, environmental issues, real estate claims by local residents, water use and workplace safety. Failure to comply with domestic laws, regulations and procedures may result in the loss, revocation or divesture of licenses, imposition of additional local oversight of activities or other interests. We are monitoring the developments and policies in emerging markets in which we operate, and regularly assess their effect on our operations; however, such developments cannot be accurately anticipated, which, insofar as they occur, could adversely and even materially affect our activity and/or profitability.

Risks Related to Our Industry

Sales of our fertilizer products are subject to the conditions in the agricultural industry

Most of our fertilizer products are sold to producers of agricultural produce. Fertilizer sales may be adversely affected as a result of a decline in agricultural produce prices or the availability of credit, or other events that cause farmers to plant less and consequently reduce their use of fertilizers. For example, periods of high demand, increasing profits and high-capacity utilization tend to lead to new investment in crops and increased production. This growth increases supply until the market is over-saturated, leading to declining prices and declining capacity utilization until the cycle repeats. As a result, the prices and quantities of fertilizer products sold have been volatile. As potash and phosphate prices and quantities sold have a very significant influence on our business results, low prices and/or low quantities could cause our results of operations to fluctuate and, potentially, materially deteriorate.

The prices at which we sell our fertilizer products and our sales volumes could fall in the event of industry oversupply conditions, which could have a material adverse effect on our business, financial condition and results of operations. Alternatively, high prices may lead our customers to delay purchases in anticipation of lower prices in the future, thereby decreasing our sales volumes. These factors could materially and adversely affect our business, financial condition and results of operations.

In addition, government policies, and specifically, subsidy levels, may affect the number of agricultural crops and, as a result, sales of our fertilizer products. Generally, reductions in agricultural subsidies to the farmer or increases in subsidies to local fertilizer manufacturers in countries where we sell our products have an adverse effect on our fertilizer business. In addition, the ongoing trade dispute between the United States and China may also affect the sales of some of the Company's products through continued imposition of existing tariffs or increased tariffs or other trade barriers that may negatively affect our sales directly and\or indirectly by affecting our customers' business and operations, which could materially and adversely affect our business, financial condition and results of operations.

Finally, the agricultural industry is strongly affected by local weather conditions. Conditions such as heavy storms, long periods of drought, floods, or extreme seasonal temperatures could affect the local crop's quality and yield and cause a reduction in the use of fertilizers. Loss of sales in an agricultural season in a target country as a result of weather-related events can cause a loss of sales for the entire year.

Sales of our Industrial Products and Phosphate Solutions segments' products are affected by various factors that are not within our control, including developments in the end markets of industrial materials and food, legislative changes, recession or economic slowdown and changes in currency exchange rates

Sales of our Industrial Products and Phosphate Solutions segments' products are affected by global economic conditions in the markets in which we operate. For example, our sales may be affected by the slow economic recovery or any reversal thereof in Europe. In addition, we have significant manufacturing operations in Europe and a large portion of our European sales are in euros, while some of our competitors are manufacturers located outside Europe whose operational currency is the U.S. dollar. As a result, a strengthening of the euro exchange rate against the U.S. dollar increases the competitive advantage of these competitors.

The sales of oil drilling products depend on the extent of operations in the oil drilling market, mainly in deep-sea drilling, which in turn is dependent on oil prices, and on the decisions of oil companies regarding rates of production and areas of production of oil and gas.

The operation of the Phosphate Solutions segment in the food industry is affected by legal provisions and licensing regulations relating to health. This area is characterized by stringent regulatory requirements that are updated from time to time by enforcement agencies. Adjustments of our operations to the changes in regulation, including the technological complexity and feasibility of such adjustments, may adversely affect the sales of our products, incidental to any specific prohibitions and/or adjustments required in order to meet regulatory requirements.

In addition, the ongoing trade dispute between the United States and China may also affect the sales of some of our products through continued imposition of the existing tariffs or increased tariffs or other trade barriers that may negatively affect our sales directly and\or indirectly by affecting our customers' business and operations, which could materially and adversely affect our business, financial condition and results of operations.

Sales of our magnesium products are affected by various factors that are not within our control, including developments in the end markets of magnesium, legislative changes, recession or economic slowdown, changes in currency exchange rates, antidumping and countervailing duties

Sales of our magnesium products are affected by global economic conditions in the markets in which we operate. For example, our sales may be affected by any economic reversal in the aluminum sector, steel sector, and the casting sector of parts made of magnesium alloys (mainly for uses in the vehicle industry).

In addition, environmental regulations, significant changes in the USD against the NIS exchange rate and trade barriers may negatively affect our sales directly and\or indirectly by affecting our customers' business and operations, which could materially and adversely affect our business, financial condition and results of operations.

The Company’s magnesium activities may be subject to antidumping and countervailing duties on imports of magnesium that are imposed in order to protect the local producer in the target markets. If such duties are imposed, it may result in difficulties or inability to sell our magnesium products in these markets and thus negatively affect the Company's magnesium activities economic viability.

Securing the future of our phosphate mining operations at Rotem Israel depends on obtaining several approvals and permits from the authorities in Israel

Securing the future of our phosphate mining operations at Rotem Israel depends on obtaining several approvals and permits from the authorities in Israel, as follows:

- Emissions permit under the Israeli Clean Air Act (hereinafter - the Law): In June 2021, the Company's emission permit was renewed by the Israeli Ministry of Environmental Protection (MoEP), until September 2023. The renewed permit reflects an updated outline of requirements. Postponement in the execution of a limited number of projects was granted within the framework of an administrative order under Section 45 of the Law, received in July 2021. Management still expects difficulties in meeting the execution schedules of a limited number of projects and accordingly continues to work with the MoEP to find a satisfactory solution regarding the timing of the investments, taking into account the impact of uncertainty surrounding Rotem Israel's activity, as far as the implementation of long-term projects is concerned.

- Oron's lease agreement - The Company has been working to extend the lease agreement for Oron's plant area since 2017 by exercising the extension option provided in the agreement.

- Phosphogypsum storage - In October 2021, a new Urban Building Plan was approved, the main objectives of which are to regulate areas for phosphogypsum storage reservoirs. According to the new Plan, the Company is required to obtain building permits involving permit fees. Due to the ambiguity of the guidelines regarding the fee's calculation, there is a difficulty in estimating the future required outflows.

- Energy production – In order to ensure the continuity of energy production in Rotem Israel, and in accordance with the policy of the Ministry of Energy and the Ministry of Environmental Protection, the Company is working to accelerate the completion of a project to replace existing energy production infrastructure at Rotem, which utilizes oil shale, with a natural gas-based steam boiler, so it will be completed before the existing mined reserves of oil shale are utilized.

- Finding economically feasible alternatives for continued mining of phosphate rock in Israel – According to the Company's assessment of economic phosphate reserves in the existing mining areas and the estimated useful life of Rotem's phosphate rock reserves, which are essential for its production, is limited to only a few years. The Company is working to obtain permits and approvals which will provide an economic alternative for future mining of phosphate rock in Israel.

The Company is continuing its discussions with the relevant authorities, in order that the required approvals, permits and future phosphate rock resources are granted. The Company estimates that it is more likely than not that the said approvals, permits and future phosphate rock resources will be granted within a timeframe that will not materially impact the Company's results. Nevertheless, there is no certainty as to the receipt of such approvals, permits and future phosphate rock resources and/or the date of their receipt. Failure to obtain these approvals, permits and future phosphate rock resources, or a significant delay in receiving them can lead to a material impact on the Company's business, financial position and results of operations.

Our operations are subject to a crisis in the financial markets

As a multinational company, ICL's financial results are affected by global economic trends, changes in the terms of trade and financing and fluctuations of currency exchange rates. A crisis in the financial markets could result in a reduction in the international sources of credit available for the purpose of financing business operations. The impact of such a crisis might be expressed in terms of availability of credit to us and our customers, as well as the price of credit. In addition, the volatility and uncertainty in the European Union affect our activities in this market.

The uncertainty surrounding the withdrawal of the United Kingdom from the European Union may materially and adversely affect our business

The United Kingdom (UK) officially left the European Union on January 31, 2020, while the transitional period ended on December 31, 2020. In December 2020, the UK and the European Union agreed to a trade and cooperation agreement (the "Trade and Cooperation Agreement"). The Trade and Cooperation Agreement took provisional effect from January 1, 2021, and provided for, among other things, zero-rate tariffs and zero quotas on the movement of goods between the UK and the European Union. However, the movement of goods between the UK and the remaining member states of the European Union is subject to additional inspections and documentation checks, leading to possible delays at ports of entry and departure. Beginning January 1, 2022, the UK implemented new full customs declarations controls that apply to all goods imported from the EU (except the Republic of Ireland) to the UK. Additional procedures relating to the imports of goods from the EU to the UK are scheduled to take effect in July, September and November of 2022. Such anticipated changes to the trading relationship between the UK and the European Union could result in the increased cost of goods imported into and exported from the UK and may decrease the profitability of our UK and other operations.

The uncertainty and unpredictability concerning the UK's future laws and regulations (including financial laws and regulations, tax and free trade agreements, immigration laws and employment laws) as well as its legal, political and economic relationships with Europe following its exit from the European Union may continue to be a source of instability in international markets, create significant currency fluctuations or otherwise adversely affect trading agreements or similar cross-border cooperation arrangements (whether economic, tax, fiscal, legal, regulatory or otherwise) for the foreseeable future. The long-term effects of Brexit will depend on the implementation of the Trade and Cooperation Agreement and any future agreements (or lack thereof) between the UK and the European Union and in particular, any potential changes in arrangements for the UK to retain access to EU markets. Brexit could result in adverse economic effects across the UK and Europe. Adverse consequences such as reduced consumer spending, deterioration in economic conditions, volatility in exchange rates, and prohibitive laws and regulations could materially and adversely affect our business, financial condition and results of operation.

As a leading global specialty minerals company, the nature of our activities means that we are inherently exposed to hazards relating to materials, processes, production and mining

We are subject to hazards inherent in chemical manufacturing and the related storage and transportation of raw materials, products and waste. These hazards include explosions, fires, mechanical failures, remediation complications, chemical spills and discharges or releases of toxic or hazardous substances. During our mining operations, particularly underground mining, additional hazards may occur, such as high levels of temperature requiring proper ventilation of the mine, high levels of dust which negatively affect the mining operation, flooding of the mine and others. These hazards can cause severe damage to or destruction of property and equipment, environmental damage, personal injury and loss of life and may result in suspension of operations and the imposition of civil or criminal penalties.

Our manufacturing facilities contain sophisticated manufacturing equipment. In the event of a major disruption in the operations of any of this equipment, we may not be able to resume manufacturing operations for an extended period. The occurrence of material operating problems at our facilities may have an adverse and even material effect on us, during and after the period of such operational difficulties, and expose us to significant liabilities and costs, dependent on the continued operation of our production facilities. For example, a malfunction in the operation of the dredger as part of the salt harvesting activity in DSW, designed to maintain a fixed brine volume at Pond 5, could harm, and even materially so, the production capacity of extracted minerals, and thereby adversely and materially affect our operations.

For further information, see "Item 4 – Information on the Company — B. Business Overview —Regulatory and Environmental, Health and Safety Matters".

Accidents occurring during our industrial and mining operations and failure to ensure the safety of workers and processes, could adversely affect our business

Various occupational hazards are inherent in our industrial and mining operations. Thus, our operations require that we take special precautionary measures to maintain a safe and healthy work environment. To ensure the safety of workers and others in the Company's facilities, we are subject to strict occupational health and safety standards, prescribed by local, national and international laws, regulations and standards. Additionally, we are exposed to operational risks associated with industrial or engineering activities, such as maintenance problems or equipment failures.

Failure to implement, or a deviation from our safety measures and standards, or failure to prevent or appropriately respond to a safety-related incident, or other operational risks may result in personnel injuries or fatalities, production shutdowns, disruption of operations and significant legal and financial liabilities. The occurrence of material safety incidents at our facilities could have a material adverse effect on us, and we may be exposed to substantial liabilities and costs under such circumstances.

For further information, see "Item 4 – Information on the Company — B. Business Overview —Regulatory and Environmental, Health and Safety Matters".

As a leading global specialty minerals company, we are exposed to various legislative, regulatory and licensing restrictions in the areas of environmental protection and safety. Related compliance costs and liabilities may adversely affect the results of our operations

As a leading global specialty minerals company, we are significantly affected by the legal provisions and licensing regime in the areas of environmental protection and safety. Recent years have been characterized by a substantial increase in the stringency and enforcement of legal provisions and regulatory requirements in these areas; the cost of adjustment to and compliance with such regulatory changes, including the technological complexity of such adjustment and compliance with standardization requirements, have all shown a significant upward trend. For example, in Israel, emission permits are issued under the Israeli Clean Air Law. In order to comply with the emission permits received in connection with some of our operations in Israel, we are required to make significant capital investment over the next few years. Failure to comply with these requirements may have an adverse effect on our operations, business and results of operations.

Legislative and regulatory changes around the world may prohibit or restrict the use of our products, due to environmental protection, or health and safety considerations. Standards adopted in the future may affect us and change our methods of operation. Furthermore, some of our licenses, including business licenses and mining licenses, are for fixed periods and must be renewed from time to time. Renewal of such licenses is not certain and may be made contingent on additional conditions and significant costs. Difficulties in obtaining such licenses could have an adverse effect on our operations, business and results of operations. For further information, see "Securing the future of the phosphate mining operations at Rotem Israel depends on obtaining several approvals and permits from the authorities in Israel" above, "Item 4 – Information on the Company — B. Business Overview —Regulatory and Environmental, Health and Safety Matters", "B. Business Overview —Business Licenses and Other Permits" and Note 18 to our Audited Financial Statements.

Current and future laws and regulations regarding climate change and greenhouse gas (GHG) emissions, as well as the physical impacts of climate change, may affect our operations and businesses

Over the past few years, climate change and GHG emissions have been of increasing concern worldwide. Current and future legislation and regulations governing climate change and GHG emissions are transition risks in the short term and beyond. Carbon taxes and cap-and-trade-emissions schemes are increasingly viewed in global jurisdictions as a way of pricing carbon – a key policy driver for GHG emissions reductions. These policies and regulatory levers will increasingly result in additional financial costs to the Company, which may lead to a material impact on the Company's business, financial position and results. Currently, this risk impacts two of ICL Europe's sites, ICL Iberia is affected as a participant in the EU-ETS Emissions Trading System and ICL Boulby become subject to the UK Emissions Trading Scheme as of January 1, 2021.

There is considerable uncertainty over the future cost of allowances and the manner in which they will be allocated. Revisions to the EU ETS published in 2021 also include proposals for the introduction of a Carbon Border Adjustment Mechanism (CBAM), designed to prevent carbon leakage from the EU. The UK Government is considering implementing a similar mechanism. Both of these financial instruments will increase the purchase price that our customers will need to pay for our products. In Israel, a new carbon tax is planned for implementation in 2023. China also initiated a national emission trading scheme in 2017. YPH in China, is one of the Company's largest production sites but currently, this trading scheme does not include the business sector relevant to this site. However, the existing range of business sectors is likely to expand in the future. There has not been an indication of upcoming carbon taxes/trading schemes in the US states where ICL operates, but this too could change in the future, as concerns regarding climate change increase. Consequently, it is expected that, in the short-term, ICL will need to purchase more carbon allowances at higher prices through these specific programs than we have done historically. At the same time, we also anticipate we will incur additional capital costs for energy and emissions reduction measures as carbon taxes increase the costs of supplied materials in the ICL value chain.

In addition to legislative, regulatory, business and market impacts related to climate change, there may also be significant physical effects of climate change. These effects nay result in both 'acute', short term events and chronic, longer term impacts including changes in weather patterns, such as, water shortages or changes in water quality, changes to sea and temperature levels, increases in the intensity of storms, changes in availability of natural resources and damage to facilities or equipment some of which have been experienced at ICL facilities.

Physical risks have the potential to financially disrupt operations, upstream raw material supply and downstream distribution of our products to our customers. Climate change is expected to increase the frequency and likelihood of acute, extreme weather events such as floods. ICL's Dead Sea facilities, for example, are located in an area that has already been impacted by severe floods in the past. Another example indicating the beginning of a chronic change is the low water levels in the Rhine River in Germany, a key transport route, which in 2018, experienced water levels too low for transport barges to operate, The ICL Ludwigshafen site, which is located on the banks of the Rhine river, may be affected as it uses freight boats to carry phosphate rock into the site and phosphate fertilizers produced at the site to customers. An increase of these occurrences may be attributable to climate change.

The potential impact of climate change and associated laws and regulations on the Company's operations and business, and those of our customers and suppliers, is uncertain. The cost of adjustment to and compliance with legislative and regulatory changes regarding climate change and GHG emissions, and adjustments to the physical impacts of climate change, could materially and adversely affect our business, financial condition and results of operation. Apart from implementing physical measures to deal with extreme weather conditions, ICL has acquired insurance to provide some degree of protection from some financial losses resulting from natural disasters.

For further information, see "Item 4 - Information on the Company— B. Business Overview—Regulatory and Environmental, Health and Safety Matters".

Due to the nature of our operations, we are exposed to administrative and legal proceedings, both civil and criminal, including as a result of alleged environmental contamination caused by certain of our facilities

From time to time we are exposed to administrative and legal proceedings, both civil and criminal, including as a result of alleged environmental contamination caused by certain of our facilities. It should be noted that the Company may be exposed to criminal proceedings, fines and significant impairment of the operation of our facilities as a result of failing to meet the requirements of our emissions permits including the provisions of the Israeli Clean Air Law, and particularly, regarding the scope of current and future requirements as prescribed by the Israeli Ministry of Environmental Protection respecting the implementation of the this law's provisions at the Company's plants in Rotem Israel, as well as compliance with the timeframes for implementation of such requirements. In addition, examinations and investigations of our facilities conducted by enforcement authorities may result in administrative and legal proceedings.

Furthermore, from time to time we are exposed to claims alleging physical or property damage which may cause us financial harm.

Some of our manufacturing or marketing activities (and sometimes transportation and storage as well) entail safety risks that we attempt to minimize but are unable to eliminate. In various countries, including Israel and the United States, legislation exists that can impose liability on us irrespective of our actual intent or negligence. Other laws impose liability on defendants jointly and severally, and sometimes retroactively, and therefore can cause us to be liable for activities executed jointly with others and at times solely by others. We may also be found liable for claims related to land treatment where mining operations and other activities were conducted, even after such activities have ceased.

Over the past several years, there has been an upward trend in the filing of claims together with a request for their certification as class and derivative actions. Due to the nature of such actions, these claims may be for very high amounts and the costs of defending against such actions may be substantial, even if the claims are without merit from the outset. In addition, our insurance policies include coverage limitations, are restricted to certain causes of action and may not cover claims relating to certain types of damages, such as intangible damages, etc.

For information respecting legal proceedings and actions, see Note 18 to our Audited Financial Statements and "Item 8 - Financial Information— A. Consolidated Statements and Other Financial Information— Legal Proceedings".

We are exposed to the risk of third-party and product liability claims

We are also exposed to risk of liability related to damage caused to third parties by our operations or by our products. We have third-party liability insurance for damages caused by our operations and for product liability. However, there is no certainty that this insurance will fully cover all damage for such liability. Moreover, sale of defective products by us might lead to a recall of products by us or by our customers who had used our products. In addition, the sale of defective products, as well as damage caused to third parties by our activities or our products may harm our public image and reputation and, as a result, materially and adversely affect our business, financial condition and results of operation.

Product recalls or other liability claims as a result of food safety and food-borne illness concerns could materially and adversely affect us

We develop and produce functional food ingredients and phosphate additives for the food industry. Selling ingredients and additives that will be used in products sold for human consumption involves inherent legal and other risks, including product contamination, spoilage, product tampering, allergens, or other adulteration. We could decide to, or be required to, recall products due to suspected or confirmed product contamination, adulteration, misbranding, tampering, or other deficiencies. Product recalls or market withdrawals could result in significant losses due to their costs, the destruction of product inventory, and lost sales due to the unavailability of the product for a period of time.

Because food safety issues could be experienced at the source or by food suppliers or distributors, food safety could, in part, be out of our control. Regardless of the source or cause, any report of food-borne illness or other food safety issues such as food tampering or contamination of products that contain our ingredients or additives could adversely impact our reputation, hindering our ability to renew contracts on favorable terms or to obtain new business, and have a negative impact on our sales. Even instances of food-borne illness, food tampering or contamination of products that do not contain our ingredients or additives could result in negative publicity and could negatively impact our sales.

We may also suffer losses if our products or operations violate applicable laws or regulations, or if our products cause injury, illness, or death. A significant product liability or other legal judgment or a related regulatory enforcement action against us, or a significant product recall, may materially and adversely affect our reputation and profitability. Awards of damages, settlement amounts and fees and expenses resulting from such claims and the public relations implications of any such claims could have an adverse effect on our business. The availability and price of insurance to cover claims for damages are subject to market forces that we do not control, and such insurance may not cover all the costs of such claims and would not cover damage to our reputation. Moreover, even if a product liability or fraud claim is unsuccessful, has no merit, or is not pursued, the negative publicity surrounding assertions against our products or processes could materially and adversely affect our business, financial condition and results of operations.

Our insurance policies may not be sufficient to cover all actual losses that we may incur in the future

We maintain, among others, property, environmental, business interruption, casualty and malpractice insurance policies. However, we are not fully insured against all potential hazards and risks incidental to our business, including to damages which may be caused to us by the negligence of our employees. We are subject to various self-retentions and deductibles under these insurance policies. As a result of market conditions, our loss experience and other factors, our premiums, self-retentions and deductibles for insurance policies can increase substantially and, in some instances, certain insurance may become unavailable or available only for reduced amounts of coverage. In addition, significantly increased costs could lead us to decide to reduce, or possibly eliminate, coverage. As a result, a disruption of the operations at one of our key facilities or a significant casualty could have a material adverse effect on our financial condition and results of operations. Furthermore, our insurance may not fully cover our expenses related to claims and lawsuits that may be filed against us, or expenses related to legislation that is being promoted and enacted with adverse effect on us. In addition, it is possible that there are risks that we did not identify and are thus not covered by the insurance policies acquired by the Company.

Risks Related to Our Operations in Israel and/or to the Company being an Israeli Company

Due to our location in Israel and/or being an Israeli company, our operations may be exposed to war or acts of terror. In addition, we are exposed to risks of terrorist acts, war and governmental instability in the regions outside Israel where we operate

War, acts of terror and\or governmental instability in the regions where we operate are likely to negatively impact us. This impact may manifest itself in production delays, distribution delays, loss of property, injury to employees, and increased insurance premiums. In addition, our plants may be targets for terrorist acts due to the chemicals they store. We do not have property insurance against war or acts of terror, other than compensation from the State of Israel pursuant to Israeli law, which covers only physical property damage, without accounting for reinstatement values.

It is noted that since the construction of our initial facilities in the 1950s, we have never experienced material business interruptions as a result of war or acts of terror, but we can provide no assurance that we will not be subject to any such interruptions in the future.

Our computer and communications networks, and production technologies constitute a basic platform for operational continuity and are also potential targets for acts of terror. Potential cyber threats can cause damage to systems and plants, data loss, software vulnerability and external and internal access to sensitive and confidential information. We have implemented a plan for safeguarding and backing up the information systems. The activities include separation of our information networks from the computerized process systems, physical protection of the computer rooms and terminals and training of employees. However, there is no assurance that the Company will successfully accomplish its goals.

We conduct operations in Israel and therefore our business, financial condition and results of operations may be materially and adversely affected by political, economic and military instability in Israel and its region

Our headquarters, some of our operations, and some of our mining facilities are located in Israel and many of our key employees, directors and officers are residents of Israel. Accordingly, political, economic and security conditions in Israel and the surrounding region may directly affect our business. Since the establishment of Israel in 1948, a number of armed conflicts have occurred between Israel and its Arab neighbors, Hamas (an Islamist militia and political group in the Gaza Strip) and Hezbollah (an Islamist militia and political group in Lebanon). Any hostilities involving Israel or the interruption or curtailment of trade within Israel or between Israel and its trading partners could materially and adversely affect our business, financial condition and results of operations and could also make it more difficult for us to raise capital. Recent political uprisings, social unrest and violence in various countries in the Middle East and North Africa, including Israel's neighbors Egypt and Syria, are affecting the political stability of those countries. This instability may lead to deterioration of the political relationships that exist between Israel and these countries and has raised concerns regarding security in the region and the potential for armed conflict. In addition, Iran has threatened to attack Israel and is widely believed to be developing nuclear weapons.

In addition, the assessment is that Iran has a strong influence among parties hostile to Israel in areas that neighbor Israel, such as the Syrian government, Hamas in Gaza and Hezbollah in Lebanon. Any armed conflicts, terrorist activities or political instability in the region could materially and adversely affect our business, financial condition and results of operations. In addition, the political and security situation in Israel may result in parties with whom we have agreements involving performance in Israel claiming that they are not obligated to comply with their undertakings under those agreements pursuant to force majeure provisions in such agreements. In addition, because we are an Israeli company, our sales may be subject to economic boycotts or other sanctions on our products.

Our operations may be disrupted as a result of the obligation of Israeli citizens to perform military reserve service

Many Israeli citizens are obligated to perform one month, and in some cases more, of annual military reserve service until the age of 45 (or older, for reservists with certain occupations) and, in the event of a military conflict, may be called to active duty. Although periods of significant call-ups of military reservists which occurred in the past in response to terrorist activities have had no significant impact on our operations, it is possible that military reserve duty call-ups will occur in the future, which might disrupt our operations.

It may be difficult to enforce a U.S. judgment against us and our directors and officers, in Israel or the United States, or to serve process on our directors and officers

We are incorporated under Israeli law. Many of our directors and executive officers reside outside the United States, and most of our assets are located outside the United States. Therefore, a judgment obtained in the United States against us or many of our directors and executive officers, including one based on the civil liability provisions of the U.S. federal securities laws, may not be collectible in the United States and may not be enforced by an Israeli court. It also may be difficult for an investor to effect service of process on these persons in the United States or to assert claims under the U.S. securities laws in original actions instituted in Israel.

Rights and responsibilities as a shareholder are governed by Israeli law which may differ in some respects from the rights and responsibilities of shareholders of U.S. companies

We are incorporated under Israeli law. The rights and responsibilities of the holders of our ordinary shares are governed by our Articles of Association and Israeli law. These rights and responsibilities differ in some respects from the rights and responsibilities of shareholders in typical U.S. corporations. In particular, a shareholder of an Israeli company has a duty to act in good faith toward the company and other shareholders and to refrain from abusing its power in the company, including, among other things, in voting at the general meeting of shareholders on matters such as amendments to a company's articles of association, increases in a company's authorized share capital, mergers and acquisitions and interested party transactions requiring shareholder approval. In addition, a shareholder who knows that it possesses the power to determine the outcome of a shareholder vote or to appoint or prevent the appointment of a director or executive officer in the company has a duty of fairness toward the company. There is limited case law available to assist us in understanding the implications of these provisions that govern shareholders' actions.

These provisions may be interpreted to impose additional obligations and liabilities on holders of our ordinary shares that are not typically imposed on shareholders of U.S. corporations.

In light of the Company's listing for trading on a stock exchange in the United States, and considering the fact that our parent company is subject only to the Israeli securities law, we are subject, in certain aspects, to both Israeli law and U.S. law, a fact which may cause us to face both reporting and legal conflicts.

In recent years we have seen a significant rise in the filing of class actions in Israel against public companies, including derivative actions against the company, its executives and Board members

In recent years we have seen a significant rise in the filing of class actions and derivative actions in Israel against companies, executives and Board members. While the vast majority of such claims are dismissed, companies like ICL are forced to increasingly invest resources, including monetary expenses and investment of management attention due to these claims. This state of affairs could adversely affect the willingness of our executives and Board members to make decisions which could have benefitted our business operations. Such legal actions could also be taken with respect to the validity or reasonableness of the decisions of our Board of Directors.

Risks Related to Our Ordinary Shares

We have one key shareholder who is our controlling shareholder. This controlling shareholder may influence decision making with which other shareholders may disagree

As of December 31, 2021, the Israel Corporation Ltd. ("Israel Corp.") holds the controlling interest in the Company.

The interests of Israel Corporation may differ from the interests of other shareholders. Israel Corporation exercises control over our operations and business strategy and has sufficient voting power to control many matters requiring approval by our shareholders, including:

- The composition of our Board of Directors (other than external directors, as described under "Item 6 - Directors, Senior Management and Employees— C. Board Practices— External Directors");
- Mergers, acquisitions, divestitures or other business combinations;
- Future issuances of ordinary shares or other securities;
- Amendments to our Articles of Association, excluding provisions of the Articles of Association that were determined by virtue of the Special State Share; and
- Dividend distribution policy.

In addition, this concentration of ownership may delay, prevent or deter a change in control, or deprive the investor of a possible premium for his ordinary shares as part of a sale of our Company. Moreover, as a result of the Company's control structure, our shares may be subject to low tradability, which may hinder the sale and/or exercise of our shares. Furthermore, Israel Corp. may conduct material transactions in our shares, such as its existing margin loans that are secured by pledges of ICL shares, and/or in their organizational structure, that we will not be able to influence but that may have a material adverse effect on our share price.

The existence of a Special State Share gives the State of Israel veto power over transfers of certain assets and shares above certain thresholds, and may have an anti-takeover effect

The State of Israel holds a Special State Share in our Company and in some of our Israeli subsidiaries. The Special State Share entitles the State of Israel, among other things, to restrict the transfer of certain assets and some acquisitions of shares by any person that would become a holder of specified amounts of our share capital. Because the Special State Share restricts the ability of a shareholder to gain control of our Company, the existence of the Special State Share may have an anti-takeover effect and therefore depress the price of our ordinary shares. Furthermore, the existence of the Special State Share may prevent us from realizing and developing business opportunities that may come across. To the best of the Company's knowledge, during the second half of 2018, an inter-ministerial team was established, headed by the Ministry of Finance, whose purpose is, among other things, to regulate the authority and supervision in respect of the Special State Share, as well as reduce the regulatory burden. In January 2019, the work of this team was put on hold until further notice due to the dissolution of the Knesset and lack of permanent Government. As at the date of the report, the Company is unable to estimate the implications of this process on the Company, if any, but it is possible that the introduction of an additional array of regulatory provisions, coupled with strict enforcement, may increase the uncertainty in the management of company operations relating to natural resources in Israel and may have a material adverse effect on our business, our financial condition and results of operations.

The market price of our ordinary shares is subject to fluctuation, which could result in substantial losses for our investors

The stock market in general and the market price of our ordinary shares, in particular, are subject to fluctuation, and changes in our share price may occur unrelated to our operating performance. The market price of our ordinary shares on the TASE or NYSE has fluctuated in the past, and we expect it will continue to do so. The market price of our ordinary shares is and will be subject to several factors, including:

- Expiration or termination of licenses and/or concessions;
- General stock market conditions;
- Decisions by governmental entities that affect us;
- Variations in our and our competitors' results of operations;
- Changes in earnings estimates or recommendations by securities analysts; and
- General market conditions and other factors, including factors unrelated to our operating performance.

These factors and any corresponding price fluctuations may materially and adversely affect the market price of our ordinary shares and result in substantial losses for our investors.

If equity research analysts issue unfavorable commentary or cease publishing reports about our ordinary shares, the price of our ordinary shares could decline

The trading market for our ordinary shares relies in part on the research and reports that equity research analysts publish about us and our business. The price of our ordinary shares could decline if one or more securities analysts downgrade our ordinary shares or if those analysts issue other unfavorable commentary or cease publishing reports about us or our business.

Shareholders may be diluted by the future issuance of additional ordinary shares, among other reasons, for purposes of carrying out future acquisitions, financing needs, and also as a result of our incentive and compensation plans

As at the date of this Annual Report, we have approximately 173 million NIS 1 par value (approximately $56 million) shares authorized but unissued. We may choose to raise substantial equity capital in the future to acquire or invest in businesses, products or technologies and other strategic relationships and to finance unanticipated working capital requirements to respond to competitive pressures. The issuance of any additional ordinary shares in the future, or any securities that are exercisable for or convertible into our ordinary shares, will have a dilutive effect on our shareholders as a consequence of a reduction in percentage ownership.

For example, as at the date of the report, there are about 12 million outstanding options for our ordinary shares that were issued under our incentive and compensation plan. For further information, see Item 6 - Directors, Senior Management and Employees— E. Share Ownership.

We may not be able to maintain our dividend payment

The Company's dividend distribution policy is that the Company's dividend distribution rate will be up to 50% of the annual adjusted net profit. In addition, dividends will be paid as declared by the Board of Directors and may be discontinued at any time. All decisions regarding dividend distributions are made by the Board of Directors, which considers various factors including our profits, investment plans, financial position and additional factors as it deems appropriate. Dividend payments are not guaranteed, and our Board of Directors may decide, in its exclusive discretion, at any time and for whatever reason, not to pay dividends, to reduce the rate of dividends paid, to pay a special dividend, to modify the dividend payout policy or to adopt a share buyback program.

Our ordinary shares are traded on different markets which may result in price variations

Our ordinary shares have been traded on the Tel Aviv Stock Exchange (TASE) since 1992 and have been listed on the New York Stock Exchange (NYSE) since September 2014. Trading in our ordinary shares on these markets occurs in different currencies (U.S. dollars on the NYSE and NIS on the TASE) and occurs at different times (resulting from different time zones, different trading days and different public holidays in the United States and Israel). The trading prices of our ordinary shares on these two markets may differ due to these and other factors. Any decrease in the price of our ordinary shares on one of these markets could cause a decrease in the trading price of our ordinary shares on the other market.

As a foreign private issuer, we are permitted to follow certain home country corporate governance practices instead of applicable SEC and NYSE requirements, which may result in less protection than is afforded to investors under rules applicable to domestic issuers

As a foreign private issuer, we are permitted to follow certain home country corporate governance practices instead of those otherwise required by the NYSE for domestic issuers. For instance, we have elected to follow home country practices in Israel with respect to, among other things, composition and function of the Audit and Finance Committee and other committees of our Board of Directors and certain general corporate governance matters. In addition, in certain instances we will follow our home country law, instead of NYSE rules applicable to domestic issuers, which require that we obtain shareholder approval for certain dilutive events, such as an issuance that will result in a change of control of our Company, certain transactions other than a public offering involving issuances of a 20% or more interest in our Company and certain acquisitions of the stock or assets of another company. Following our home country corporate governance practices as opposed to the requirements that would otherwise apply to a U.S. company listed on the NYSE may provide less protection than is afforded to investors under the NYSE rules applicable to domestic issuers.

In addition, as a foreign private issuer, we are exempt from the rules and regulations under the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), related to the furnishing and content of proxy statements and the requirements of Regulation FD (Fair Disclosure), and our directors, officers and principal shareholders are exempt from the reporting and short-swing profit recovery provisions of Section 16 of the Exchange Act. In addition, we are not required under the Exchange Act to file annual, quarterly and current reports and financial statements with the SEC as frequently or as promptly as domestic companies whose securities are registered under the Exchange Act.

The Company has a history of quarterly fluctuations in the results of its operations due to the seasonal nature of some of its products and its dependence on the commodities markets. Revenues below seasonal norms may disappoint investors and result in a decline in our share price

We have experienced, and expect to continue to experience, fluctuations in our quarterly results of operations due to the mix of products we sell and the different countries in which we operate. Our sales have historically been stronger in the second and third quarters of each year. In the past year, the COVID epidemic flattened seasonality and we are witnessing changes in seasonal patterns which are reflected in high off-season demand as a result of governments' food security strategies and the like, which increases uncertainty regarding future seasonality fluctuations. If, for any reason, our revenues are below seasonal norms, we may not be able to recover these sales in subsequent periods and our annual results of operations may not meet expectations. If this occurs, the market price of our ordinary shares could decline.

Item 4 – INFORMAION ON THE COMPANY

A. HISTORY AND DEVELOPMENT OF THE COMPANY

Our legal name is ICL Group Ltd. and our commercial name is ICL. We are a public company and operate as a limited liability company under the laws of Israel. Our registered headquarters is located at Millennium Tower, 23 Aranha Street, P.O. Box 20245, Tel Aviv 61202, Israel. The telephone number at our registered office is +972-3-684-4400. Our website address is www.icl-group.com. The reference to our website is intended to be an inactive textual reference and the information on, or accessible through, our website is not intended to be part of this Annual Report.

The Company is subject to certain of the informational filing requirements of the Exchange Act. Since the Company is a "foreign private issuer", it is exempt from the rules and regulations under the Exchange Act prescribing the furnishing and content of proxy statements, and the officers, directors and principal shareholders of the Company are exempt from the reporting and "short-swing" profit recovery provisions contained in Section 16 of the Exchange Act with respect to their purchase and sale of Ordinary Shares. In addition, the Company is not required to file reports and financial statements with the SEC as frequently or as promptly as U.S. public companies whose securities are registered under the Exchange Act. However, the Company is required to file with the SEC an Annual Report on Form 20-F containing financial statements audited by an independent registered public accounting firm. The SEC also maintains a website at http://www.sec.gov that contains reports and other information that the Company files with or furnishes electronically to the SEC.

ICL was established in Israel in 1968 as a government-owned and -operated company in Israel and operates as a limited liability company under the laws of Israel. In 1975, the shares of certain companies (including, among others, ICL Dead Sea, ICL Rotem, Dead Sea Bromine, Bromine Compounds and Tami) were transferred to ICL. In 1992, following a decision of the Israeli government to privatize ICL, the State of Israel published its tender prospectus, 20% of the Company's shares were sold to the public and its shares were registered for trading on the Tel-Aviv Stock Exchange (TASE). Prior to our public share issuance, a Special State Share in our company and our main Israeli subsidiaries was issued to the State of Israel (for further details regarding the terms of the Special State Share, see "Item 10 - Additional Information— B. Memorandum, Articles of Association and Special State Share"). In 1995, the State of Israel sold its controlling interest in the Company (representing approximately 24.9% of our shares) to Israel Corporation Ltd., a publicly traded company on the TASE (ILCO), which was controlled at that time by the Eisenberg family. A majority of the ordinary shares, held by the State of Israel, were sold during the following years. In 1999, the Ofer Group acquired the Eisenberg family's shares in Israel Corporation. In 2000, the State of Israel ceased to be a stakeholder in terms of holding any of our ordinary shares, but it retained its Special State Share In September 2014, we listed our shares on the New York Stock Exchange, and they are currently traded in Tel Aviv and in New York.

As of December 31, 2021, Israel Corporation Ltd. holds approximately 44.76% of our outstanding ordinary shares and approximately 45.62% of the shareholders' voting rights.

The following is a list of significant acquisitions and divestitures over the last several years:

- In January 2021, we completed the acquisition of Agro Fertiláqua Participações S.A., one of Brazil's leading specialty plant nutrition companies, and in July 2021, we acquired the South American Plant Nutrition business of Compass Minerals América do Sul S.A. (hereinafter - ADS).

- In July 2021, we completed the sale of Jiaxing ICL Chemical Co. Ltd (ICL Zhapu), which was part of our Industrial Products segment to China Sanjiang Fine Chemicals Company Limited.

- In May 2020, we completed the sale of Hagesüd Interspice Gewürzwerke GmbH, including related real-estate assets, to Solina Corporate SAS.

- In February 2020, we completed the acquisition of Growers Holdings, Inc., an innovator in the field of process and data-driven farming. For further information see "Item 5 – Operating and Financial Review and Prospects – C. Research and Development, Patents and Licenses, etc. – Research and Development".

- In March 2018, we completed the sale of our fire safety and oil additives businesses, for $1,010 million.

For information about our principal capital expenditures during the last three fiscal years, see "Item 5 - Operating and Financial Review and Prospects— B. Liquidity and Capital Resources— Principal Capital Expenditures".

B. BUSINESS OVERVIEW

Company Overview

ICL Group Ltd. is a leading global specialty minerals company. The Company creates impactful solutions for humanity's sustainability challenges in global food, agriculture and industrial markets. The Company leverages its unique bromine, potash and phosphate resources, its professional employees, and its strong focus on R&D and technological innovation, to drive growth across its end markets. The Company's operations are organized under four segments: Industrial Products (Bromine), Potash, Phosphate Solutions and Innovative Ag Solutions.

Our principal assets include:

- Access to one of the world's richest, longest-life and lowest-cost sources of potash and bromine (the Dead Sea).

- A potash mine and processing facilities in Spain.

- Bromine compounds processing facilities in Israel, the Netherlands and China.

- A unique integrated phosphate value chain that extends from phosphate rock mines in Israel and in China to value-added downstream products produced in facilities located in Israel, Europe, the United States, Brazil and China. Our specialty phosphates serve the food industry by providing texture and stability solutions to the meat, meat alternatives, poultry, sea food, dairy and bakery markets, as well as numerous other industrial markets, such as metal treatment, water treatment, oral care, carbonated drinks, asphalt modification, paints and coatings and more.

- Polysulphate® resources in the United Kingdom.

- Customized, highly effective specialty fertilizers that provide improved value to the grower, as well as essential nutrition for plant development, optimization of crop yields and reduced environmental impact.

- A focused and highly experienced team of technical experts that develop production processes, new applications, formulations and products for our agricultural and industrial markets.

- A strong crop nutrition sales and marketing infrastructure that optimizes distribution channels of commodity, specialty and semi-specialty fertilizers by leveraging its commercial excellence, global operational efficiency, region-specific knowledge, agronomic and R&D capabilities, logistical assets and customer relationships.

- Research & Development and Innovation: We benefit from our proximity to Israel's global-leading high-tech and agri-tech eco-system, as well as our vast agronomy and chemistry knowledge that we have accumulated over decades. Our extensive global R&D infrastructure includes 26 R&D and Innovation centers around the world that employ 300 highly experienced personnel who have obtained 770 patents in 220 patent families. ICL's R&D unit supports the development of new, innovative products, applications and formulations for each of our operating segments through internal research, employee ideation and collaborative research with third parties.

- An extensive global logistics and distribution network with operations in over 30 countries.

- The acquisitions of Fertiláqua and ADS have helped position ICL as the leading specialty plant nutrition company in Brazil.

For the year ended December 31, 2021, we generated total sales of $6,955 million, operating income of $1,210 million, adjusted operating income of $1,194 million, net income attributable to the shareholders of the Company of $783 million and adjusted net income attributable to the shareholders of the Company of $824 million. See "Item 5 – Operating and Financial Review and Prospects – A. Operating Results – Results of Operations".

Sales by the Industrial Products segment totaled to $1,617 million and operating profit attributable to the segment totaled to $435 million, sales by the Potash segment totaled to $1,931 million and operating profit attributable to the segment totaled to $399 million, sales by the Phosphate Solutions segment totaled to $2,432 million and operating profit attributable to the segment totaled to $307 million, and sales of the Innovative Ag Solutions segment totaled to $1,245 million and operating profit attributable to the segment totaled to $121 million.

For a breakdown of sales and a geographic market by segments, see "Item 5 - Operating and Financial Review and Prospects— A. Operating Results– Segment Information".

General

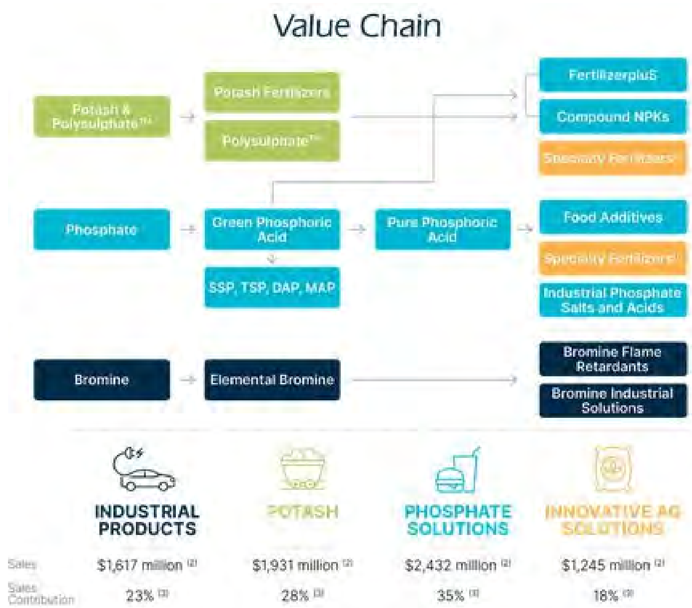
Our integrated business model is mainly structured around three mineral value chains – bromine, potash and phosphate. These minerals are the main raw materials for most of the value-added downstream products in our Company's portfolio. Our operations are organized under four reporting segments: Industrial Products (bromine), Potash, Phosphate Solutions and Innovative Ag Solutions (IAS). The first three segments represent a specific value chain, and we are a leader in each of these segments – either in terms of market share or cost competitiveness.

Our Industrial Products segment primarily operates the bromine value chain, which includes elemental bromine and bromine compounds for various industrial applications. This segment also operates several complementary businesses, mainly phosphorous-based flame retardants and additional Dead Sea minerals for the pharmaceutical, food, oil and gas, and de-icing industries.

The Potash segment operates our potash value chain and includes primarily potash fertilizers, as well as Polysulphate®-based fertilizers. The magnesium business, a byproduct of potash production, is also reported under this segment.

The Phosphate Solutions segment is primarily based on our phosphate value chain. It includes specialty phosphate salts and acids for various food and industrial applications, as well as commodity phosphates, which are used mainly as fertilizers.

The fourth segment, IAS, currently includes our specialty fertilizers business. We are focused on expanding and strengthening our Innovative Ag Solutions offerings, by maximizing its existing capabilities and agronomic expertise. Our stated strategy calls for expansion and global diversification through opportunistic M&A and, accordingly in 2021, we completed the acquisitions of Fertiláqua, a Brazilian specialty crop nutrition company, and the South American Plant Nutrition business from Compass Minerals (now known as ICL America do Sul or ADS). Both acquisitions have helped position ICL as the leading specialty plant nutrition company in Brazil and balance segment seasonality.



[1] Specialty Fertilizers include, among others, controlled release, slow release, liquid, soluble and water soluble fertilizers

[2] Including inter-segment sales

[3] From consolidated sales, which include other activities and reconciliations

Industrial and Food Markets

Our Industrial Products segment and specialty phosphates business serve various industrial and food markets.

Industrial Products

Bromine, a member of the halogen family, is found naturally in seawater, underground brine deposits and other water reservoirs, such as the Dead Sea. Bromine concentration and extraction methods vary depending upon the source. The lower the concentration of bromine in the brines, the more difficult and expensive it is to extract. The Dead Sea, which spans Israel and Jordan, is the world's premier source of bromine and accounts for approximately half of global supply. The Dead Sea is also the most competitive source of bromine, as it has the highest concentration, which means the least amount of water must be extracted and evaporated to produce bromine, resulting in lower energy costs.

ICL's bromine solutions are found in numerous products and make consumer goods safer and industrial production more efficient and sustainable. The largest commercial use of bromine is in flame retardants, which are used by the electronics and components, automotive, building and construction, and furniture and textiles end-markets. Bromine and its derivatives are also used in various other industrial applications, including rubber production, oil and gas drilling, water purification, and in the pharmaceutical and food industries.

Demand for products manufactured by our Industrial Products segment is driven by population growth, improved standards of living, greater environmental and safety awareness, and an increased focus on cost effective industrial production. Increased regulation and environmental awareness also drive demand for polymeric and reactive bromine and phosphorus-based flame retardants, which are considered more environmentally friendly. Despite strong demand patterns in 2021 – driven by the post COVID-19 industrial impact, tight supply and the related supply chain challenges - ICL estimates long-term bromine demand is relatively stable and expects market growth to be primarily linked to the above-mentioned market drivers.

The supply side has tightened, as Chinese producers have significantly decreased their bromine production over the past few years, due to resource depletion, increased environmental-related regulatory pressure, and the reduced availability of land for bromine production. This shift, combined with a shortage of economically viable bromine resources globally, has resulted in price increases related to tight supply and demand.

Specialty Phosphates

Our specialty phosphates business is part of our Phosphate Solutions segment and is focused on developing products for the food and industrial end-markets. These products are centered around the Company's vertical integration into phosphate rock and fertilizer-grade phosphoric acid, also known as green phosphoric acid, which undergoes a chemical process to become purified phosphoric acid, also referred to as white phosphoric acid (WPA). As part of its value-add proposition, we produce and market purified acids and phosphate salts, in addition to commodity phosphates.

In the food industry, phosphate salts are used as functional food ingredients and provide texture and stability solutions for the processed meat, poultry, seafood, dairy, beverage, and bakery industries. On the industrial side, ICL's specialty phosphates are found in water and metal treatment supplies, cleaning and construction materials, cola beverages, oral care, paints and coatings, and more.

As part of its food specialties business, ICL developed its proprietary ROVITARIS® alternative protein technology for the meat alternatives market. By using ROVITARIS®, food manufacturers can create plant-based meat alternatives, which are virtually indistinguishable from their traditional meat counterparts and are allergen free. On December 2, 2021, ICL announced it opened a new 10,000-square-foot alternative-protein production facility in St. Louis, Missouri. At full capacity, the new facility will produce more than 15 million pounds of plant-based meat substitute for use by food companies, food-service distributors, restaurants and grocery chains.

According to our estimates, ICL holds a leading position in specialty phosphates in Europe, North America and Latin America, with approximately 24% market share in total. Additionally, demand for purified phosphoric acid - a key raw material for water soluble fertilizers - is expected to continue to increase, driven by rapid growth in fruit and vegetable consumption and changing agricultural production systems. Similarly, phosphate salts – used in processed meats, cheeses and baked goods – have seen increased consumption in developing countries.

Consumer demand for different food products has changed dramatically over the past several decades, driven by higher income per capita, demographic shifts and lifestyle changes. Longer working hours, changing family structures, increased awareness of nutrition and health issues, and access to a broader variety of food products, have resulted in growing demand for more sophisticated, protein-enriched, unprocessed (clean label) and non-allergenic (free from) food products with improved flavor, texture and appearance. An increasingly longer supply chain and consumer awareness of food waste also drives the demand for longer shelf-life and food stability. These trends drive long-term demand for food additives, such as phosphate derivatives and phosphate and protein formulations.

For 2022, we expect to increase our food-grade WPA production at our YPH in China, in order to serve local food and industrial applications markets. We also expect to increase our battery grade MAP sales to the rapidly growing lithium iron phosphate (LFP) battery market in China.

Agriculture Markets

Fertilizers

Our potash and phosphate commodity fertilizers, FertilizerpluS and specialty fertilizers businesses serve agriculture markets worldwide.

Fertilizers serve an important role in global agriculture by providing vital nutrients to increase both the crop yield and quality. Nitrogen, phosphorus and potassium (N, P and K) constitute the three major nutrients required for plant growth, and there are no artificial substitutes for potassium and phosphorous. Although these nutrients are naturally found in soil, they are depleted over time by farming, which can lead to declining crop yields and land productivity. To replenish these nutrients, farmers must apply fertilizers.

Each of these three nutrients plays a different role in plant development and helps crops achieve their growth potential. Potassium and phosphorus are vital for the plant's physiological processes, including strengthening cereal stalks, stimulating root development, promoting leaf and fruit health, and accelerating the growth rate of crops. Potassium also enhances a plant's ability to withstand drought and cold, improves the efficient use of nitrogen and other nutrients necessary for plant development, and improves the durability of agricultural products in storage and transportation, thereby prolonging shelf life.

Short term demand for fertilizers is volatile and seasonal and affected by factors, such as the weather in the world's key agricultural growing regions, fluctuations in planting main crops, agricultural input costs, agricultural product prices and developments in biotechnology. Some of these factors are influenced by various countries' government subsidies and environmental regulations or by the lines of credit granted to farmers or to producers of agriculture inputs. In addition, currency exchange rates, legislation and international trade policies have an impact on the supply, demand and level of consumption of fertilizers worldwide. Nevertheless, the common perception, reinforced by the 2020 outbreak of COVID -19, is that the policy of most countries is to ensure an orderly and high-quality supply of food for their population and, to this end, they encourage local agricultural production. To achieve this goal, most countries classified the fertilizer industry as essential, excluding it from Covid-19 restrictions and lockdowns. Therefore, we expect the long-term growth trend in the fertilizers market will be maintained.

Global fertilizer demand is also driven by the supply/demand balance for grains and other agriculture products markets, which impacts prices. Supply of agriculture products is influenced by weather, planted areas and input usage, while demand is primarily influenced by population growth and dietary changes in the developing world:

Population and Income Growth per Capita. Historically, growth in global fertilizer consumption has been closely correlated to the growth of the world's population, which is expected to grow from 7.8 billion in 2021 to 9.7 billion by 2050, according to the Food and Agriculture Organization of the UN (FAO). Currently, developed countries use fertilizers more intensively than developing countries and, therefore, produce crops at much higher yields. Economic growth in emerging markets supports food demand and, as a result, fertilizer use. In addition, growth in income per capita in developing markets is resulting in a shift to more protein-rich diets through higher meat consumption - which requires larger quantities of grain for their growth – thus leading to an increased demand for seeds used in animal feed. According to estimates published by the International Monetary Fund (IMF), GDP per capita in emerging markets and developing economies (current prices) is expected to grow by 7.2% and 6.4% in 2022 and 2023, respectively.

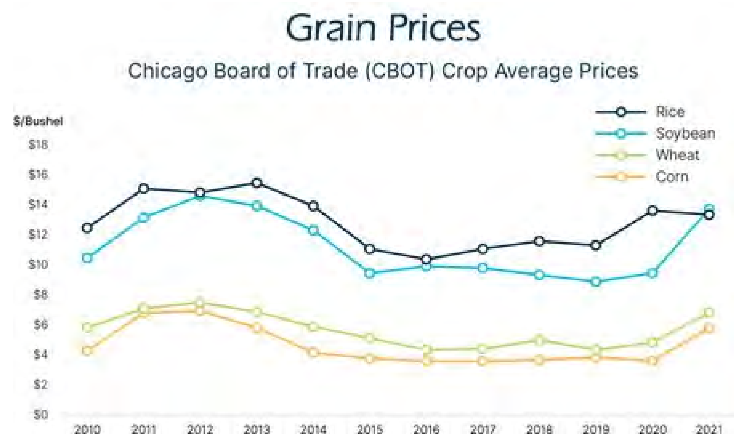
Declining Arable Land per Capita. As the world's population grows, mainly in cities, farmland per capita decreases and more food production is needed from each acre of farmland, which requires increased yield per planted area. Based on data provided by the FAO, the amount of arable land per capita is expected to decrease from 0.21 hectares per person to 0.18 hectares between 2022 and 2050. New arable land is available only in limited quantities and is concentrated mainly in Brazil. Therefore, the only viable path to increased crop production is through a yield increase in developing regions – mainly in China, India, Russia, Africa and Central America. This can be achieved by optimizing the use of fertilizers - especially improving the balance in the use of potash, which is underutilized versus the use of nitrogen fertilizers - together with improved water availability and better seeds. According to the FAO, world crop production will increase by 23.7% between 2021 and 2050, with most of the growth expected to be attributed to increase in yields.

Grain Stock-to-Use Ratio. As illustrated by the chart below, starting from the year 2000 and until the 2012/3 agriculture season, pressure on food demand and unfavorable weather in the main growing areas resulted in low levels of the grain stock-to-use ratio (a metric index of the level of carryover stock). Since then, several years of favorable weather led to a trend of increasing yields, resulting in an increase in the grain stock-to-use ratio. An increase in the grain stock-to-use ratio generally indicates that grain prices may decline (due to higher grain supply) and vice versa.

Stocks are an important market variable, represent inventories at a point in time, and reflect the balance between supply and demand. The stock-to-use ratio also indicates the level of carryover stock for any given commodity, as a percentage of the total demand or use. High stock-to-use ratios indicate more supply is available, generally leading to lower prices. Conversely, low stock-to-use ratios indicate a tight supply situation and higher prices.

This ratio can also be used to indicate whether current and projected stock levels are critical or plentiful. By comparing the current year's stock-to-use ratio with years when carryover stocks were below normal – as well as years when carryover stocks were above normal – will help provide an estimate as to the direction of the price trend, as well as the probable extent of price changes.

During 2021, average prices of corn, soybean and wheat increased by 60.4%, 45.2%, and 41.1%, respectively, while the average price of rice declined by 2%. These increases occurred due to the lingering impact of COVID-19 and the related global concerns regarding food security, especially in China. Good agricultural fundamentals supported the increase in grain prices, mainly in Brazil, where farmers faced high barter ratios. The WASDE report, published by the USDA in January of 2022, further supports the above and showed a decrease in the expected ratio of the global grain inventories to annual consumption, to 28.4% for the 2021/22 agriculture year, compared to 29.2% for the 2020/21 agriculture year, and 30.5% for the 2019/20 agriculture year.



Specialty Agriculture

Specialty fertilizer markets are estimated to be growing at a CAGR of 5% to 7% from 2020 to 2025, depending on the market segment (LucIntel, 2021), which is faster than the conventional fertilizer market. Farmers use specialty fertilizers to meet the needs of specific crops, soil types and climates, to achieve more efficient and effective fertilization and to maximize yield and quality. Specialty fertilizers allow for more precise application of the critical foundations for plant development and are generally used for specialty crops (such as fruits and vegetables, greenhouses and horticulture), and in recent years, usage has also expanded to larger specialty field crops. The global increase in the demand for food is expected to drive a related increase in the use of specialty fertilizers. These fertilizers include enhanced efficiency fertilizers, such as controlled release fertilizers (CRF), which allow for precision in the release of nutrients over time, and delayed or slow-release fertilizers (SRF), which allow for a very slow release of nutrients (nitrogen and potassium only). Other enhanced efficiency fertilizers include liquid fertilizers, integrated in irrigation systems and in herbicides, and fully water-soluble fertilizers, which are most commonly used for fertilization by means of drip irrigation systems and foliar spraying.

The expected market growth of specialty fertilizers is supported by the following global trends:

The need for an increase in yield and crop quality

Enhanced efficiency fertilizers, which include CRFs, increase the quality and yield of crops through more efficient crop uptake of nutrients. Many specialty-fertilizer field trials in specific growing regions have already demonstrated the benefits of using new fertilizer technologies and, as a result, the enhanced efficiency fertilizers category is rapidly growing globally.

Regulatory pressure and environmental trends

Environmental regulations can impose restrictions on the level of nutrient usage. This results in a movement towards more efficient nutrient solutions, such as CRFs, water-soluble fertilizers or biostimulants.

As an example of such restrictions, under its 'Zero Growth Fertilizers 2020' plan, China promoted new fertilization technologies, including the use of controlled release fertilizers and fertigation, among other initiatives. Another regulatory example is the EU Nitrate Directive, which sets a limit on the amount of nitrates that may be found in the water supply. Specialty fertilizers, such as CRFs, can optimize the availability of nitrogen to the crop, thereby reducing nitrate levels. The EU also announced a new fertilizer regulation, which is expected to come into force in July 2022, aimed at developing a more circular economy and at facilitating the development of innovative solutions, such as biostimulants, while also improving the global safety of fertilizers. The EU also announced a 'Farm to Fork' strategy with several ambitious targets, including a reduction in fertilizer nutrient loss while simultaneously maintaining existing soil fertility, as well as a target calling for 25% of the EU's agricultural land to be organically farmed by 2030.

New Grower Practices

Grower practices can have a substantial impact on the growth of the specialty fertilizers market. Fertigation usage is growing, since applying fertilizers via fertigation systems is much more efficient when using specialty fertilizers. Ongoing improvements in agricultural technology have resulted in an increase in the usage of drip irrigation and an increase in demand for liquid and water-soluble fertilizers.

All of the above factors are expected to contribute to an increase in long-term demand for specialty fertilizer solutions.

Competitive Strengths

We attribute our business strength to the following competitive advantages:

- **Unique portfolio of mineral assets.** Access to these assets provides us with a consistent, reliable supply of raw materials, allows for large scale-production, and supports our integrated value chain of specialty products.

  Israel

  Dead Sea: We benefit from access to the Dead Sea - one of the world's most abundant, enduring and cost-efficient sources of potash and bromine. The Company's access to these resources is based on an exclusive concession from the State of Israel for extraction of minerals from the Dead Sea. ICL's production facilities at the Dead Sea enjoy lower production costs compared to underground potash mining operations or bromine extracted from resources with lower mineral concentration. The Dead Sea has high mineral concentration and virtually unlimited supply, and ICL's unique solar evaporation production process is less energy intensive. Furthermore, the Dead Sea's hot and dry climate allows ICL to store large amounts of potash outdoors at a low cost. This advantage enables ICL to operate its potash facilities at full production capacity, despite periodic fluctuations in demand, and to react faster in periods of higher demand. In addition, ICL benefits from lower transportation and logistics costs compared to competitors and has a faster time to market, due to the geographic proximity of its facilities to seaports and Israel's location to its main geographical markets - especially the rapidly-growing markets of India, China and Brazil. While ICL benefits from these advantages, it incurs other infrastructure-related costs in connection with harvesting salt from Pond 5. For further information, see "Item 4 - Information on the Company— D. Property, Plant and Equipment— Mineral Extraction and Mining Operations".

  Negev Desert: Our access to phosphate rock is the foundation for the Company's sizeable downstream and vertically integrated specialty phosphate business. We mine and process phosphate rock from three open-pit mines in the Negev Desert under mining licenses from the State of Israel.

  China

  We also operate an open pit mine in Haikou, China, using conventional methods, under a phosphate mining license issued in July 2015 by the Division of Land and Resources of the Yunnan district in China.

  The majority of our phosphate rock production in China (and Israel) is used internally to manufacture phosphate fertilizers and fertilizer-grade and pure phosphoric acid, with the balance sold to third parties. Our phosphate assets are the base of our vast and diversified specialty phosphates product portfolio and are used in industrial applications, as well as food additives and specialty fertilizers. These offerings provide additional value to ICL while reducing our exposure to the volatility in the commodity markets. See "Item 3 - Key Information— D. Risk Factors— Our mineral extraction operations are dependent on concessions, licenses and permits granted to us by the respective governments in the countries in which we operate".

United Kingdom

We are currently the only global producer of polyhalite, a unique and organic resource used as fertilizer and naturally consisting of potassium, sulfur, calcium and magnesium, which ICL markets under the name Polysulphate. Unlike blended or compound fertilizer, Polysulphate is available in its natural state and is mined, crushed, screened and bagged, with no additional chemical separation or other industrial processes. It is also soluble, easily absorbed and a cost-effective answer to crop nutrition, and has the lowest carbon footprint available globally.

Spain

We hold licenses to mine potash and salts from underground mines with vast resources in Spain. In the first half of 2021, we completed a project to consolidate two existing mines and processing facilities into one complex, which operates via a ramp instead of a shaft. This change has increased the mine's capacity and is expected to contribute to lower costs. The project also expanded the complex's processing capacity, along with other improvements, including the construction of a new terminal in the Port of Barcelona, which was completed in early 2020.

- **Diversification into higher value-added specialty products leverages our integrated business model.** The Company's integrated production processes are based on a synergistic value chain which allows us to both efficiently convert raw materials into value-added downstream products and to utilize the by-products. For example, in phosphates, we utilize backward integration to produce specialty phosphates for the food industry and for industrial applications. These businesses benefit from higher growth rates, higher margins and lower volatility compared to commodity phosphates. In addition, as a by-product of the potash production at the Dead Sea, we generate brines with the highest bromine concentration globally. Our bromine-based products serve various industries such as the electronics, construction, oil and gas and automotive industries.

- **Leading positions in markets with high barriers to entry.** ICL has leadership positions in many of the key markets in which it operates. It is the clear leader in the bromine market, with 40% of market capacity, or approximately one third of global production, as well as most of the excess capacity in the market. In the potash market, our Dead Sea operations have a leading competitive position and, according to CRU, the Dead Sea is among the most competitive potash suppliers to China, India and Brazil. ICL also has the largest market share in specialty phosphates, in the combined markets of North America, Europe and Latin America and is the sole producer of Polysulphate®. ICL has leadership positions in additional product lines, such as phosphorous-based flame retardants, PK fertilizers in Europe, and soluble phosphate-based fertilizers.

  Most of our businesses rely on natural resources, which are scarce and concentrated in the hands of a few market participants. ICL's exclusive concessions, intellectual property – including unique knowledge, technologies and patents for various products and applications – and our world-wide marketing and distribution network, combined with high industry start-up costs for new market entrants, add further significant barriers to entry.

- **Strategically located production and logistics assets.** We benefit from the proximity of our facilities, both in Israel and Europe, to developed economies (Western Europe) and emerging markets (such as China, India and Brazil). In Israel, we ship from two seaports: the Port of Ashdod (with access to Europe and South America) and the Port of Eilat (with access to Asia, Africa and Oceania). Access to these two ports provides us with two distinct advantages versus our competitors: (1) lower plant -to-port, ocean freight, and transportation costs from our ports to our target markets, which lower our overall cost structure; and (2) faster time to markets, due to our proximity to end-markets, which allows us to opportunistically fill short lead-time orders and strengthen our position with our customers.

- **Strong cash generation and closely monitored capital allocation approach**. A continuous focus on cash generation and the optimization of capital expenditures (CAPEX) and working capital – as well as the implementation of efficiency measures – enabled us to generate operating cash flow of $1,065 million in 2021, an increase of 32% compared to 2020. ICL's capital allocation approach balances its long-term value creation through investments in its growth, with its commitment to providing a solid dividend yield, while aiming to maintain an investment grade rating of at least BBB- by S&P and Fitch. In February 2020, the Company's Board of Directors resolved to extend our dividend policy of a payout ratio of up to 50% of annual adjusted net income, until further notice. In respect to 2021 adjusted net income, the Company declared total dividends in the amount of $411 million, reflecting a dividend yield rate of approximately 4.57% (based on the average share price for the year). See "Item 8 - Financial Information— A. Consolidated Statements and Other Financial Information— Dividend policy".

- **Professional expertise and culture of collaboration and determination**. Our operations are managed by an international management team with extensive industry experience. ICL develops leaders with strong experience in their fields and focuses on nurturing and empowering talent through a global platform of qualification, collaboration and communication, in order to drive change and innovation within the Company.

Our Strategy

Our strategy is to strengthen or achieve a leadership position in each of our segments - either in terms of market share or cost competitiveness – and to grow our businesses while creating shareholder value. We do this by leveraging our unique assets and strategic locations; by maximizing our knowledge of agronomy, chemistry and customer requirements; and through our access to Israel's leading innovation and technology ecosystem. We have identified several growth engines, including:

Agriculture – We intend to build global leadership by developing and expanding our portfolio of essential and advanced crop nutrition products, digital solutions and integrated services, enabling farmers to increase yields and provide for the ever-growing nutritional needs of the world. Our growth in agriculture is driven by innovation, investment in increasing capacity and M&A, and it is supported by the increasing demand for organic fertilizers, micronutrients and bio stimulants, focusing on growing markets.

Food – We expect to capitalize on the alternative protein market potential, by focusing on food technologies and innovation, and by increasing capacity for food grade solutions. Growth will be achieved both organically and through M&A.

Industrial – We intend to strengthen our global leadership in the bromine market by capitalizing on new market opportunities and by continuing to focus on longer-term bromine compounds contracts. In addition, growth will be supported through expanded R&D and business development activities for new and sustainable bromine applications.

Our Company's integrated business model creates significant operational synergies, which are derive from the combination of our attractive assets and broad value-added solutions. Over the years, we have developed a balanced portfolio to support long-term stability and growth.

To drive internal commercial synergies, optimize the distribution of our commodity, specialty and semi-specialty fertilizers, and in order to better realize the growth potential of our crop nutrition business, we consolidated our crop nutrition sales and marketing infrastructure in 2020, This has created a unified commercial-facing platform for agriculture end-markets. This new operating model, which is managed on a regional basis, serves to enable us to achieve commercial excellence, increase the efficiency of our global operations and better leverage region-specific knowledge, agronomic and R&D capabilities, logistical assets, and customer relationships.

Industrial Products

ICL's global leadership in the bromine industry is driven by our focus on delivering value to our customers rather than increasing volume. We are able to generate more value by leveraging our unique assets and know-how. The Company also employs targeted innovation, for the development of new applications, such as new bromine and phosphorus-based flame retardants, magnesia and salt products, as well as other solutions. ICL continues to leverage its unique logistical advantages and unparalleled experience related to the safety and environmental aspects of its bromine business. Following strategic long-term contracts signed during 2019, the segment has built new compound facilities to increase its production capacity, mainly for TBBA. The new TBBA facility has been running in full capacity since the beginning of 2021.

Potash

ICL leverages its well-positioned and unique potash assets, as well as our logistical advantages, to be among the three most competitive suppliers in our key target markets, including Brazil, Europe, India, South-East Asia and China. Our cost competitiveness is driven by the Company's lower logistics costs due to our facilities' proximity to both ports and customers. The Company also strives to continuous optimization of its potash production processes and capacity potential at ICL Dead Sea and ICL Iberia (through the consolidation of sites and the completion of the ramp connecting the Cabanassas mine with the Suria plant), to reduce costs and increase efficiency utilizing its capacity potential. At ICL Boulby, the Company focuses on ramping-up the production of Polysulphate and developing the market for this unique fertilizer as the world's first and sole supplier. ICL also strives to optimize synergies of producing magnesium with its potash and bromine operations at the Dead Sea.

Phosphate Solutions

ICL is a global leader in providing phosphate-based solutions to the industrial, food and agriculture end-markets. Our strategy is to continue to grow in these markets by increasing our focus on specialty phosphate solutions, while enhancing customer relationships, and leveraging our backward integration into the phosphate resources of ICL Rotem in Israel and YPH in China, and our extensive know-how and innovation capabilities. We continue to optimize our production capabilities to support the growth and margin expansion of our specialty phosphate products and solutions. During 2021, we entered the fast-growing Electric Vehicles (EV) market segment through the sale of phosphate-based raw materials for the production of lithium iron phosphate LFP batteries in China and we expect to grow this business in the coming years by increasing production capacity, adding global R&D collaborations and by developing additional innovative solutions. On December 2, 2021, ICL opened a new 10,000-square-foot alternative-protein production facility in St. Louis, Missouri. At full capacity, the new facility will produce more than 15 million pounds of plant-based meat substitute for use by food companies, food-service distributors, restaurants and grocery chains.

Innovative Ag Solutions

ICL strives to create global leadership for Innovative Ag solutions by enhancing its global positions in its core markets of specialty agriculture, ornamental horticulture, turf and landscaping, by targeting high growth markets such as Latin America, India and China. We leverage our unique R&D capabilities and seek M&A opportunities, as we work to expand our broad product portfolio of specialty plant nutrition products, including controlled release fertilizers (CRF), water soluble fertilizers (WSF), liquid fertilizers, slow-release fertilizers (SRF), straights (MAP/MKP/PeKacid), organic fertilizers, micronutrients, biostimulants, soil conditioners, adjuvants, seed treatment and growing media, to drive additional growth. We are also developing a service portfolio focused on creating global and regional agri-professional based solutions, by leveraging digital innovation.

As part of the Company's strategy to grow its specialty plant nutrition business organically and through M&A, in 2021, we completed the acquisitions of Fertiláqua, a Brazilian specialty plant nutrition company, and the South American Plant Nutrition business from Compass Minerals (ADS). Both acquisitions helped position ICL as the leading specialty plant nutrition company in Brazil.

Culture

ICL fosters a 'Business Culture of Leadership', which focuses on creating a leading and sustainable work environment, with a strong commitment to all stakeholders. Culture at ICL, means placing safety as the Company's top priority and making every effort and investment to achieve top-tier safety results. Culture at ICL, also means operating with a clear commitment to the environment, even beyond regulatory compliance. We strive to be an Employer of Choice by strengthening the Company's value proposition to employees and by promoting ICL's core values. We also foster an innovation-driven culture, which leverages our technology and know-how, to better serve our customers and increase their loyalty. To ensure we live up to our values, culture at ICL also means accountability, transparency and top-tier corporate governance.

Innovation

As part of our strategic focus to enhance customer value through innovation, we are developing a service portfolio focused on creating global and regional agri-professional based solutions, by leveraging digital innovation.

- In 2021, we established Agmatix, an agro-informatics start-up that creates data-driven solutions for ag professionals worldwide. Agmatix has developed a cutting-edge platform that uses agronomy data science and advanced AI technology to convert agronomic data into actionable insights at the field level. Agmatix aims to compensate the challenge of data standardization in order to dramatically increase crop yield, and quality, and to promote sustainable agriculture.

- In July 2021, we launched 'ICL Planet Startup Hub', a foodTech and agriTech accelerator, aimed at offering ICL's knowledge, experience, market access, and resources to startups operating within and adjacent to ICL's core areas of expertise. ICL Planet Startup Hub's first investment was a $1 million series A investment in Protera, an AI-driven start-up designing and developing new proteins and providing for a wide range of plant-based sustainable solutions to the alternative protein market.

- As part of our effort to expand our global Food Specialties portfolio and to focus the development of healthier and more sustainable food products, the Company launched a new alternative-protein fiber production facility in St. Louis in December 2021. The facility will produce plant-based protein fibers to be used in the production of meat substitute products sold by food companies, food-service distributors, restaurants and grocery chains

- During 2021, we also expanded our specialty products offerings by producing a mono ammonium phosphate battery grade MAP solution for the production of LFP batteries, destined for electric vehicles and other energy storage uses. The Company also collaborates with research and academic institutes to advance LFP technology.

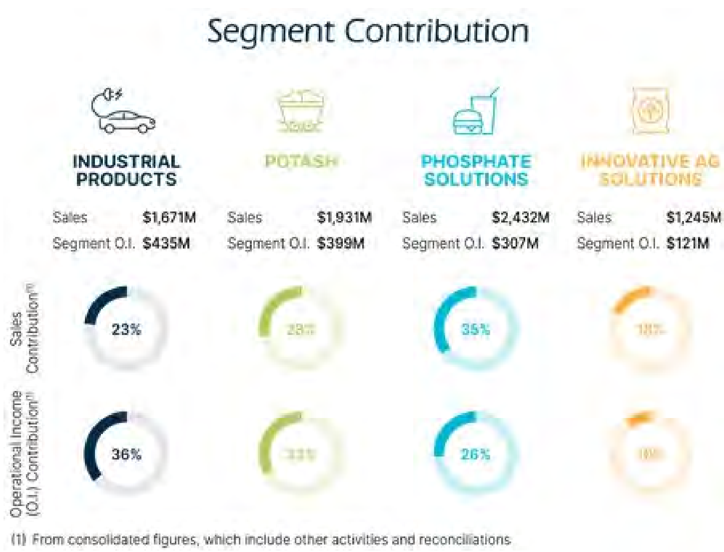
- In February 2020, ICL acquired Growers Holdings, Inc. ('Growers'), an innovator in the field of process and data-driven farming, to help further enhance our digital service offerings and accelerate our global development roadmap. The Growers platform collects and structures manual and machine-generated farm data, instantly creating agile and return-focused plans for planting, fertilization and purchasing decisions.

- Our strong commitment to foster an innovation-driven culture is also reflected by the establishment of an internal innovation accelerator, designed "Business Innovation for Growth" (BIG), aimed to optimally leverage the experience, knowledge and ingenuity of our approximately 12,000 employees worldwide. This integrated ideation platform also provides a structured evaluation process, professional support and resources for developing the ideas raised by employees and enables them to create a meaningful business impact. Since the program's launch in January 2020, ICL employees submitted more than 3,000 ideas across various areas of ICL's businesses, including new applications and products, production optimization and debottlenecking, implementation of Industry 4.0 technologies, introduction of new business models, service improvement and enhancement, supply chain optimization, digitalization of manual business processes, adoption of more sustainable production and operational process, sustainable products development and waste to product projects and much more. Out of the ideas submitted to date, more than 930 have become fully funded projects, of which nearly 600 were completed by the end of 2021. These projects have made an outstanding contribution to ICL's current and future profits, as well as to many other aspects of the Company's business, including commercial and service excellence, operational excellence, suitability, safety, employee satisfaction and other qualitative aspects.

Capital Structure

Our growth initiatives will be supported by our strong financial position. We are focused on maintaining our solid capital structure and generating funds for future growth, by preserving our financial leverage at investment grade levels and improving the maturity profile of our debt portfolio. The Company also works to optimize capital expenditures and working capital and to implement cost efficiencies.

ICL is a leading multinational Company that operates mainly in the areas of fertilizers and specialty minerals, through four segments – Industrial Products, Potash, Phosphate Solutions and Innovative Ag Solutions.



Industrial Products Segment

Our Industrial Products segment produces bromine out of a solution as part of the potash production process in Sodom, Israel, as well as bromine-based compounds. Industrial Products uses most of the bromine it produces for self-production of bromine compounds at its production sites in Israel, the Netherlands and China. Industrial Products is also engaged in the production and marketing of phosphorous-based products. In addition, the segment produces several magnesia, calcium carbonate and salt products.

In 2021, the sales of the Industrial Products segment totaled $1,617 million (including sales to other segments), an increase of 29% compared to 2020. Sales by the Industrial Products segment constitute approximately 23% of ICL's total sales, a decrease of 2% compared to 2020. The segment's operating income totaled $435 million, an increase of 44% compared to 2020. The Industrial Products segment's operating income constituted approximately 36% of ICL's adjusted operating income, a decrease of 23% compared to 2020. For further information see "Item 3 – Key Information – A. Selected Financial Data – Adjusted to reported operating and net income (non-GAAP financial measures)" and "Item 5 - Operating and Financial Review and Prospects— A. Operating Results— Results of Operations".

Products

Industrial Products focuses on three main sub-business lines:

Flame retardants – Bromine, phosphorus and magnesium-based flame retardants are used in electronics, building and construction, automotive, textile and furnishing applications. Flame retardants are added to plastics, textiles and other combustible materials to prevent or inhibit fire or flames and to prevent the spread of fire.

Industrial solutions – Elemental bromine, bromine compounds and phosphorus compounds are used in a number of industries worldwide, such as: rubber, pharmaceuticals, electricity, agro and polyester (in production of plastic fabrics and bottles). Clear brine fluids are used for balancing pressure in the oil and gas drilling industry. Bromine-based biocides are used for treating industrial water.

Specialty minerals – Specialty minerals include magnesia, calcium carbonate and salt products. The main applications of magnesia products are dietary supplements and pharma, oil and fuel additives, catalysts and many other small applications. The calcium carbonate main applications are dietary supplements and pharma. The salts include sodium chloride, magnesium chloride and KCl which are mainly used for the food industry, deicing (MgCl2) and various industrial applications. Due to the uniqueness and high quality/purity of our products, most of our sales are to niche markets.

The following table sets forth the principal products of the Industrial Products segment, as well as their primary applications and end-markets:

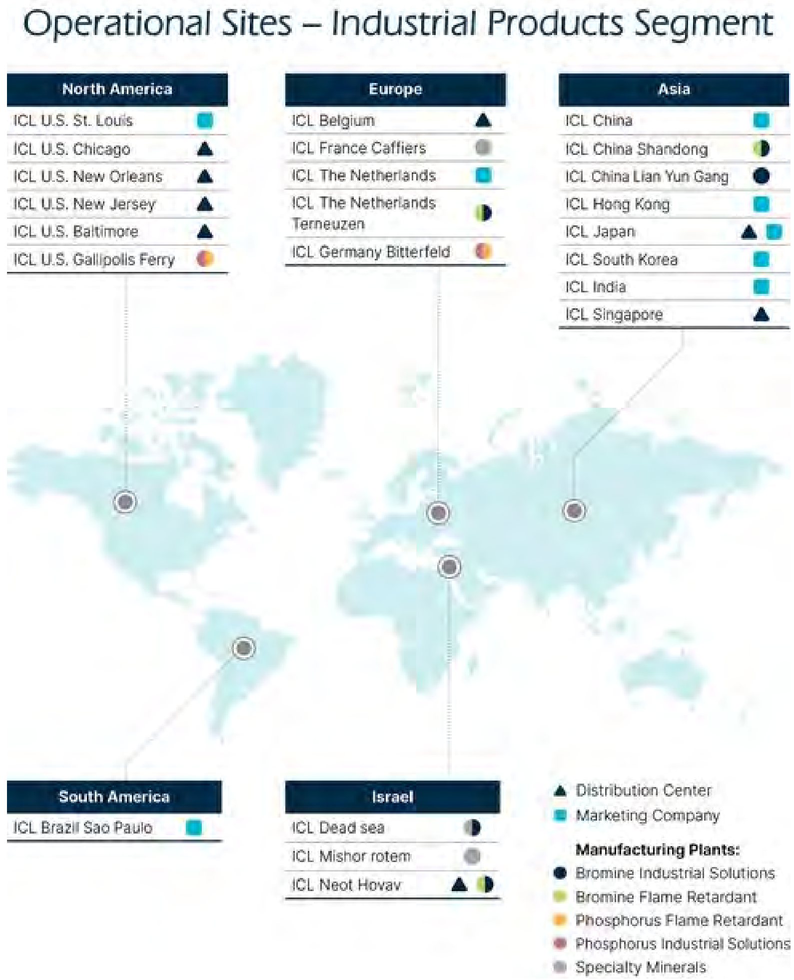
Sub-business line	Product	Primary Applications	Primary End-Markets
Flame retardants	Bromine-, phosphorus and magnesium-Based Flame Retardants	Plastic, building materials and textile production	Electronics, automotive, building and construction, furniture and textiles
Industrial solutions	Elemental Bromine	Chemical reagent	Tire manufacturing, pharmaceuticals and agro
	Phosphorus-based industrial compounds	Fire resistant fluids in turbines & power generation hydraulic systems and phosphorus-based inorganic intermediates	Power plants and agro
	Organic Bromine Compounds	Insecticides, solvents for chemical synthesis and chemical intermediates	Pharmaceuticals and agro
	Clear Brines	Oil and gas drillings	Oil and gas
	Merquel	Mercury emission control	Emission control in coal-fired power plants
	Bromine-Based Biocides	Water treatment and disinfection	Cooling towers, paper plants and oil and gas drillings
Specialty minerals	Magnesia Products	Pharma and Supplementals, transformer steel, catalysts, fuel and oil additives.	Supplementals, multivitamins, transformer steel, automotive rubber and plastic, health care
	Calcium Carbonate	Supplementals and pharma	Supplementals and pharma
	Solid MgCl2, KCl	Deicing, food, oil drilling, pharma	Deicing, sodium replacement, KCl for drugs. multivitamins, oil drilling companies, small industrial niche markets

Industrial Products also develops innovative products and new applications for existing products. New products introduced in recent years include, among others, TexFRon® 4002 (a polymeric flame retardant product for textiles), bromine compounds for energy storage (a wide range of products used in bromine-based flow batteries), VeriQuel®R100 (a phosphorus-based reactive flame retardant for rigid polyisocyanurate and polyurethane spray foam), our innovative Bromoquel (replacing ammonia and other chemicals as more flexible and effective treatment in case of bromine leakage), VeriQuel® F series (phosphorus-based active flame retardants for flexible polyurethane), CareMag® D (a new natural raw material for deodorants), PolyQuel® P100 (polymeric phosphorus-based flame retardant for high end epoxy printed circuit boards) and Phosphorus Acid of 80% concentration, which enables customers to improve productivity and yield.

Production

Our Industrial Products segment's major manufacturing facilities are located in Israel (production of bromine, bromine compounds, magnesia and salts products), the Netherlands (bromine compounds), Germany (phosphorus compounds), France (magnesia and calcium carbonate-based products), the United States (phosphorus compounds) and China (bromine compounds).

The Industrial Products segment's principal manufacturing plants and marketing companies are set forth in the map below:



In 2021, ICL produced approximately 182 thousand tons of elemental bromine out of potential annual maximum production capacity of approximately 280 thousand tons. Approximately 74% of the elemental bromine produced is used internally for the production of bromine compounds.

Following the signing of several strategic long-term agreements in 2019, we increased capacity of several major bromine compounds, including production at our new TBBA plant at our Neot Hovav site in Israel. Further capacity increases are ongoing in various implementation stages. Moreover, we are increasing our Bromine Isotanks fleet to meet growing market needs.

During 2021, the Industrial Products segment ceased operations at two of its production sites in China. In July 2021, we completed the sale of Jiaxing ICL Chemical Co. Ltd. (ICL Zhapu) and in October 2021, we shut down our LYG plant following a request by the Chinese authorities to either relocate the plant or shut it down. Authorities asked to conduct additional land survey. Once it complete, the compensation will be finalized.

Competition

ICL Industrial Products is the world's largest manufacturer of elemental bromine. Based on internal estimates, in 2021 ICL and its two main competitors, Albemarle and Lanxess, accounted for the majority of the worldwide production of bromine. Chinese and Indian production accounted for most of the remainder of global production from various sources, including, brine produced from wells, seawater and desalinization plants. Chinese supply is decreasing mainly due to continued depletion of brine wells, along with stricter enforcement in recent years by the Chinese authorities of regulations related to safety and ecology in the chemical industry. Due to these trends, favorable conditions have developed in the Chinese bromine and bromine compounds market.

Lanxess and Albemarle produce bromine primarily from underground brine sources in the United States. Albemarle also has a joint venture with a Jordanian company to produce bromine and bromine compounds on the Jordanian side of the Dead Sea, sharing the same source of raw materials with ICL. Lanxess purchases bromine and some other bromine compounds from our Industrial Products segment under a long-term contract.

The main barrier to entry into the bromine and bromine compound market is access to an economically viable source of bromine in a sufficiently high concentration. In addition, the bromine business requires complex logistics, including special containers (Isotanks) for the transportation of bromine. The need for these logistics presents a barrier of entry to competitors into the global bromine trade.

In the phosphorus-based flame retardants market, competition is mainly from Chinese manufacturers operating in their local market and in markets outside China, mainly Europe and the United States. The Chinese manufacturers have access to a source of high-quality, low-cost phosphorus, which improves their ability to compete in this market. However, several limitations of the Chinese authorities affect the production and the competitive position of Chinese phosphorus-based flame retardants producers.

The segment benefits from the following competitive advantages:

The Dead Sea operations offer the world's highest bromine concentration, while our bromine compounds facility at Neot Hovav, Israel, is the largest worldwide. As a result, the segment's relatively low production cost of elemental bromine gives it a competitive advantage. An additional competitive advantage, deriving from ICL's complex logistics system, which includes the largest Isotanks fleet in the world. In addition, the segment operates worldwide marketing, sales and supply chain network, a range of high-quality products and a technical support system that works closely with our customers, providing a good competitive position in its target markets.

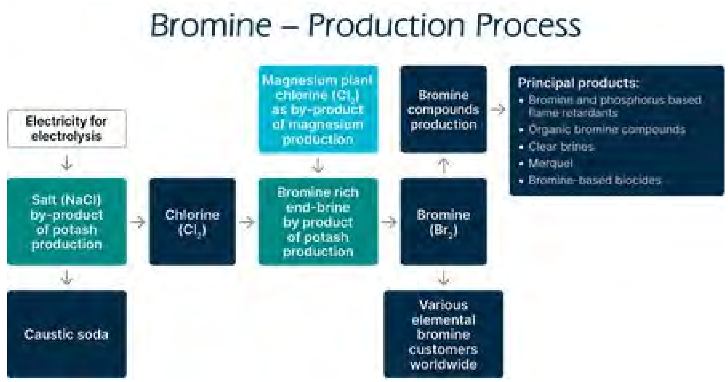
Raw Materials and Suppliers

The principal raw materials used by our Industrial Products segment for the manufacturing of its end products are bromine, chlorine, phosphorus and magnesia. The production process also uses significant amounts of water and energy. The segment produces a significant portion of its raw materials through operations to extract Dead Sea minerals. For further information on the extraction operations, see "Item 4 - Information on the Company— D. Property, Plant and Equipment— Mineral Extraction and Mining Operations".

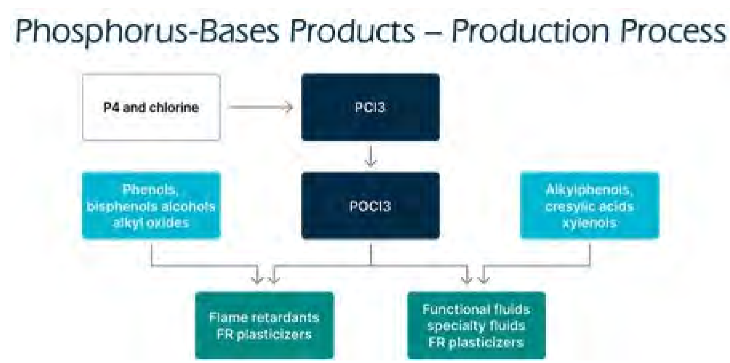
Bromine is produced from the end brines (salt solutions) that are a by-product of the process of production of potash. The brine is pumped into ICL Industrial Products' plant in Sodom, where bromine is produced in an oxidation process using chlorine and steam.

Chlorine is produced by electrolysis of sodium chloride and as a by-product of the metal magnesium production process of Dead Sea Magnesium Ltd. ("Dead Sea Magnesium"). The electrolysis facility and the magnesium plant are located next to the bromine production facility in Sodom. The sodium chloride used in the electrolysis process is also a by-product of the potash production in Sodom.

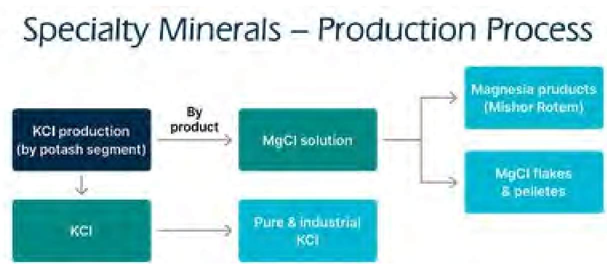
Industrial Products uses elemental bromine to manufacture bromine compounds at its facilities in Israel, the Netherlands and China. The remainder of the bromine is sold to third parties. Most bromine compounds are manufactured by a chemical process involving bromine together with a range of other raw materials, of which the largest is Bisphenol A, used to manufacture the bromine-based flame retardant TBBA. Furthermore, the Industrial Products segment purchases many other raw materials that are required to produce its various products.



Elemental phosphorus (P4) is produced in a roasting process from ores, originating mainly in Central Asia (Kazakhstan), the United States and China. The Industrial Products segment uses elemental phosphorus to produce phosphorus compounds at its factories (mainly phosphorous based flame retardants). The basic phosphorus compound, $POCl_3$, is manufactured in a chemical process that combines phosphorus, chlorine and oxygen. The reaction of this compound with a variety of other raw materials (such as Propylene Oxide) creates commercial phosphorus compounds.



Industrial Products uses magnesium chloride brine to manufacture magnesia products at its Mishor Rotem facilities in Israel and MgCl2 flakes and pellets at its facilities in Sodom Israel. In addition, the Industrial Products segment uses KCl from our Potash segment to manufacture pure and industrial grades of KCl in Sodom.



Industrial Products maintains raw-material inventories in quantities that take into account the projected level of production based on consumption, supply dates, distance from the supplier and other operational and logistic considerations.

As part of our strategy to increase its energy consumption from renewable energy sources, the Company has signed several contracts for the installation of PV panels at its production sites, which will gradually occur from 2022 onward.

Sales, Marketing and Distribution

Industrial Products' principal markets are the United States, Western Europe, China, Japan, and Taiwan. Industrial Products sells its products primarily through a network of marketing companies, while a smaller portion of sales is conducted through agents and distributors throughout the world. Commissions are paid to agents in accordance with the sector's customary practice. Approximately half of our sales in the Industrial Products segment are conducted via long-term agreements with an initial term of one year or more. Nevertheless, the Industrial Products segment also sells its products via current orders, close to the date of supply.

Industrial Products' policy is to maintain adequate inventory levels, which varies from product to product, to ensure orderly supply to customers in light of the customers' distance from the production centers and their demand for inventory availability while optimizing inventory storage costs. Therefore, a portion of finished product inventories are held in storage facilities in destination countries.

Industrial Products extends credit terms to its customers according to its credit policy. Sales are generally covered by trade credit risk insurance or by letters of credit from banks with high credit ratings.

Seasonality

Industrial Products' operations are not characterized by seasonal fluctuations. However, sales of some of its products do fluctuate between seasons. Agricultural products are characterized by relatively high sales in the second and third quarters. Biocides for swimming pools are characterized by relatively lower sales in the fourth quarter. $MgCl_2$ for de-icing sales are characterized by relatively higher sales in the first and fourth quarters. The aggregate impact of these diverse seasonal differences on the Industrial Products segment is not significant.

Natural Resources Tax in Israel

The Law for Taxation of Profits from Natural Resources in Israel became effective on January 1, 2016, with respect to our Bromine operation. For further information, see Note 15 to our Audited Financial Statements.

Potash Segment

Our Potash Segment produces and sells mainly potash, salt, Polysulphate®, magnesium and excess electricity. Potash is produced in Israel and Spain, using an evaporation process to extract potash from the Dead Sea in Israel and conventional mining from an underground mine in Spain. At our ICL Boulby mine in the UK, the Company produces Polysulphate®, which is composed of sulphur, potash, calcium and magnesium. Our FertilizerpluS product line is based mainly on Polysulphate®. The segment also includes a magnesium products line which produces pure magnesium and magnesium alloys, as well as chlorine and sylvinite. In addition, the segment sells salt that is produced in its potash and Polysulphate® underground mines in Spain and the UK. Our Company operates a power plant in Sodom which supplies electricity to ICL companies in Israel (electricity surplus is sold to external customers) and steam to all the facilities at the Sodom site.

In 2021, the sales of the Potash segment totaled to $1,931 million (including sales to other segments), an increase of 43% compared to 2020. Total sales of the Potash segment constituted approximately 28% of ICL's total sales, an increase of 1% compared to 2020. The segment's operating income totaled $399 million, an increase of 233% compared to 2020. The segment's total operating income constituted approximately 33% of ICL's adjusted operating income, an increase of 10% compared to 2020. For further information, see "Item 3 – Key Information – A. Selected Financial Data – Adjusted to reported operating and net income (non-GAAP financial measures)" and "Item 5 - Operating and Financial Review and Prospects— A. Operating Results— Results of Operations".

<u>Potash</u>

Products

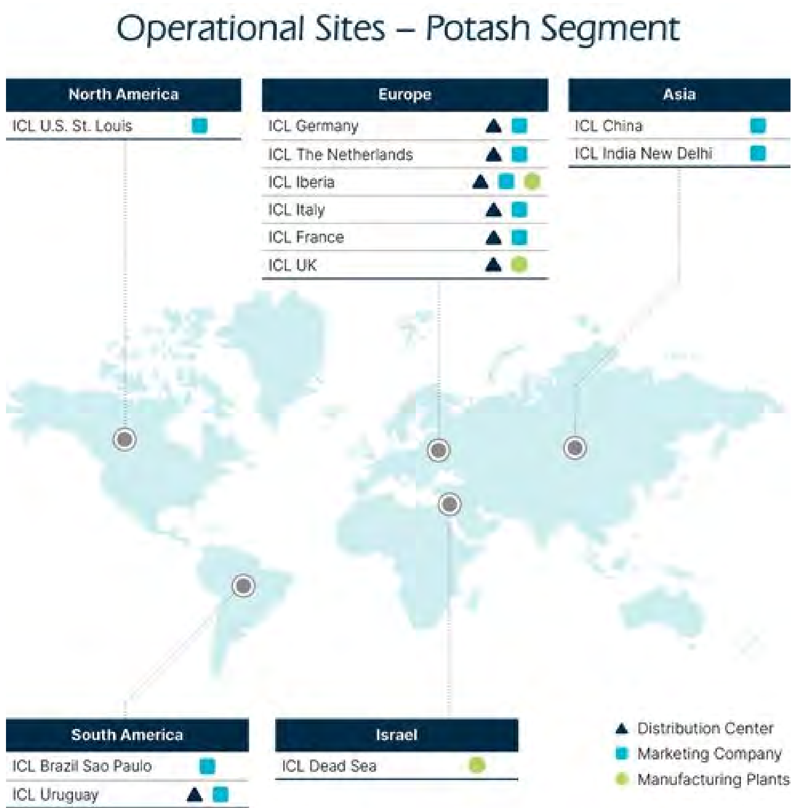
Potash is the common name for potassium chloride, which is the most common source of potassium for plants and one of the three essential nutrients for plant development. Potash assists in protection of plants from disease and damaging agents, helps them to adapt to different weather conditions, regulates plant water levels, strengthens the plant stems and strengthens the plant's ability to absorb nourishing substances. We sell potash for direct application as a fertilizer and to compound fertilizer manufacturers.

Production

Potash is produced from the Dead Sea and from an underground mine in Spain. The potash production process in Israel is based on extracting carnallite. The carnallite, which is a compound of potassium chloride (KCl) and magnesium chloride mixed with sodium chloride (NaCl), precipitates in some of the largest solar evaporation ponds in the world, which contain brines drawn from the Dead Sea. The carnallite is transferred to the plants where a chemical and physical process breaks down the carnallite crystal into potash using two distinct parallel technologies, cold crystallization and hot leach. Potash production in Spain is conducted in an underground mine extracting sylvinite, a mixture of potash (KCl) and salt (NaCl) with varying potash concentrations. The potash is separated from the salt by a flotation process in the production plants situated near the mine.

The principal production facilities of the Potash business include its plants in Israel and Spain.

The manufacturing plants, distribution centers and marketing companies of the potash business are set forth in the map below:



In 2021, our Potash business produced approximately 4.5 million tons of potash. Our potential annual production capacity of potash, after completion of the expansion of our Spanish mine will be about 5 million tons. The potential production capacity of our various plants is based on the hourly output of the plants, multiplied by potential hours of operation per year. This calculation assumes continuous production over the year, 24 hours a day, other than a few days for annual planned maintenance and renovations. Actual production is usually lower than the potential production capacity due to unplanned downtime, special maintenance operations, non-availability of raw materials, market conditions, and unexpected events.

Production-related developments throughout the Potash business:

Israel

Following ICL Dead Sea's record potash production in 2020, the segment successfully maintained a similar production level and produced 3,900K tons, while breaking the annual production record of granular potash with production of 1,858K tons.

Spain

Up to June 2020, ICL Iberia, our subsidiary in Spain, operated two potash production centers in Suria and Sallent. As part of an efficiency plan, in June 2020, ICL Iberia consolidated its activities into one site by means of expanding the Suria production site and discontinuing the mining activity at Sallent. In addition, in 2021, we successfully completed the excavation of the ramp connecting the Cabanasses mine with the Suria plant, including the installation of operational equipment and infrastructure.

The consolidation of the facilities and the ramp project are expected to increase our production capacity to an expected annual running rate of approximately 1 million tons by the second half of 2022, while lowering cost per ton, and to reach a level of up to about 1.3 million tons per year in the future, following completion of additional necessary adjustments in surface production facilities.

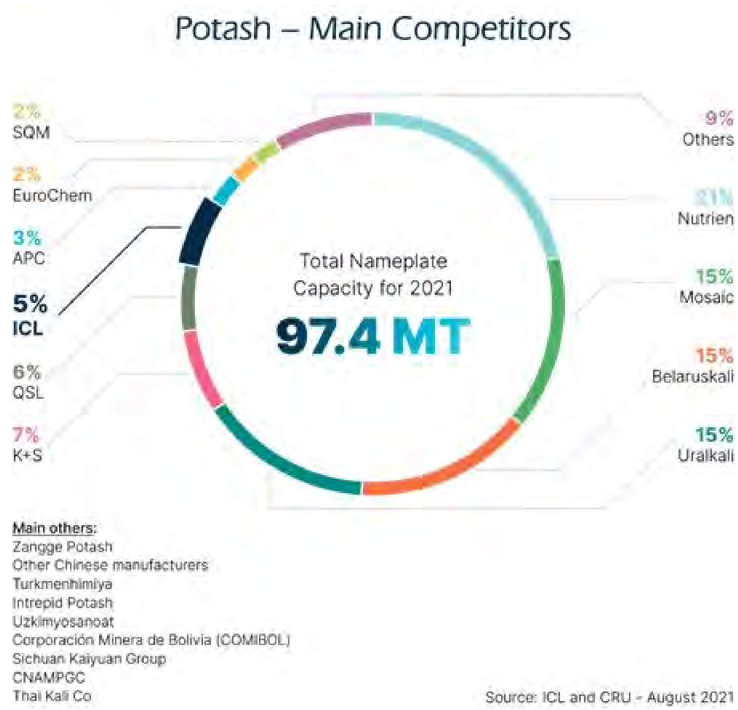
Salt - In 2015, ICL Iberia and AkzoNobel Industrial Chemicals B.V. (currently known as Nobian Industrial Chemicals B.V., or Nobian) signed a partnership agreement to market high-quality vacuum salt and pure potash. High purity vacuum salt is used in a variety of applications in various industries, such as the chemicals industry (for instance in electrochemical companies), the leather and textile industries, the food and feed industries, and for water treatment applications. Following disputes between the Company and Nobian, in October 2021, an agreement was signed to terminate the partnership, under which the Company will pay a net amount of approximately $17 million for Nobian's holding in Sal Vesta (51%), Nobian's share in a joint venture (SOPAA) and for the net settlement of all additional disputes between the parties.

Collector - As part of the potash production process, salt is produced as a by-product which is treated using a collector that transports it from ICL Iberia's sites to the sea. In view of the obsolescence of the current facility, located between the ICL site and Abrera (located around 50 km from our site and 40 km from Barcelona), the Generaltat de Catalunya will construct a new collector which will secure the future operations of our production sites, will enable an increase in capacity and improve our treatment of the existing salt. In April 2021, the Company signed an agreement with the Catalan Water Agency for the construction and operation of the Collector. The main highlights of the agreement include, among other things, the way in which the project will be managed, the financing aspects of the project, the definition of project costs and the determination of the operational maintenance mechanism, including usage costs. Based on the said agreement and the Spanish Water law, it was determined that ICL Iberia's share will be up to 90% of the project's cost (approximately $110 million), to be paid throughout the construction and operation period. The construction period is expected to extend over four years and the operation period is expected to be 25 years.

Competition

The potash market is characterized by a relatively small number of manufacturers, some of whom export jointly. See "Item 3 - Key Information— D. Risk Factors— Our operations and sales are exposed to volatility in the supply and demand, mergers of key producers\customers\suppliers, expansion of production capacity and competition from some of the world's largest chemical and mining companies". The ability to compete in the potash market is dependent mainly on production costs and logistic capabilities. Moreover, there are high entry barriers for new players due to the significant investment and length of time required to establish potash operations. In addition, this industry requires appropriate concessions and proximity of production facilities to the mines.

ICL's current significant competitors in the international potash market are Nutrien (Canada), Mosaic (USA), Belaruskali (Belarus), Uralkali (Russia), K+S (Germany), QSL (China), APC (Jordan), EuroChem (Russia) and SQM (Chile).



We believe our Potash business benefits from the following competitive advantages:

- The relatively low average cost of potash production at the Dead Sea, using the sun as a solar energy source in the evaporation process.
- Logistical advantages due to our geographical location, access to nearby ports in Israel and Europe and relative proximity to our customers, which are reflected in particularly competitive marine and overland shipping costs and delivery times.
- Climate advantages due to the hot and dry climate of the Dead Sea that enable us to store, at very low cost, a large quantity of potash in an open area thereby allowing us to constantly produce at Sodom at full capacity, independent of fluctuations in global potash demand.
- Our mine in Spain is one of the last mines in Western Europe, creating logistics advantages in supplying customers in Europe.

Raw Materials and Suppliers

The Potash segment produces potash in Israel and Spain. Potash does not require additional chemical conversion to be used as a plant-nutrient fertilizer. Nevertheless, it can also serve as a raw material in the production of certain specialty fertilizers.

The other primary utilities used by us to support our potash production are natural gas, electricity, industrial water and neutralization materials.

Sales, Marketing and Distribution

The primary markets of the Potash business are Brazil, China, India, Europe and USA. Our Potash segment sells its fertilizer products primarily via a network of ICL sales offices, and through agents around the world.

Most of our Potash sales are not made by means of contracts or long-term orders but, rather, through current orders proximate to the supply date (except for annual agreements with customers in India and China). Accordingly, our Potash segment does not have a significant backlog of orders.

In the Indian and Chinese markets, it is customary to conduct protracted negotiations regarding potash contracts, partly through commercial entities related to the governments of those countries. In other markets, potash is usually imported by a larger number of customers. In these markets, we have trade relations with most of the major customers.

Potash prices are determined through negotiations between manufacturers and customers and are affected, mainly, by the relationship between market demand, available supply and the outstanding inventories among suppliers and customers, as well as the identity of the customer and the timing of the transaction. Prices for relatively long-term contracts are not necessarily identical to the “spot” prices (current sale transactions).

In April 2021, ICL signed a contract with Indian Potash Limited (IPL), India’s largest importer of potash, to supply an aggregate 600,000 metric tons of potash, with mutual options for an additional 50,000 metric tons, to be supplied through December 2021. The agreed selling price in the contract is $280 per ton CIFFO Indian ports, $50 per ton above the previous contract. The contract is part of a five-year supply agreement signed in December 2018 between ICL and IPL. In November 2021, ICL reached an agreement with IPL to increase the selling price of 150 thousand tons of potash to be delivered to India in 2021 to $445 per ton CIFFO Indian ports.

On February 22, 2022, as part of the five-year supply agreements signed in December 2018, ICL signed a contract with IPL for the supply of an aggregate 600,000 metric tons of potash through December 2022. The agreed selling price is $590 per ton CIFFO Indian ports.

In February 2022, ICL signed framework agreements for supply of potash with its Chinese customers for the next three years (2022-2024). Prices for the quantities to be supplied according to the framework agreements shall be established in line with the prevailing market prices in China at the relevant date of supply. As part of these agreements, ICL has signed contracts to supply an aggregate amount of 700,000 metric tons of potash, with mutual options for additional 250,000 metric tons, to be supplied by the end of 2022. The agreed selling price in the contracts is $590 per ton.

For further information about trends affecting the segment, see Item 5 – "Operating and Financial Review and Prospects, Trends Affecting Potash Segment " to our 20F report.

Our Potash segment grants credit terms to its clients according to customary practices in their locations. The segment's credit sales are generally covered by trade credit risk insurance or by letters of credit from banks with high credit ratings.

The Potash business transports potash from Israel and Spain as follows:

From Israel to overseas customers by ships (mainly in bulk), which are leased in the market and loaded using designated facilities at the port of Ashdod on the Mediterranean Sea and the port of Eilat on the Red Sea.

From Spain to local customers by trucks and overseas by ships, using designated facilities for bulk loading at the new port of Barcelona (Spain). In Israel, short mine-to-port distances and shorter shipping routes to emerging markets gives our Potash business a significant and unique advantage over our main competitors. For information regarding the new designated facility at the Barcelona port, see "Item 4 – Information on the Company— D. Property, Plant and Equipment— Logistics".

Seasonality

The seasonal nature of demand for our Potash business' products is usually characterized by higher sales in the second and third quarters. The prolonged impact of the COVID-19 pandemic has changed this seasonal sales pattern, as governments around the world, especially in China, have adopted "Food Security" policies, which have supported high levels of crops' demand and prices. The strong, global demand for grains has resulted in a continuous decline in grains stock-to-use ratio which, in turn, supports higher fertilizer demand and price levels, including potash.

Natural Resources Tax

The Law for Taxation of Profits from Natural Resources in Israel entered into effect on January 1, 2017, with respect to our Potash operations at ICL Dead Sea. For further information, see Note 15 to our Audited Financial Statements.

Additional products

The Potash segment produces and sells additional products, Polysulphate®, PotashpluS®, magnesium-based products, dehydrated carnallite, chlorine, salt produced in underground mines in the UK and Spain, vacuum salt produced in Spain, electricity surplus produced in Israel and others.

FertilizerpluS

FertilizerpluS is ICL's premium fertilizers line, based mainly on polyhalite (marketed by the Company as Polysulphate®) and other products. FertilizerpluS products, which include different compounds of phosphorus, sulphur, potassium, magnesium and calcium, are tailored for various types of soil and a wide range of crops and are intended to enhance crop value by improving yields and increasing fertilizer uptake. We produce our FertilizerpluS products through both our Potash and the Phosphate Solutions segments. See below a list of products that are included in the FertilizerpluS line.

Polyhalite is a mineral that is exclusively mined by ICL through our Potash segment in an underground mine (ICL Boulby), located in North Yorkshire in the UK, and is marketed under the brand name Polysulphate®. Polysulphate® is used in its natural form as a fully soluble and natural fertilizer, which is also used for organic agriculture, and as a raw material for the production of fertilizers. Polysulphate® is composed of sulphur (SO_3 48%), potash (K_2O 14%), calcium (CaO 17%) and magnesium (MgO 6%), which are essential components for the improvement of crops and agricultural products. Polysulphate® is the basis for many of our Company's FertilizerpluS products.

The Company considers Polysulphate® a unique product for ICL, synergistic with our other raw materials for the purpose of developing downstream products. To develop downstream products, we are expanding the Polysulphate® market by means of, among other things, development of a wide variety of innovative Polysulphate®-based products.

In 2021, ICL's total sales of FertilizerpluS products amounted to $168.2 million (including sales of the Potash and the Phosphate Solutions Segments), constituting 2.4% of our total sales.

We believe that our FertilizerpluS product line benefits from the following competitive advantages:

- Currently, we are the sole producer of Polysulphate® worldwide. Regarding an additional potential future producer of Polysulphate®, see "Item 3 – Key Information – D. Risk Factors – Our operations and sales are exposed to volatility in supply and demand, mergers of key producers\customers\suppliers, expansion of production capacity and competition from some of the world's largest chemical and mining companies".

- Our ability to increase production at a relatively low capital expenditure.

- Polysulphate® and Polysulphate®-based fertilizers, customized to meet the needs of different crops and soil types, maximize yield and allow more precise and efficient applications.

- Polysulphate® contributes to and follows the main market trends in the fields of increased nutrient-use efficiency, low carbon footprint and organic fertilizers.

Following are several examples of Polysulphate®-based products and additional products that are included in the FertilizerpluS line:

- PotashpluS – a compressed mixture of Polysulphate® and potash. The product includes potassium, sulphur, calcium and magnesium. ICL continued the growth trend of PotashpluS throughout 2021 and plans to continue this trend in 2022.

- PKpluS – a unique combination of phosphate, potash and Polysulphate ®. In 2021, the Company, through our Phosphate Solutions Segment, increased PKpluS sales and plans to continue this trend in 2022.

- NPKpluS – a unique combination of Nitrogen, phosphate, potash and Polysulphate®. This product includes all 6 macro nutrients in one granule

- Polysulphate premium – granulated uniform, robust spheres of natural, multi-nutrient Polysulphate fertilizer with smooth surface protects from abrasion, humidity or damage & gives consistent flow rate

- NovaPhos – ensures an effective supply of slow-release phosphorus, calcium, magnesium and micronutrients for crops, specifically tailored for use in acidic soil.

- NPS – a nitrogen-phosphate fertilizer compounded with sulphur, which provides exceptional effectiveness for the enhancement of a wide range of crops through the combination of these three nutrients in one product.

- PK+Micronutrients – a tailor-made fertilizer, with precise micronutrient composition for the specific type of crop.

In 2021, we produced approximately 789 thousand tons of Polysulphate®. The production of Polysulphate® in the UK is in the ramp-up stages and is expected to reach full production capacity towards the end of 2023. The current annual potential production capacity of Polysulphate® is above 1 million tons. The potential production capacity is based on the hourly output of the plants, multiplied by potential hours of operation per year. This calculation assumes continuous production over the year, 24 hours a day, other than a few days for planned maintenance and renovations. Actual production is usually lower than the potential production capacity due to unexpected breakdowns, special maintenance operations, non-availability of raw materials and market conditions.

Magnesium

The Potash segment includes magnesium production, operated by Dead Sea Magnesium Ltd., which is the largest magnesium producer outside China and the USA. The magnesium business producing, marketing and selling pure magnesium and magnesium alloys, as well as dry carnallite.

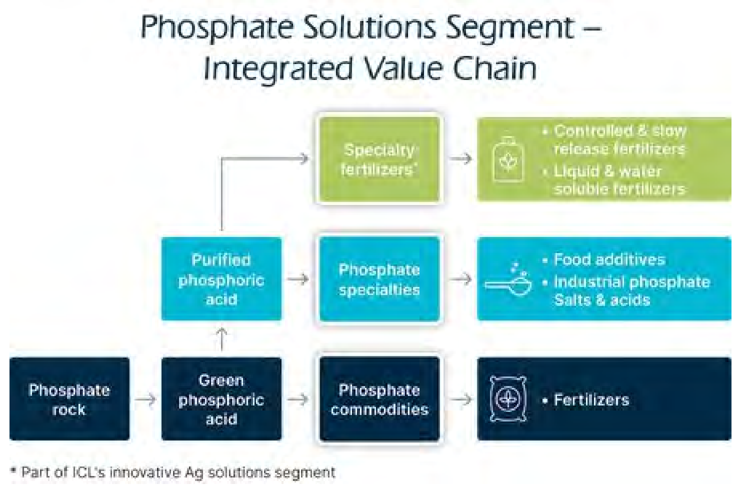
Magnesium is considered as the lightest structural metal. One of the main characteristics of magnesium is a higher strength-to weight ratio compared with other metals – mainly steel and aluminum. The main uses of magnesium are in the following industrial sectors: the aluminum sector, steel sector, and the casting sector of parts made of magnesium alloys (mainly for uses in the automotive industry).

Production of magnesium is based on the carnallite gathered from the Dead Sea. During the electrolysis process, the magnesium chloride present in the carnallite is separated into magnesium metal and chlorine gas.

Factors that can reduce the actual production are unexpected breakdowns, special maintenance operations, non-availability of raw materials and market conditions. The potential production capacity of our various plants is based on the hourly output of the plants, multiplied by potential hours of operation per year. This calculation assumes continuous production over the year, 24 hours a day.

Phosphate Solutions Segment

The Phosphate Solutions segment (hereinafter – the Segment) is based on a phosphate value chain which uses phosphate commodity products, such as phosphate rock and fertilizer-grade phosphoric acid ("green phosphoric acid"), to produce specialty products with higher added value. The segment also produces and markets phosphate-based fertilizers. The strategy of the segment is to be a leading provider of value-added specialty solutions based on phosphate for the industrial, food and agriculture markets.



In 2021, the sales of the Phosphate Solutions segment totaled $2,432 million (including sales to other segments), an increase of 25% compared to 2020. Total sales of the Phosphate Solutions segment constituted approximately 35% of ICL's total sales, a decrease of 4% compared to 2020. Total sales of Phosphate Specialties, in 2021, were $1,341 million, reflecting an increase of 18% compared to 2020. Total sales of Phosphate Commodities, in 2021, were $1,091 million, reflecting an increase of 34% compared to 2020. Segment operating income totaled to $307 million, an increase of 365% compared to 2020. Total segment operating income constituted approximately 26% of ICL's adjusted operating income, an increase of 13% compared to 2020. The operating income of Phosphate Specialties, in 2021, totaled $155 million, reflecting an increase of 32% compared to 2020. The operating income of Phosphate Commodities in 2021, totaled $152 million, $203 million higher than the $51 million operating loss in 2020. For further information, see "Item 3 – Key Information – A. Selected Financial Data – Adjusted to reported operating and net income (non-GAAP financial measures)" and "Item 5 - Operating and Financial Review and Prospects— A. Operating Results— Results of Operations".

Products

The Phosphate Solutions segment produces a variety of products based on its backward integrated value chain.

Phosphate rock contains phosphorus, one of the three essential nutrients for plant development, which directly contributes to a wide range of physiological processes in a plant, including production of sugars (including starch), photosynthesis and energy transfer. Phosphorus strengthens plant stems, stimulates root development, promotes flower formation and accelerates crop development. Phosphate rock can be utilized to produce phosphoric acid and can be sold as a raw material to other fertilizer producers. ICL's phosphate rock is mined and processed from open pit mines and undergoes a beneficiation process, after which high-grade multi-purpose phosphate products are created.

Green phosphoric acid is produced by using beneficiated rock and sulphuric acid (produced by the segment using sulphur acquired from third parties). Most of the green phosphoric acid is used to produce phosphate-based fertilizers and pure phosphoric acid, and in some cases, is sold to external costumers.

Phosphate fertilizers are produced by using green phosphoric acid or sulphuric acid, depending on the fertilizer type. The segment manufactures various types of fertilizers (PK products, GSSP, GTSP and others) for different uses.

The segment manufactures purified phosphoric acid by purifying green phosphoric acid. Purified phosphoric acid and green phosphoric acid are used to manufacture downstream products with high added value, such as, phosphate salts and acids for a wide range of food and industrial applications. Phosphate salts and acids are used in various industrial end markets, such as oral care, cleaning products, paints and coatings, water treatment, asphalt modification, construction, metal treatment and more. The segment's products for the food industry include functional food ingredients and phosphate additives, which provide texture and stability solutions for processed meat, meat alternatives, poultry, seafood, dairy, beverage and baked goods.

In addition, the segment supplies purified phosphoric acid to our Innovative Ag Solutions segment (IAS) and also produces milk proteins and whey proteins for the food ingredients industry.

The segment owns, develops and commercializes proprietary technologies that supports the production of allergen-free plant-based structured protein systems, called ROVITARIS®, targeting the fast-growth plant-based meat alternative market. Recently, the segment entered into several strategic contracts with suppliers and production partners in order to further expand and diversify the ROVITARIS® product portfolio to further meet consumer demand and strengthen ICL's footprint in the meat alternative market. In December 2021, we opened a plant protein fiber production unit at our Carondelet, Missouri facility.

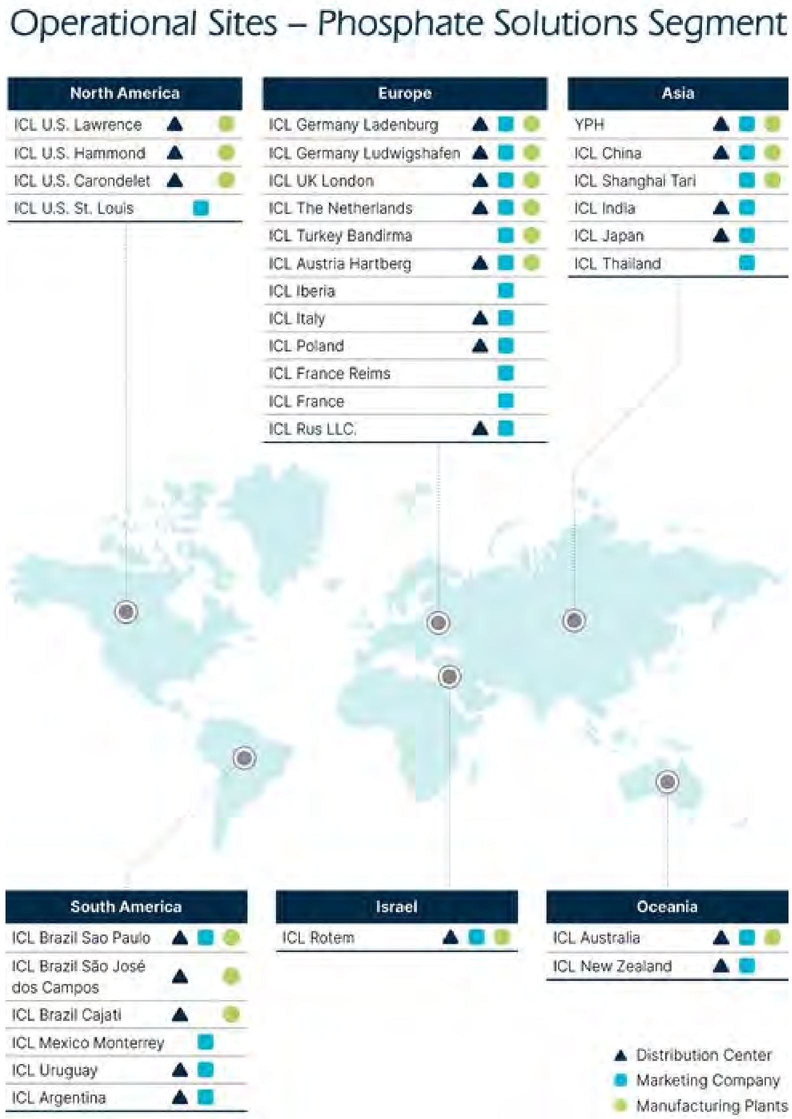
Moreover, our Phosphate Solutions segment, together with the Potash and IAS segments, produces and markets FertilizerpluS products. FertilizerpluS is our premium fertilizers line, based mainly on polyhalite (marketed by the Company as Polysulphate®) and other products. For further information, see "Item 4 - Information on the Company— B. Business Overview— Potash Segment".

Production

The Phosphate Solutions segment has a developed production setup that includes phosphate rock mining, along with production and purchase of different grades of phosphoric acid, and production of specialties products and commodities at different facilities around the world.

Phosphate rock is mined and processed from open pit mines that located in the Negev Desert in Israel and in Yunnan province in China. The Phosphate Solutions segment produces sulphuric acid, green phosphoric acid and phosphate fertilizers at its facilities in Israel and China. The segment also operates facilities to produce phosphate fertilizers in the Netherlands and Germany, as well as animal-feed additives in Turkey. The segment's specialty products are manufactured at its facilities in Germany, United States, Israel, Brazil, China, UK, Argentina and Australia. These facilities enable the segment to produce customer-specific solutions that meet the requirements of different markets. Additionally, the segment produces milk and whey proteins for the food ingredients industry at its facility in Austria.

The Phosphate Solutions segment's principal manufacturing plants, distribution centers and marketing companies are set forth in the map below:



Current annual potential production capacity is as follows: approximately 4.4 million tons of phosphate rock, approximately 2.7 million tons of phosphate fertilizers, approximately 1.3 million tons of green phosphoric acid, approximately 415 thousand tons of purified phosphoric acid and approximately 385 thousand tons of phosphate salts. The potential production capacity of the various plants is based on the hourly output of the plants multiplied by the potential hours of operation per year. This calculation assumes continuous production over the year, 24 hours per day, other than a few days for planned maintenance and renovations. Actual production is usually lower than potential production capacity, due to special maintenance operations, availability of raw materials, market conditions, and unplanned downtime.

In 2021, The Phosphate Solutions segment produced approximately 4,625 thousand tons of enriched phosphate rock, 1,204 thousand tons of green phosphoric acid, 2,298 thousand tons of phosphate fertilizers, 326 thousand tons of purified phosphoric acid (as Phosphorus Pentoxide), 288 thousand tons of phosphate salts and 73 thousand tons of food multi-blends.

Production-related developments throughout the segment:

<u>Israel</u>

Rotem Israel presented strong results in 2021 mainly due to improvement in the commodities market and higher prices and the contribution of a 2020 efficiency plan, which was implemented to address global market volatility and continuing economic and business uncertainty.

In addition, in Rotem Israel, production records were achieved in certain product lines, such as, Fertilizers (1,082,100 tons) and Specialty Fertilizers, (71,700 tons), including 61,200 tons of MKP and 10,500 tons of Pekasead.

<u>China</u>

YPH, an equally owned company controlled by ICL, improves the competitiveness and flexibility of ICL's phosphate activities, as a result of access to phosphate rock with extensive reserves. The joint manufacturing platform includes activities over the entire value chain. The performance of YPH continued to improve in 2021.

In December 2019, ICL launched its new food-grade phosphoric acid plant at YPH. The plant commenced its operation in 2021 and will add up to 70 thousand tons of food grade acid production capacity, once fully ramped-up. The plant produces qualified commercial food-grade acid quantities. The new plant is expected to strengthen our phosphate specialties operations and enable additional diversification into higher value-added products.

<u>Americas</u>

In 2020, the Company carried out further production optimizations following the continued reallocation of production from Mexico to San Jose dos Campos (Brazil) and Carondelet (US), which was initiated in 2019. Further, in December 2021, ICL opened its alternative-protein facility in St. Louis, US, which will produce a plant-based meat substitute for use by food companies, food-service distributors, restaurants and grocery chains.

<u>Europe</u>

Both of our fertilizer facilities in Europe, ICL Germany Ludwigshafen and ICL The Netherlands, successfully increased the utilization of Polysulphate® within a new range of PK products, which are part of the FertilizerpluS product line. For further information, see "Item 4 - Information on the Company— B. Business Overview—Potash Segment".

In addition, during the third quarter of 2021, a fire event occurred at ICL Germany Ludwigshafen, ended without injuries. However, all production activities were stopped. Rehabilitation activities have begun, and the production is expected to be renewed by the end of first quarter of 2022.

Competition

The competitive characteristics of the segment vary according to the type of products it manufactures and the markets in which they are sold.

The commodity phosphates market is extremely competitive, and competitors include multi-national companies and government-owned companies. Many producers operate in this market and the main competitive factor is price. The ability to compete in the market is dependent, mainly, on raw material costs, production costs and logistics. For these reasons, companies located in proximity to sources of raw materials, ports, and customers, benefit from competitive advantages. A key factor in the area of raw materials (in addition to phosphate rock) is the accessibility to and the price of sulphur and ammonia, which are required to manufacture the main phosphate fertilizers. Additional factors that affect competition to a certain extent include product quality, range of products, service, and the capability to develop new products that provide unique solutions.

Phosphate rock mines and phosphate fertilizers production facilities are located in many countries, including Morocco, which possesses the world's largest phosphate rock reserves, China, Saudi Arabia, Algeria, Brazil, South Africa, Jordan, Egypt, Australia, the United States, Russia, Peru, Tunisia, Mexico, Lebanon, Syria, Togo, Senegal, Israel and others. A major part of the mined phosphate rock is used by their manufacturers, including ICL, mainly for production of downstream phosphate fertilizers (vertically integrated companies), including Triple Superphosphate (TSP).

The main phosphate fertilizers producers, who compete with ICL in the global TSP market, include Office Chérifien des Phosphates (OCP Group, from Morocco), Mosaic (US), Groupe Chimique Tunisien (GCT, from Tunisia), Grupo Fertinal (Mexico), Agropolychim, (Bulgaria), Lebanon Chemical Company, Polyserve (Egypt) and various Chinese producers.

Our Phosphate Solutions segment has a global leading position in the purified phosphoric acid market, based on its in-house technology and its downstream products, as well as in the food-grade phosphates and dairy proteins markets. The segment's competitors are large and mid-sized international companies, serving the chemical and food industries, which conduct manufacturing and marketing activities in various countries, as well as local companies that serve local markets.

The primary competitors of the segment, in the chemical and food fields, are Chemische Fabrik Budenheim KG, Innophos Inc., Prayon S.A, Nutrien, Adithya Birla, Haifa Chemicals Ltd., FOSFA and various Chinese producers.

Significant competitors exist in the dairy protein field, including Bayrische Milchindustrie, Arla, Fonterra, Alpavit and AVH. Competitiveness is primarily determined by product quality, access to raw materials, supply chain capabilities and technical know-how.

The Phosphate Solutions segment benefits from the following competitive advantages:

- An integrated value chain that uses phosphate rock mined in Israel (at Rotem Israel), as well as in China (YPH) to produce green phosphoric acid, which serves mainly as a raw material for the production of the segment's products and for the production of our Innovative Ag Solutions products.
- Logistical advantages due to the segment's geographical location and diversification, proximity to ports in Israel and Europe and relative proximity to its customers.

- Our Company is a global fertilizer producer that can combine potash and phosphate fertilizers in the same shipment, which enables us to service smaller customers, particularly in Brazil and the United States.

- The segment enjoys a competitive advantage in specialty phosphates deriving from product features, quality, service, technical application support, a global manufacturing footprint and a very broad product line.

- YPH provides an integrative phosphate platform in China, with better access to the Chinese market. In addition, the segment enjoys a competitive cost advantage in its phosphate activities, due to access to low-cost phosphate rock with long-term reserves.

Raw Materials and Suppliers

The Phosphate Solutions segment produces most of the raw materials it uses to produce its commodities and specialties products.

The segment produces phosphate rock as the primary raw material for its backward integrated value chain, commencing from mining of phosphate rock, through production of green phosphoric acid and up to the production of phosphate-based fertilizers, purified phosphoric acid and specialty phosphates.

The primary raw materials acquired from external sources are, mainly, sulphur, ammonia, different grades of purified phosphoric acid, soda ash, caustic soda and potassium hydroxide.

For further information regarding sulphur prices during 2021, see "Item 5 - Operating and Financial Review and Prospects— A. Operating Results— Trends Affecting Phosphate Solutions segment".

For the dairy protein business, especially in the organic and goat segments, securing high quality raw materials (whole milk, skimmed milk and whey) is a key element of the operations. A balance between short- and long-term agreements secures supply, while maintaining adaptability to changing market conditions.

The Phosphate Solutions segment maintains inventories of sulphur, phosphate rock, green phosphoric acid, purified phosphoric acid and other raw materials in quantities that consider the projected level of production based on consumption characteristics, supply timeline, distance from suppliers and other logistical considerations.

Sales, Marketing and Distribution

The Phosphate Solutions segment sells and markets its products worldwide. The primary markets of phosphate commodities products are Europe, China, Brazil, the United States and Israel. Phosphate specialties products are primarily marketed to industrial, food and commercial customers in Europe, North America, Asia, South America and Australia. The marketing network is based, mainly, on a marketing and sales organization and, to a lesser extent, on external distributors and sales agents.

The segment extends credit terms to its customers, according to the customary practice in their locations. The segment's sales are generally covered by trade credit risk insurance or by letters of credit from banks with high credit ratings.

Most of the segment's sales do not occur according to long-term orders or contracts but are regularly ordered close to the time of supply. Therefore, there is no significant orders' backlog.

The segment transports its products from Israel to customers overseas by ships (mainly in bulk) that it leases in the global marine transportation market, which are loaded by using designated facilities in the ports of Ashdod on the Mediterranean Sea and Eilat on the Red Sea. The segment also has special port facilities for bulk loading in Amsterdam (the Netherlands) and Ludwigshafen (Germany). YPH sells most of its products in China and is preparing to provide a logistical solution for marine shipping outside China, when it will be required.

The prices of phosphate-based fertilizers are determined in negotiations between manufacturers and customers and are affected mainly by the relationship between market demand and available supply, as well as the identity of the customer and the period of the agreement. Prices for relatively long-term contracts are not necessarily the same as "spot" prices (current/casual sales transactions).

Most sales of phosphate specialties products are made under agreements with terms of one or two years, or through "spot" orders placed close to the date of supply. For these products, framework agreements exist with specific customers through which customers may purchase up to the maximum agreed quantities of products during the term.

For purposes of effective marketing and sale of many of the segment's products, especially food products, technical sales and applications, personnel work closely with customers in order to tailor the products to their needs.

The segment maintains adequate inventories of phosphate specialties products to ensure orderly supply to customers, considering the customers' distance from the manufacturing locations and their demand for inventory availability, in conjunction with optimization of inventory storage costs. Therefore, some finished product inventories are stored in destination countries.

Seasonality

The seasonal nature of demand for phosphate commodities products is usually characterized by higher sales in the second and third quarters. In recent years, due to various influences on the timing of sales, primarily price fluctuations, the effects of seasonality have been reduced compared to past periods.

The target markets of phosphate specialties products are not characterized by significant seasonality. However, the fourth quarter of the year is relatively weak due to the holiday season and customers' destocking towards the end of the year.

Natural Resources Tax

The Law for Taxation of Profits from Natural Resources in Israel entered into effect on January 1, 2016, which respect to Phosphate operations at Rotem Israel. For further information, see Note 15 to our Audited Financial Statements.

Innovative Ag Solutions Segment

Our Innovative Ag Solutions segment aims to achieve global leadership in specialty fertilization markets by enhancing its global positions in its core markets of specialty agriculture, ornamental horticulture, turf and landscaping, targeting high-growth markets such as Brazil, India and China, by leveraging its unique R&D capabilities, vast agronomic experience, global footprint, backward integration to potash and phosphate and chemistry know-how, as well as integrating and generating synergies from acquired businesses. Our Company is continuously working to expand our broad portfolio of specialty plant nutrition, plant stimulation and plant health solutions, which consists of enhanced efficiency and controlled release fertilizers (CRF), water soluble fertilizers (WSF), liquid fertilizers and straights (MKP/MAP/PeKacid), soil and foliar micronutrients, secondary nutrients, bio-stimulants, soil conditioners, seed treatment products, and adjuvants.

The Innovative Ag Solutions segment develops, manufactures, markets and sells fertilizers that are based primarily on nitrogen, potash (potassium chloride) and phosphate. It produces water soluble specialty fertilizers in Belgium, Israel and Spain, liquid fertilizers in Israel, Spain and Brazil, straight soluble fertilizers in China and Israel, controlled release fertilizers in the Netherlands, Brazil and the United States, as well as secondary nutrients, biostimulants, soil conditioners, seed treatment product, and adjuvants in Brazil. ICL's specialty fertilizers business markets its products worldwide, mainly in Europe, Asia, North America, Brazil and Israel.

In 2021, the sales of the Innovative Ag Solutions segment totaled $1,245 million (including sales to other segments), an increase of 70% compared to 2020. The sales of the Innovative Ag Solutions segment constituted approximately 18% of ICL's total sales, an increase of 3% compared to 2020. The segment's operating income totaled $121 million, an increase of 203% compared to 2020. The Innovative Ag Solutions segment's operating income constituted approximately 10% of ICL's adjusted operating income, an increase of 2% million compared to 2020. For further information, see "Item 3 – Key Information – A. Selected Financial Data – Adjusted to reported operating and net income (non-GAAP financial measures)" and "Item 5 - Operating and Financial Review and Prospects— A. Operating Results— Results of Operations".

Specialty fertilizers offer improved value to the grower compared to the use of other fertilizers as they are more efficient, maximize yield and quality and require lower labor costs. The following pyramid presents the different fertilizer product lines – the high-value products are usually accompanied by a higher price per ton. ICL's Innovative Ag Solutions segment (IAS) produces most of the high value products, except for potassium nitrate and calcium nitrate.

Our Specialty Fertilizers business operates in 2 main markets:

Specialty Agriculture

This market includes high-value agricultural crops, such as fruits and vegetables. Enhanced efficiency fertilizers are used and applied mainly to these crops. The use of specialty fertilizers in row crops, such as sugar cane, corn and wheat can also be beneficial – subject to climate and soil conditions. One of the main markets for ICL is related to the drip irrigation/fertigation market, which is growing as the use of drip irrigation systems increases across the globe, mainly in emerging markets, such as China and India. The use of enhanced efficiency fertilizers, such as controlled release fertilizers, is growing due to their environmental and economic advantages, although such growth is still dependent on the price levels of crops and raw-material prices (e.g., urea, potassium and phosphorus). In Brazil, the adoption rate for micronutrients, bio-stimulants and soil conditioner is growing in a wide range of crops due to demand to increase productivity, improve and balance plant nutrition and reduce abiotic stress.

Turf & Ornamental (T&O)

Ornamental Horticulture

The Ornamental Horticulture market consists of growers of outdoor ornamental plants (nurseries) and pot and bedding plants (greenhouses). The growers require high quality fertilization programs to grow plants at the quality level required by the garden centers, DIY (Do-It-Yourself) outlets and retail chains. The IAS segment has a large, specialized sales force that advises growers on the optimal nutrition of plants. It also has a specialized distributor network in the Ornamental Horticulture market. The segment's main product lines for this market are CRFs (controlled release fertilizers) and WSFs (water soluble fertilizers) with well-known brand names such as Osmocote, Peters & Universol. In specific markets, such as North America and the UK, a range of unique plant protection products is also included in the proposals for growing healthy plants. In the UK, we are a leading growing media supplier providing a complete solution for ornamental growers.

Turf & Landscape

The professional turf market includes the following user groups: golf course green keepers, sport field groundsmen, landscapers, contractors & lawn service providers.

These groups demand high-quality inputs to secure strong, high-quality turf. They also require an integrated approach to keep turf strong and maintaining its health, without creating an environment that is conducive to the development of disease. There is an environmental need to limit inputs which requires an integrated approach of unique, high-quality products. The most important inputs are controlled release and slow-release fertilizers, grass seeds and plant protection products. Some of these products' well-known brands are Sierrablen, Sierraform and ProTurf. Recently, the segment launched a new brand of organic Fertilizers named Gronamic. The segment offers all three product lines in an integrated program, and has a dedicated and experienced team of unique professional grass experts, along with a distribution network serving its key markets, mainly in Europe and Asia.

Products

Specialty fertilizers are highly effective fertilizers that allow more precise feeding of plants for their major nutrients needs (nitrogen, phosphorous and potassium) as well as secondary nutrients and micronutrients. These fertilizers allow efficient fertilizing through special applications among others, through drip irrigation systems and foliar spraying, and help growers obtain higher yields and quality. These fertilizers include, among others, controlled release fertilizers (CRF), slow-release fertilizers (SRF), soluble fertilizers and liquid fertilizers as follows:

- Controlled-release fertilizers (CRF) allow accurate release of nutrients over time. CRFs have a special coating that allows prolonged release of nutrients over several weeks and up to 18 months - compared to regular fertilizers that dissolve in the soil and are immediately available but therefore leach partially in the soil. ICL Innovative Ag Solutions has leading global brand-name products including Osmocote, Agroblen, Agrocote, Polyblen and Producote.

  Osmocote is the most used controlled-release fertilizer by ornamental growers worldwide. The brand is known to deliver high quality ornamental plants due to its consistent release of nutrients and unique patterned and programmed release technologies. We continue to invest in new technologies, as well as field trials to test and confirm the high reliability of our products. During the past few years, the Company developed several new technologies, such as "Dual Coating Technology" (which optimizes the release to ornamental plants) and "E-Max Release Technology" (a new coating technology with improved release characteristics, mainly for urea). Our latest innovation is Osmocote 5 with OTEA-system and NutriMatch technolgy. This 5th generation of CRF for ornamental growers delivers a unique, accurate and optimized release of nutrients and micronutrients. In addition, we also sell slow-release fertilizers (SRF) which, due to their low solubility and hydrolysis, release nutrients slowly (generally up to a period of two months). Main markets for these fertilizers are in the Turf and Amenity markets.

- Soluble fertilizers, which are fully water-soluble, and fully-soluble NPK compound fertilizers, are commonly used for fertilization through drip irrigation systems to optimize fertilizer efficiency in the root zone to maximize yields. These fully soluble fertilizers are also used sometimes for foliar applications. Our well-known brands for fertigation are Peters, Universol, Agrolution, NovaNPK and Novacid. ICL develops specific formulations for different applications and circumstances. In South America, products such as Profol, Kellus, Tonus, Translok, Forcy, Nutritio, Vegetação and Dimi Tônico are used as high technology products for farmers to improve plant nutrition and physiology through foliar fertilization. There are specific formulations for specific crops, greenhouses and/or open fields, as well as for different water types.

- We also sell 'Straight fertilizers' which are crystalline, free-flowing and high purity phosphorus soluble fertilizers such as MKP, MAP and PeKacid. Key brands include NovaPeak & NovaMAP. PeKacid is the only solid highly acidifying, water-soluble fertigation product that contains both phosphorus and potassium. The product is ideal for specific water conditions where an acidifying effect is required, as well as for keeping dripping lines clean.

- Liquid fertilizers are used for intensive agriculture and are integrated in irrigation systems (mainly drip systems). Our product line includes mostly tailor-made formulations designed for specific soil & water/climate conditions and crop needs.

- Peat, a growing medium for various crops, where generally controlled-release fertilizers and plant-protection products are mixed in. Specific formulations of growing media are designed for specific plant needs, such as greenhouse bedding plants and outdoor nurseries. A well-known ICL brand is the "Levington" brand. Inclusion of growing media products in the portfolio in the UK allows ICL to offer an effective total solution to its customers. We intend to use more circular products and have extended our growing media offerings with Fibagro Advance, a unique and superior peat alternative manufactured in the UK. This innovative and advanced woodfibre product is being used as a key component in professional growing media mixes and provides professional growers with a sustainable growing solution.

- Water conservation and soil conditioning products are new product lines developed by the segment. Water conservation products are used in professional turf to keep water in the root-zone. Key brands are H2Flo and H2Pro. In 2021, the H2Gro brand grew strongly in the ornamental horticulture market. These products significantly reduce irrigation requirements. This new technology is also used in agriculture to allow better water availability around the root-zone of the crops.

- Seed treatment technologies are used to deliver plant nutrients and bio-stimulants, with a focus on improved root development, early plant development and nitrogen fixation. Several products and brands serve the needs of different crops such as ProSelect and Landscaper Pro.

- Bio-stimulants technologies such as Triplus, Improver, Concorde, Vegetação and Dimi Tônicoare, are being successfully used by farmers to increase their productivity and alleviate abiotic stress, such as drought, salinity and others.

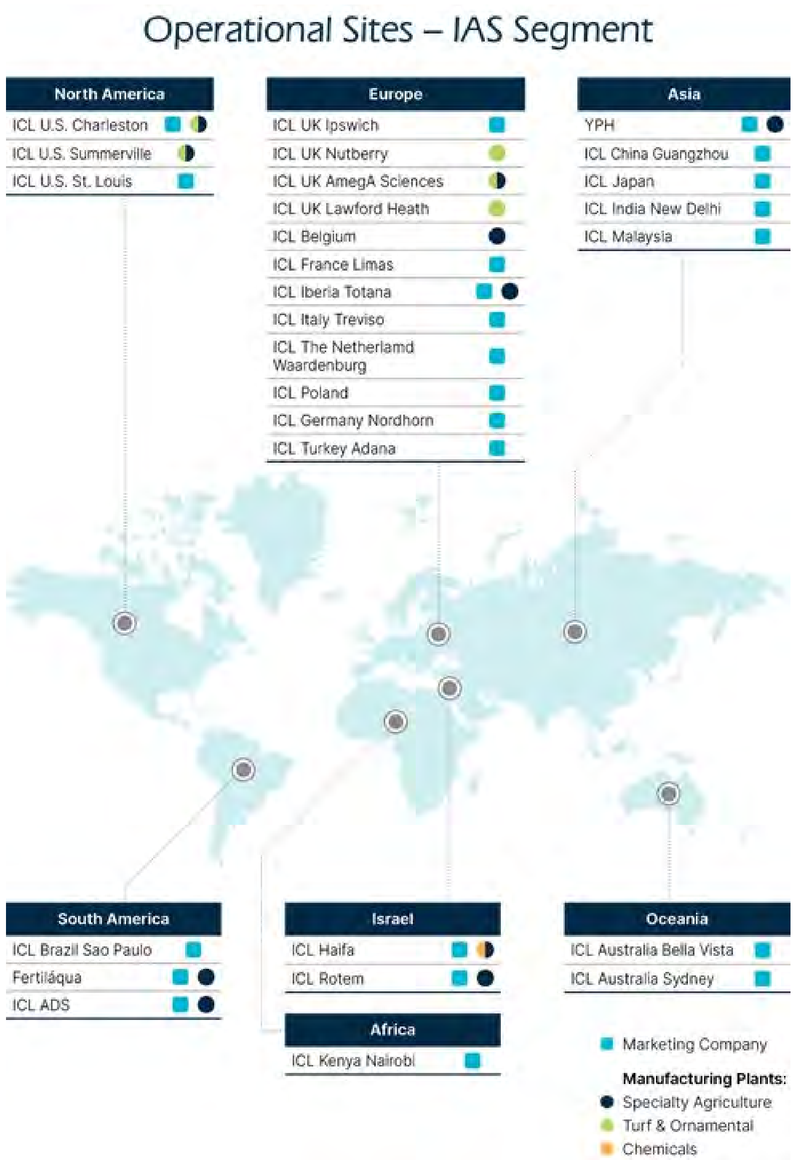
- Adjuvants are essential to enhance foliar nutrition, herbicides and crop protection spray. We offer the South American market adjuvant technologies including Helper, Tensor Max and AD+ as well as various formulations that address the primary challenges facing farmers, such as drift and run off.

- Soil conditioner has a set of amino and organic acids which contribute to the soil biological balance and help increase the index of beneficial microorganisms and, thus enlarge the capacity to revitalize the macro environment in a sustainable way. Recent research has indicated substantial potential for the product to maintain soil carbon stocks. The segment's brands, Mol Top and Longevus, contain a mix of carefully developed components that increase plant production potential.

Production

ICL Innovative Ag Solutions' principal production facilities include plants in Israel (special compound fertilizers, liquid fertilizers and soluble fertilizers), Spain (liquid fertilizers, and soluble NPK fertilizers), the United Kingdom (products for water conservation and peat incorporated in growing media), China (compound specialty fertilizers and soluble fertilizers), the Netherlands (controlled-release fertilizers and fertilizer blends), Belgium (soluble NPK fertilizers), the US (controlled-release fertilizers) and Brazil (liquid fertilizers, water-soluble fertilizers, controlled-release fertilizers, improved efficiency phosphorus fertilizers, secondary nutrients fertilizers and micronutrients fertilizers).

ICL Innovative Ag Solutions' main manufacturing plants and marketing companies are indicated in the map below:



ICL Innovative Ag Solutions' annual potential production capacity is approximately 360 thousand tons of soluble fertilizers, 480 thousand tons of liquid fertilizers, 200 thousand tons of controlled release fertilizers, 400 thousand m3 of growing media and 200 thousand tons of micronutrients. The potential production capacity of our various plants is based on the hourly output of the plants, multiplied by potential hours of operation per year. This calculation assumes continuous production over the year, 24 hours a day, other than a few days for planned maintenance and renovations. Actual production is usually lower than potential production capacity, due to unplanned downtime, special maintenance operations, lack of availability of raw materials, market conditions and seasonality in demand.

Competition

The global specialty fertilizer market is estimated at approximately $15 billion per year, accounting for about 4% of the total fertilizers market. According to the Company's estimation, the specialty fertilizer market is growing at an average rate of about 5%-7% per year.

The specialty fertilizers market is diversified, with few global companies and many small to medium-size reginal and local producers. The market operates mainly on a local basis and most producers sell their products in nearby territories rather than globally. We are considered one of the largest global players in the specialty fertilizers market, with production plants in Israel, Netherlands, Belgium, Spain, the UK, Brazil, the USA and China.

The Capex required to develop new production capacities for existing specialty fertilizer companies is not considered significant compared to commodity fertilizer operations. However, barriers of entry for new players include, among others, extensive know-how in chemical production and agronomy, large, professional selling and marketing teams, and customer support capabilities.

In addition to ICL, other specialty fertilizers companies with a global presence include: SQM, Yara, Haifa and Compo Expert. Other companies, such as Simplot, Nutrien and Koch (USA), Kingenta and Moith (China) and JCAM (Japan), are considered regional players.

ICL Innovative Ag Solutions business benefits from the following competitive advantages:

- A strong, efficient and integrated supply chain with in-house access to high quality raw materials, mostly phosphate and potash, which is based on an extensive product portfolio and multi-location production.
- Unique R&D and product development capabilities, creating a strong platform for future growth in controlled-release fertilizers, fertigation, foliar soluble fertilizers, enhanced nutrients, bio-stimulants water efficiency and innovative, next generation products.
- Added value production process technology – custom-made formulations that meet our customers' unique needs.
- A highly skilled global agronomic sales team that provides professional advice and consultation which fosters loyalty by distributors.
- Full product portfolio (one-stop shop).
- ICL's well-known and leading brands.
- Direct working relationships with farmers (B2C) especially in Brazil, providing service at the field level and accelerates the innovation cycle.

Raw Materials and Suppliers

The primary raw materials acquired from external sources are mainly KNO3, SOP, ammonia, NPK granules, Urea, KOH, coating materials, micronutrients and biostimulants ingredients.

In addition, our specialty fertilizer business benefits from its backward integration to raw materials produced by the Company, such as KCl, MGA, GTSP and Polyhalite.

In 2021, there was a significant increase in raw material prices and unstable supply due to global supply chain challenges. We mitigated these challenges and have taken the appropriate measures to secure timely supply to customers.

The segment endeavors to hold inventories of the above raw materials in quantities that take into consideration projected levels of production, consumption levels, supply timelines, distance from suppliers and other logistical considerations.

Sales, Marketing and Distribution

The primary markets of the Specialty Fertilizers business line are Europe, particularly Spain, Israel, the US, India and China, the UK, Australia and Brazil. The Specialty Fertilizers business line sells its fertilizer products primarily via a network of its own sales offices as well as through distributers around the world.

In general, the business model relies on brand-name, premium specialty products which are marketed by a strong agronomist sales network at the end user level, while sales are invoiced through distributor-partners that distribute the products. The technical sales force emphasizes the agronomic advantages of the specialty products to end users (farmers, growers of containerized plants, golf courses, etc.) and provides advice and training of distributor sales representatives. ICL Innovative Ag. Solution also has specialized field forces for the Agriculture, Ornamental Horticulture and Turf & Landscape markets that are supported by specialized marketing teams.

Most specialty fertilizers business sales are not made by means of contracts or long-term orders, but rather through current orders made close to the supply date. Accordingly, there is no significant backlog of orders.

Prices are determined via negotiations between the Company and its customers and are affected mainly by the relationship between market demand and business production costs, as well as by the identity of the customer and terms of the agreement.

ICL Innovative Ag Solutions grants credit terms to its customers according to customary practices in their respective locations. ICL Innovative Ag Solutions credit sales are generally covered by trade credit risk insurance or by letters of credit from banks with high credit ratings.

Seasonality

The use and application of specialty fertilizers is related to the main growing seasons of specialty crops around the world. The main factors impacting seasonality are geographical location, type of crop, product and market. While the majority of our specialty fertilizer business serves markets in the northern hemisphere, where most of the demand for the segment's products are concentrated in the first half of the year, recent acquisitions of specialty fertilizer assets in Brazil, where demand is mostly concentrated in the second half of the year, somewhat balances the seasonality that characterized the segment's business.

As an example, some specialty products, such as soluble fertilizers in the Ornamental Horticulture market are sold and applied throughout the year with limited seasonality, whereas controlled release fertilizers are sold during the potting season of container nursery stock and pot plants (before springtime).

Additional Activities

Our business activities include, among other things, our innovation arm which promotes innovation, development of new products and services, as well as digital platforms and technological solutions for farmers and agronomists. This category includes Growers and Agmatix, innovative start-ups that are developing agricultural data processing and analysis capabilities for the future of agriculture.

For further information please see "Item 5 – Operating and Financial Review and Prospects – C. Research and Development, Patents and Licenses, etc. – Research and Development".

Community Involvement and Donations

We are involved and invested in society and the community, the result of a policy formulated and approved by our Board of Directors Each of our community activities or donations are reviewed by the relevant authorized parties according to the type and amount of the donation.

We focus our efforts on communities in which our employees live and where we operate, mostly Negev communities in Israel, such as Dimona, Yerucham, Beer Sheva, and Bedouin settlements in the region. The focus of our activities is mainly on supporting daily life in these communities (e.g., society, economy, environment), education and excellence of students in the sciences (with an emphasis on chemistry), strengthening them through social projects aimed at benefiting local residents, and supporting underprivileged and special needs populations.

"Thinking Doing": 2021 Activity Summary

“Thinking Doing” is ICL's flagship social program in Israel that operates in seven municipalities: Dimona, Yerucham, Beer Sheva, Ramat Negev Regional Council, Kuseife and Tamar Regional Council.

The program boosts community activity by developing entrepreneurship and local leadership among residents, local social organizations, and municipal staff. In addition, the program fosters social entrepreneurship and collaboration to create community resilience in southern Israel's communities by developing and establishing sustainable anchor institutions.

As a significant business organization in southern Israel, ICL is committed to contributing to community resilience and the quality of life of communities in the Negev region, and to playing an active role in leading change. "Thinking Doing" offers long-term guidance and support to community activists in organizational, social and economic areas. The program provides opportunities for local residents to take charge of their lives, engage in social innovation and develop a sense of responsibility for the region in which they live.

During 2021, due to the continued spread of COVID-19 and ongoing uncertainty regarding its implications for the future, we established circumstance-based community insights, while adapting activities and introducing flexibility vis-à-vis the residents' ability to meet and assemble. Dealing with COVID-19 created numerous insights regarding the meaning and importance of community, and in many municipalities it accelerated a perceptual change in the concept of community and enabled deeper involvement in ICL's program – with the goal of promoting and establishing a stronger sense of community among residents and municipality staffs.

"Thinking Doing" enjoys the support and personal involvement of all mayors and council chairpersons. Municipality staff are committed to activities and provide continuous guidance and support. The mayors and council chairpersons participate in developing the community vision, the unique municipal model, and the municipal steering committees, through participation in entrepreneur-community meetings, and they enjoy close familiarity and involvement in the program's activities.

The Moshe Novomieski Potash Company Heritage Site Visitor Center in the Dead Sea, Israel

The Moshe Novomieski Potash Company Heritage and Visitor Center opened to the public in 2021. The Center is located at the old workers' compound in Sodom and focuses on three main topics: the unique geological conditions that led to the formation of the Dead Sea; the history of the founding of the Eretz-Israeli Potash Company in pre-state Israel; and ICL's current activities. The Center was established and is operated in collaboration with the Council for Preservation of Heritage Sites in Israel, the Jerusalem and Heritage Ministry, the Ministry of Education, and others, and it constitutes a significant milestone in the history of industry in the Land of Israel.

Our "Password for Every Student" program in Israel, is an initiative that provides basic and comprehensive solutions for the education system, from the user, through the classroom, school, and education system, creating a digital user community for the residents of the region. ICL's support of this program provides 15,000 students in the Negev region with digital accessibility. In 2021, we began development of a unique program for ICL and "Password for Every Student', which manifests the Company's vision. The chairman of this project is Mr. Ehud Angel who serves as chairman for no consideration. Mr. Angel indirectly holds XT Holdings Inc., which is a stakeholder in Millennium Investment Elad Ltd., which is the controlling shareholder of Israel Corp., ICL's parent company.

ICL's monetary donations in 2021 amounted to approximately $8 million (including the amount invested in the Visitor Center). In addition, during 2021, ICL contributed, at the Company's expense, about 12,755 hours of volunteer work of its employees. This amount does not include 12,680 hours of volunteer work after working hours, which was encouraged, organized, and logistically facilitated by ICL.

Introduction

ICL is committed to developing and implementing a comprehensive Environmental, Social and Governance (ESG) strategy for our business, including integrating responsible and sustainable considerations in the conduct of our business activities, including in the manufacture and sale of our products.

We continuously aim to create a balance between economic, social and environmental needs. Our vision includes reducing our greenhouse gas emissions; increasing our use of renewable energy; reducing our water consumption and promoting circular economy activities; supporting communities; and promoting personal environmental responsibility, as well as volunteering of our employees.

Our goals and targets call for increasing our energy efficiency and use of renewable energy, reducing our carbon footprint, water consumption and raw materials, and minimizing our air emissions and wastewater output. We aim to increase our re-use of materials and to recycle hazardous and non-hazardous wastes. We intend to continue to identify and promote circular economy opportunities and implement life-cycle analysis processes, as well as to integrate ecological considerations in our mining reclamation processes. We are committed to the global efforts to mitigate climate change and have pledged to reach a net-zero target by 2050. One of our main goals is to deliver sustainable products and industrial solutions that are safe when used responsibly and to provide our customers with product data and training on safe product handling. Another target is to achieve and maintain leading positions in ESG rankings and indices, as well as increase our transparency and open dialogue with ICL's stakeholders.

Our Company also acts proactively to prevent environmental incidents through comprehensive risk management, knowledge sharing and effective maintenance, and by developing, implementing and maintaining appropriate management systems. We consider safety and health performance as core values and make every effort to achieve top tier safety results. We are working to increase the number of our suppliers who have conducted sustainability assessments via the Together for Sustainability (TfS) initiative and emphasize the personal environmental responsibility of our employees. We are committed to acting ethically and treating our stakeholders fairly. We are also proactive in our efforts to create a diverse and inclusive workforce (for more details, see "Promoting Diversity, Inclusion & Belonging (DIB)"). In addition, we aim to maintain transparent communications with regulatory authorities and to engage with the communities in which we reside. Our company contributes to initiatives in those communities and is committed to fostering social values with our various stakeholders.

ICL's CEO and President, Mr. Raviv Zoller, was appointed as a member of the board of the International Fertilizer Association (IFA). Mr. Zoller is the new representative of the West Asia region and was elected as Chairman of IFA's Sustainability Committee. With our support, members of the IFA organization will be joining the TfS initiative.

In addition, 2021 marked the first year in which we have voluntarily disclosed information according to the Climate-related Financial Disclosures (TCFD) framework. As this is the first year of implementation of our reporting in accordance with TCFD, we intend to continue to advance our relevant knowledge and develop this disclosure in future years. For more details, see "Climate Change and Greenhouse Gas Emissions - TCFD" below.

For further details regarding our ESG practices and performance, see "ICL Corporate Responsibility Report 2020" in our current Report on Form 6-K (File no. 001-13742) furnished to the SEC on August 2, 2021. In addition, our Corporate Responsibility web-report, is publicly available on our website at www.icl-group.com. Neither the 6-K report nor our website are incorporated by reference into this Annual Report, and the reference to our website is intended to be an inactive textual reference. The information found on, or accessible through, our website is not intended to be a part of this Annual Report.

Sustainable Solutions

We focus on developing sustainable solutions that increase the positive global impact of ICL's business through its existing and new products. The sustainable solutions that we offer are interlinked with the challenges that humanity is facing, such as providing food security. Our Research Development and Innovation department (RD&I) uses the UN Sustainable Development Goals (SDGs) as guiding principles in its RD&I activities.

As an essential player in the global food supply chain, our main goal is to contribute globally to the effort to achieve Zero Hunger (SDG 2). As the global population continues to rise, farmers worldwide are confronted by the constant need to increase yields, while facing land erosion, effects of climate change and other environmental challenges. They must also adapt to evolving regulations. The fertilizer industry helps to overcome agricultural challenges by facilitating increased crop yields on existing agricultural land and preventing excess conversion of natural habitats into agricultural land. To improve food security, our Company offers a broad variety of solutions to farmers, including supporting them with fertilizers and AgTech solutions. Our products enable growers to enhance their yields and improve their crop quality, while increasing their nutrient use efficiency (so that more fertilizer is taken up by crops), and reducing farmers' water consumption. Water conservation products are used in professional turf to keep water in the root-zone. Key brands are H2Flo and H2Pro. These products significantly reduce irrigation requirements. This new technology is also used in agriculture to allow better water availability around the root-zone of the crops. Our IAS segment also helps farmers protect the environment by minimizing their losses of nutrients through leaching and volatilization, and by enabling them to reach data-based decisions through precision agriculture. We also offer farmers a Plant Nutrition Carbon Footprint Optimizer that allows them to compare nutrition plans and consider the tradeoffs between yields and environmental impact. The system calculates their Carbon Footprint & GHG emissions based on different parameters, such as field characteristics (soil type, organic matter, pH); environmental conditions; agronomic practices; crop type; fertilizer type; applications timing, and residue management. In addition, we market alternative proteins (plant-based substitutes) and various products, such as the JOHA® emulsifying salts, that enable longer shelf life for food products and reduce food waste.

Due to the growing impact of climate change on the agricultural supply chain, we are increasing our efforts to reduce our GHG emissions (Climate Action SDG 13). In addition, we sell products that contribute to resource efficiency, such as water conservation. We also sell products and services that support energy storage, a necessary step in advancing the use of renewable energy in the global economy. Strong demand for Electric Vehicles (EV) and energy storage is a potentially significant source of growth for our phosphate-based and bromine-based specialty products.

Our efforts to improve ICL's impact on the environment are being facilitated by innovation and commercial excellence activities (SDG 9). We are increasingly more operationally efficient, integrating renewable energy into our fuel mix and implementing 'circular economy' activities, both within our organization and in collaboration with our partners.

Circular Economy

'Circular Economy' and an 'Integrated Production Value Chain' are guiding principles that drive our activities. According to the Circular Economy approach, the industrial production process should shift from a linear process, in which resources and capital pass through the production chain and eventually become waste, to a closed process where by-products and waste can serve as inputs in new production processes.

We are also deploying innovation to create new products from what was previously regarded as by-products or waste, as well as working to optimize our production processes. Examples of new products include:

- MagiK, a fertilization product developed from a by-product stream created as part of our magnesium's production process.
- Fibagro Advance, a peat alternative growing media that uses waste, from the timber industry, and a thermo-mechanical process, to create a unique matrix that improves moisture and nutrient retention. It also has a lower carbon footprint, compared with peat and other peat alternatives.
- Our Phosphate Solution segment is integrating new technologies to use secondary source phosphate as an alternative to virgin raw materials. There are immediate uses in our production facilities in Europe and we are developing future sources for our fertilizer products, including a technology roadmap for recycling and recovery of phosphorus and nitrogen from secondary sources.
- In ICL Dead Sea, some salt was used in the rehabilitation of an abandoned site and the construction of an observatory for use by the public.
- PSLoop - ICL is one of the co-founders of the PolyStyrene Loop (PSL) recycling project, together with the complete PS value chain, which introduces a recycling scheme for PolyStyrene (PS) foams containing the flame retardant HBCD (Hexabromocyclododecane). The PolyStyrene Loop facility in the Netherlands will recycle EPS insulation and will turn EPS foam demolition waste into new high-quality raw material. Impurities, such as cement or other construction residues, as well as the legacy flame retardant HBCD, will be safely removed, the valuable bromine it contains recovered and re -used in the new polymeric flame-retardant FR-112P.

- Phosphogypsum for building roads - As part of YPH circular economy efforts, the Company develops a variety of different uses for Phosphogypsum - our only by-product that has not yet been fully utilized. In addition to the existing solutions, that were already developed and implemented, the company has developed a new solution for integrating phosphogypsum into road paving. A full-scale pilot is expected to be carried out in China in 2022.

Our Ambition Creates Excellence (ACE) program has expanded to include development of a standardized approach for Circular Economy that will systematically review ICL's waste streams, by-products, and other outputs from our operations, to identify opportunities to develop new and useful products and to optimize our operations.

ICL's sustainability performance: Non-financial KPI's & Sustainability Linked Loan

In September 2021, our Company entered into a €250 million sustainability-linked loan ("SLL") agreement. The loan is an innovative step forward in our ongoing sustainability efforts and includes three sustainability performance targets. These targets were designed to align with our sustainability strategy and goals, and each will be assessed at specific times during the term of the loan by third-party certification.

As part of this effort, we are targeting reductions in Scope 1 and Scope 2 CO_2e emissions resulting from our global operations. We are also planning to expand our participation in Together for Sustainability (TfS), a global initiative dedicated to developing and implementing a global supplier engagement program that assesses and improves sustainability sourcing practices. In addition, we continue to focus on inclusion, equality and expanded representation of women among our senior management.

For further information regarding the SLL, see "Item 5- Liquidity and Capital Resources- Debentures".

Health and Safety

As a leading global specialty minerals company, we are subject to various strict environmental, health and safety requirements under international, national and local laws, regulations and permits in each jurisdiction in which we operate. In order to sell our products and to operate our activities and processes, including mineral extraction, production, distribution, marketing and use of products, we must comply with relevant environmental, health and safety requirements. Those include, among others, requirements related to climate change, energy efficiency, air quality, liquid and solid waste discharge, land reclamation, hazardous substances, product requirements and others. Furthermore, we are required to hold certain environmental permits and licenses, such as air emission permits, waste discharge permits and others that aim to protect the health and safety of people and the environment. To continue our operations, we must comply with the requirements and conditions of these permits and licenses and to remedy any discrepancies in the event we deviate from such requirements and conditions.

Beyond existing environmental, health and safety requirements, which have tended to evolve over time and become more stringent, we may be subject to new environmental, health and safety requirements, which may be challenging and present uncertainties regarding our ability to comply with them. This may impact the capital and operating costs of our Company. Complying with such requirements may require the adjustment of the Company's facilities, production processes and operations. In addition, these potential new requirements may oblige us to obtain new permits and licenses for our continued operations. As a result, we strive to monitor the development of any environmental, health and safety requirements and evaluate them with respect to their potential impact on our operations.

As a leading specialty minerals company, we manufacture products that are part of everyday life. Some of our products, if not managed properly, are potentially harmful to the environment and to the health and safety of those who are exposed to them during their production, transportation, storage or use. This applies as well to effluents, air emissions and other 'waste' streams that are generated during the production of some of our products. These substances can cause contamination that necessitates remediation, clean up or other responsive actions. Our existing products undergo an evaluation process during the various stages of their production process and supply chain, and we assess the risks of our new products prior to their launch. We also invest resources to develop sufficient information and data with respect to our products, to create a full characterization of their safety features with reference to human health hazards and environmental threats. We strive to take action to increase their positive impact and to reduce any negative impacts.

To prevent potential occupational hazards that may occur during our operations, and to ensure a safe and healthy work environment, we seek to comply with strict occupational safety and health standards prescribed by local, national and international laws and standards. The health of our employees is checked regularly, and all mandatory and locally agreed safety equipment is provided to our employees. We regularly monitor environmental and hygiene issues in occupational work areas, as required by regulations and company procedures. In addition, we invest extensive resources in training and mentoring, as well as in other safety measures, in order to improve occupational safety and health and prevent accidents and illnesses.

We have implemented a new operations management system that provides the framework and structure to drive operational excellence, safety and reliability across our organization (OEMS-EHS - Operational Excellence Management System - Environmental Health & Safety). We have also adopted the Human and Organizational Performance (HOP) methodology, which focuses on early detection and prevention. The methodology aims to develop organizational transparency, as well as educate and create defense mechanisms for employee safety. Moreover, the HOP approach creates dialogue and knowledge sharing in our organization between managers and employees.

We are a learning organization and aim to implement a mindset of learning from failure and success across the organization. Analysis of accidents and "near misses" is encouraged and conducted at all ICL sites. Management meetings often include a case analysis of a recent safety incident, including conclusions and corrective actions taken. We also initiate cross-organizational learning processes on a regular basis to encourage peer learning.

In recent years, we have implemented advanced technologies to manage safety events and proactive safety processes globally. We deployed specialty software at all our sites and created a mobile safety application that is used globally for safety events management, hazard recognition and various proactive on-line activities. These processes include lesson-learning, shared learning, intake of innovative ideas arising from the field and an addition of controls and defenses. Both employees and managers undergo routine safety training. We have also implemented internal mechanisms to map, track and manage environmental incidents. Our 'emergency event management' methodology, supported by a mobile application with a unique module that was developed specifically for ICL, is practiced regularly within the Company, as well as by specified teams of first responders and other regulatory officials. This enables us to respond quickly to emergency events, as well as to conduct crisis management. We continue to enhance our procedures and measures with the goal of becoming best in class in safety and environmental performance.

Our risk management process is a structured, continuous process, consisting of both periodic and ongoing activities. We have established formal and uniform Enterprise Risk Management (ERM) policies and procedures and conducted a comprehensive risk mapping process throughout our organizational units. We are incorporating a Process Safety Management (PSM) methodology. Our Risk Management focuses on process safety at all sites throughout our Company. To accomplish this, we continue to develop and implement policies and standards guided by the CCPS framework, which include the EU Seveso Directive, OSHA PSM Regulation and UK HSE Control of Major Accidents. Recently, Israel's Ministry of Environmental Protection adopted the Seveso risk assessment methodology and is expected to require it at our relevant facilities in Israel.

We continuously invest in capital projects towards environmental protection, health and safety and in their proactive management. In 2021, we invested approximately $122 million on environmental related projects, out of which $52 million were in our property, plant and equipment, and $70 in on-going environmental protection. Over the next few years, we intend to invest significant capital to further reduce our air emissions, treat hazardous materials and reduce our overall negative environmental impact. These include investments required to comply with the Israeli Clean Air Law, European environmental regulation, and other regional environmental regulation. We estimate that in 2022 we will spend approximately $197 million on environment related purposes. For further information, see "Item 3 - Key Information— D. Risk Factors— Securing the future of the phosphate mining operations at Rotem Israel depends on obtaining several approvals and permits from the authorities in Israel" and "D. Risk Factors— As a leading global specialty minerals company the nature of our activities means that we are inherently exposed to hazards relating to materials, processes, production and mining" ", and "D. Risk Factors— Accidents occurring during our industrial and mining operations and failure to ensure the safety of workers and processes, could adversely affect our business".

For further details on regulatory, environmental, health and safety matters, see our "ICL Corporate Responsibility Report 2021" (web-report) on our website at www.icl-group.com. The reference to our website is intended to be an inactive textual reference and the information on, or accessible through, our website is not intended to be part of this Annual Report.

Climate Change and Greenhouse Gas Emissions

The impact of climate change is being recognized throughout our value chain, from farmers exposed to extreme weather events, to higher energy prices in our own plants. We are accelerating our response and actions, due to the accelerating pace of climate change. Climate change is an increasing concern not only to governments and non-governmental organizations, but also to our stakeholders, including our investors, customers, employees and the general public.

We are witnessing an increasing level of new and tightened global regulation of greenhouse gases ("GHGs"). Ultimately, these regulations could impact our operations by requiring us to change our production processes or by increasing our raw-material, energy, production and transportation costs. This will also entail disclosure efforts and costs. For additional information regarding our climate change-related risk management and GHG emissions, see "Item 3 - Key Information— D. Risk Factors— Current and future laws and regulations regarding climate change and greenhouse gas (GHG) emissions, as well as the physical impacts of climate change, may affect our operations and businesses".

As part of our vision, we have established a decarbonization roadmap to achieve a goal of net zero GHG emissions by 2050. Our medium-term target is to reduce 30% of our Scope 1 and 2 GHG emissions by 2030, (vs. our 2018 baseline). We support the global effort initiated by the Paris Agreement to reduce GHG emissions at a pace that limits global warming to no more than 2°C.

Introduction

ICL is a leading global specialty minerals company. We acknowledge that the minerals and chemicals sector is a major energy user and emitter of greenhouse gasses with an imperative to transition to net zero. Moreover, the sector can be an important enabler of the low carbon transition through development of innovative products and services. We are committed to identifying, managing and harnessing the risks and opportunities that climate change and the low-carbon transition may bring. One of our expressions of this commitment is our support of the Task Force on Climate-related Financial Disclosures (TCFD).

This report contains our first TCFD disclosures, and it is formatted to align with the structure described in the October 2021 document 'Task Force on Climate-related Financial Disclosures: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures' with the four overarching TCFD recommendations addressed in sections on Governance, Strategy, Risk Management, and Metrics and Targets. We recognize that this is the beginning of a new level of disclosure for our company, and we look forward to enhancing our understanding and management of climate-related risks, and reporting of such through our TCFD disclosures in the coming years.

Governance

ICL's Board of Directors is responsible for setting ICL's overall strategic direction, including climate-related matters. The Board acknowledges that climate change is a material governance and strategy issue. Therefore, it has appointed the Safety, Environment, Climate, Diversity, Inclusion and Public Affairs Committee to assists it with fulfilling responsibilities relating to the oversight of climate-related issues, such as climate-change risk assessment and mitigation plans, installation of renewable energy facilities, site decarbonization plans, implementation of circular economy, achieving water saving targets and the like. For further information, see "Item 6 –Directors, Senior Management and Employs— C. Board Practices—Our Board Committees".

The Executive Vice President of Operations (EVPO), who is also the Chief Risk Officer (CRO), is accountable for implementing ICL's climate-related risk assessment policy, and reports to ICL's Board of Directors on a quarterly basis (through the Safety, Environment, Climate, Diversity, Inclusion and Public Affairs Committee). The financial transition-related risk, which is also managed within the climate-change risk assessment is directed by ICL's Chief Financial Officer (CFO), who reports to the Audit and Accounting Committee in full coordination with the EVPO.

ICL's Global Sustainability team is responsible for coordinating all ICL's climate-change-related assessments and reports in accordance with global risk management (GRM).

ICL has also recently appointed two separate management-level committees supported by the global sustainability team and risk management team, for managing both physical and transition climate-related matters. The purpose of these committees is to identify the potential climate-related risks and opportunities and assess their impact on ICL's operational and logistics sites, as well as the financial transition climate-related matters, and to determine mitigating actions to minimize ICL's exposure to these risks. Specific sites and segments at ICL are engaged, as needed. The committees report once every two months to the steering committee, headed by ICL's Global EVPO and CFO, who then report to the Global Executive Management Committee and Board of Directors.

Strategy

ICL's Board of Directors and senior management are working to enhance the company climate strategy in order to align with the aims of the "Paris Agreement", to keep global warming to well below 2°C.

We are taking a systematic approach to reduce our GHG emissions across our global operations. ESG KPIs and targets, including climate related targets, have been embedded in executive measures for success and financial performance-based benefits for key executives.

Informing Current Strategy and Initiatives

Climate risk and opportunities factors are incorporated into our business strategy and operations in order to improve our short, medium, and long-term financial resilience. In alignment with TCFD definitions, physical risks and opportunities are those that occur due to the physical manifestation of climate change – as chronic long term climate changes or as acute episodic weather events. Transition risks and opportunities are those related to the transition to a low carbon economy, including legal and/or regulatory risks such as carbon pricing, market supply and demand, reputation, and technology that support the transition to a low carbon economy.

ICL's industrial operations continue to innovate, establishing best practices for industry, working to eliminate process inefficiencies and optimizing operations to mitigate greenhouse gas emissions. We have established a dedicated team to implement energy efficiency projects across our plants, throughout the world, as part of our Ambition Creates Excellence (ACE) program. In recognition of the change in emphasis from improving energy efficiency to reducing emissions of GHGs, in 2021 this team refocused its efforts on delivering lower carbon solutions globally, and is working to implement GHG reduction measures, as part of our decarbonization road map. Measures include transitioning to lower carbon fuels for both on-site power generation and process heating; increasing energy efficiency by phasing out inefficient production technologies; streamlining production facilities, and improved efficiency of heat and steam consumption. The team is responsible for increasing the renewable energy component in ICL's fuel mix.

In parallel, our Global Procurement Organization (GPO) takes part in the effort to purchase and install renewable electricity. This is particularly successful in Europe, where above 70% of the electricity consumed in 2021 was purchased with Renewable Energy Guarantees of Origin. It is also engaging in extensive training to raise awareness among ICL's suppliers regarding sustainability, transparency and carbon emissions reduction, as part of the TfS initiative.

We are using ICL's innovation building infrastructure to promote our GHG reductions capacity. ICL's Research, Development and Innovation (RD&I) organization is establishing both short-term and long-term goals for GHG emissions reduction technologies. Research, redesign and implementation of low carbon solutions are currently being introduced in effort to mitigate process-based and product-based emissions and to meet future needs. In the short term, our RD&I organization will use its existing infrastructure to challenge both internal and external partners to introduce solutions. For longer-term solutions, we will also tap into both ICL's own RD&I as well as the market at large, through our Open Innovation platforms.

Recent examples include the development of products, such as advanced fertilizers that increase nutrient use efficiency and reduce water consumption, and the production of plant-based proteins as alternatives to meat-based options.

Our global finance teams are integrating non-financial KPIs, such as GHG emissions and other ESG KPIs into our financial reporting. This includes creating the necessary data infrastructure (data quality and data management) and the management infrastructure to enable and support proper decision-making processes. This also includes an increase in the transparency of our ESG performance with rigor financial methodologies and metrics. Benefiting from the proper infrastructure, we have been able to take advantage of financial opportunities, such as the Sustainability Linked Loan (SLL) that we secured during 2021.

We support the objective of the TCFD initiative in identifying and responding to the financial implications for our business of both climate-related risks and opportunities. Our newly formed climate-related physical risk and transition teams comprise senior members of the finance and risks teams and will be tasked with making our actions transparent through disclosures that meet the needs of the financial sector and other stakeholders. Building on our existing sustainability programs, we will take action to identify and manage both the potential costs and benefits of climate-related issues to our business; ensuring integration into our risk management and strategic planning processes, resulting in a more resilient strategy.

Risk and Opportunities

Identified Climate Change Risks and Opportunities

Over the past several years, climate change and GHG emissions have been of increasing concern worldwide. Current and potential future laws and regulations governing climate change and GHG emissions present transition risks in the short term and beyond. Carbon taxes and cap-and-trade-emissions schemes are increasingly viewed in global jurisdictions as a way of pricing carbon – a key policy driver for GHG emissions reductions. These policies and regulatory levers may result in additional, potentially financially material, costs to the Company.

Currently, one of ICL Europe's sites, ICL Iberia, is covered by the EU-ETS Emissions Trading System, and, in the UK, ICL Boulby (from January 1, 2021) is subject to the UK Emissions Trading Scheme. There is considerable uncertainty over the future cost of allowances and how allowances might be allocated. Revisions to the EU ETS published in 2021 also include proposals for the introduction of a Carbon Border Adjustment Mechanism (CBAM), designed to prevent carbon leakage from the EU, while in Israel, a new carbon tax is planned to be implemented in the near future. Consequently, it may be expected that, in the short-term, ICL may need to purchase carbon allowances through the specific programs and/or incur additional capital costs for energy and emissions reduction measures. Similarly, carbon taxes could increase the costs of supplied materials and suppliers in the ICL value chain.

In addition, physical impacts including water shortages or changes in water quality, changing sea and temperature levels, increases in storm intensities, as well as changes in the availability of natural resources, could result in damage to facilities or equipment. Physical risks have the potential to financially disrupt operations, upstream raw material supply and downstream distribution. Climate change is expected to increase the frequency and likelihood of extreme weather events, such as floods. For example, ICL's Dead Sea facilities, are located in an area that has been impacted by floods in the past. Physical risk can also occur when transport barges cannot operate on key transport routes, such as occurred when the water level of the Rhine River dropped. These physical effects may be attributed to climate change.

For further information, see "Item 3 - Key Information— D. Risk Factors—Current and future laws and regulations regarding climate change and greenhouse gas (GHG) emissions, as well as the physical impacts of climate change, may affect our operations and businesses".

Transition-related opportunities for our specialty businesses are illustrative of current and future opportunities created by ICL's strategy relating to climate change. As part of our strategy to focus on our speciality products, and with typical R&D timelines ranging from 5-15 years, we successfully responded to some of the transitional risks through our product portfolio. One example is our new meat protein substitutes, which were driven by consumer demand (market transition) to reduce the ecological (carbon and water) footprint by consuming less meat. Our substitutes are versatile and can replace animal protein. Another example is ICL's Fibagro Advance, our peat alternative growing media that uses waste from the timber industry and a thermo-mechanical process to create a unique matrix that improves moisture and nutrient retention with a lower carbon footprint compared to peat and other peat alternatives.

In addition, tracking consumer preferences toward low carbon footprint products (Market Demand Opportunities), we have developed a multi-nutrient fertilizer based on naturally occurring Polysulphate®. Polysulphate® requires no chemical processing, creates no waste products and has less potential to add to global warming than other comparable products. With its low carbon footprint, Polysulphate® is a fertilizer that could help farmers reach their industry or national carbon targets.

We are also researching new upcycling opportunities (Legislation and Regulation - R&D into Product Circularity). For example, the EU's Circular Economy Action Plan 2020 promotes initiatives around the circular economy and encourages the use and re-use of resources for as long as possible. Expanded Polystyrene (EPS) foam is used in packaging and in insulation of buildings. Insulation EPS contains brominated flame retardants (with high global warming potential) that, due to their restricted use as a Persistent Organic Pollutant in numerous jurisdictions, prohibits their recycling. The 'Polystyrene Loop' initiative is driven by 70 members of the polystyrene value chain (producers to converters). ICL is a leading member of the initiative and has developed a technically verifiable method to safely remove brominated flame retardant from high quality construction EPS to enable the EPS to be recycled. This initiative was supported by funding from the EU (Funding for LIFE) to encourage product circularity.

In recognition of the importance of research and development (R&D) for our sector (we have been granted 770 patents in various countries), we also describe our strategic research, development and innovation activity as it relates to climate change in the R&D section below.

Informing Future Strategy

The ICL TCFD program is designed to complement and augment ICL's existing climate strategy and associated risk management. ICL has applied forward-looking scenario analysis to identify physical and transition climate-related risks and opportunities that could have a material financial impact on the business over short (0-3 years), medium (3-10 years) and long (10+ years) term time horizons.

During 2021, ICL, initiated a high-level climate change scenario analysis to better understand the potential timing and materiality of climate-related risks and opportunities across ICL's key geographies and business segments. The assessment was completed using relevance weightings and climate data to show the trends by key indicators for specific climate scenarios, considering future timeframes

The following timeframes and scenarios were used in the assessment:

- **Physical risks:** 2030 and 2050, using the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathway (RCP) 4.5 (low carbon scenario) and 8.5 (high carbon scenario);

- **Transition risks and opportunities:** 2025, 2030, 2040 and 2050, using the two scenarios 'Stated Policies Scenario (STEPS)' and 'Sustainable Development Scenario (SDS)' developed by the International Energy Agency (IEA). Additional scenario data was obtained from equivalent scenarios to STEPS/SDS. The IEA scenarios use carbon prices as an input into their modelling For example, STEPS take into consideration existing or announced carbon pricing schemes and in SDS it is assumed that pricing is established in all advanced economies.

The outputs from this process resulted in a set of potential financially material physical risks (Table 1 below) and transition risks and opportunities (Table 2 below).

Physical Risks:

Climate-related physical- risks may be expected to occur under all scenarios but may be more material under the high carbon scenario - IPPC RCP 8.5. Table 1 identifies the headline potentially material physical risks that may affect regions in which we operate, including extreme heat, storms and high winds in the long term (by 2050, under RCP 8.5).

Table 1: Physical risks by region under Baseline and Projected RCP 8.5

Location	Short-term 0 to 3 years (2022 to 2025)	Medium-term 3 to 13 years (2025 to 2035)	Long-term 13+ years (2035 to 2050)
Israel	Extreme Heat, storm & wind	Extreme heat, storms and wind, water stress.	Extreme heat, storms and wind, water stress
China	Watercourse & rainfall flooding, storms & wind, water stress	Extreme heat, watercourse & rainfall flooding	Extreme heat, watercourse & rainfall flooding
Europe	Watercourse flooding, storm & wind	Extreme heat, watercourse & coastal & rainfall flooding, storms & wind, water stress	Extreme heat, watercourse & coastal flooding, storms & wind, water stress, wildfires
USA	Watercourse flooding, extreme heat, storms, & wind	Extreme heat, watercourse flooding, storms & wind, water stress	Extreme heat, WC flooding, storms & wind, water stress

* The table above is based on an analysis of ICL's main sites. The new acquisitions in Brazil that occurred during 2021 have yet to be analyzed as part of the 2021 process.

Mitigation measures currently adopted by ICL at various sites include, but are not limited to, flood management plans, specific insurance policies (e.g., for high winds), emergency response plans, and improved ventilation measures.

These potential physical risks will be further evaluated by ICL as it further develops its TCFD program in the coming years. However, it is noted that the physical risks in Table 1 do not yet consider those that may arise in the value chain, and which might affect future demand for products or on the availability of supplies.

Transition Risks and Opportunities:

Transition risks will be experienced as economies transition towards a low carbon / net zero world. In 2021, an initial assessment was performed for the first time at ICL. Under the plausible scenario modelling completed to date, initial potential transition risks and opportunities in the short-medium- and long-term have been identified and are presented in Table 2.

Table 2: Examples of potentially material climate-related transition risks and opportunities for ICL, including planned or existing responses

Risk / Opportunity description	Key ICL Segments	Risk / opportunity	Planned or existing responses
Regulation and Policy particularly in the medium term: Additional costs associated with increasingly stringent climate policy mechanisms, such as carbon pricing, emissions trading and carbon taxes including carbon border mechanism advancements.	All	Risk	Measures to reduce industrial CO_2e intensity, such as internal carbon pricing, fuel switching, electrification, production process optimization and energy efficiency
Regulatory and Policy, Market Demand and Reputational, particularly in the medium term: Increasing requirements to invest in renewable electricity generation, storage and purchasing, due to external policies and internal targets. Investment in site's operational improvements, such as energy efficiencies and optimization of production processes.	All, particularly Potash and Phosphate Solutions	Risk	Measures to transition away from unabated natural gas use, such as fuel switching, electrification, process optimization and energy efficiency
Market demand in the medium and long term - Decrease consumer demand for some of ICL's products	All, mainly IP and Phosphate Solutions	Risk	• Reviewing potential risks. • RD&I is working to find alternatives and new opportunities
Regulatory and Policy particularly in the medium term: Increased shipping transportation costs as a result of measures (investments/regulatory instruments) implemented to increase efficiency of the global shipping fleet	All	Risk	• Explore using low-carbon shipping methods and suppliers in the global supply chain
Market Demand in the short to medium term: Increased consumer demand for ICL's low-carbon products driving up revenue	All	Opportunity	• Investment into R&D for low-carbon fertilizers, as well as meat and dairy substitutes • Increase in target revenue for low-carbon products – aligning with the trend for product circularity and life cycle regulation • Creating procedures to collect, analyse and manage GHG data from all operations

Risk / Opportunity description	Key ICL Segments	Risk / opportunity	Planned or existing responses
Regulation and Policy driving Market Demand and Technology Innovation in the short to longer term: Increase in renewable energy generation leading to a reduction in emissions and operating costs	Dependent on geography, all particularly Potash and Phosphate Solutions	Opportunity	• Energy efficiency • Increase in renewable energy generation or procurement
Regulation and Policy driving Market Demand in the short to medium term: Increased electrification of industrial processes leading to a reduction in emissions and operating costs	All, particularly Potash	Opportunity	• Electrifying fossil fuel-based industrial processes

ICL acknowledges that the application of a scenario analysis to climate-related risk is a relatively new and rapidly evolving area. As part of our TCFD program, we will continue to enhance our analysis capabilities to reflect developments in modelling, policy, emissions pathways and wider stakeholder expectations. The outputs from further scenario analysis work, including carbon price trajectories, will be used to enhance ICL's existing business planning processes and inform strategy. They will also be used as an engagement tool to improve understanding of climate related risks and opportunities within the Company. In this way, ICL will seek to integrate climate-related issues into its regular financial processes.

Risk Management

ICL has established formal and uniform enterprise risk management (ERM) policies and procedures that follow the COSO1 risk management methodology. These policies and procedures have improved management processes for identifying, assessing and mitigating ICL's top-rated risks. ERM activities utilize an integrated business framework to embed risk management into the Company's business culture. Identified Individual risks, for example, related to extreme weather at individual locations, are prioritised with associated mitigation plans, often involving significant capital spend, to ensure long-term future resilience. This integration is designed to increase the performance of the different ICL business units, to support corporate efforts, to minimize exposure to and potential concentration of risks, including those related to climate-change, and to enable strategic achievements. ICL's continuing review of the climate-related elements within its ERM, including those related to TCFD, will guide ICL's future responses to, and risk management of, climate change impacts. This will include support for the senior management committees charged with managing both physical and transition-related climate risk.

1 COSO Committee of Sponsoring Organizations of the Treadway Committee

Metrics and Targets

Metrics

The GHG emissions reported below include all direct ("Scope 1") and indirect energy-related ("Scope 2") emissions of the primary known greenhouse gasses, including: CO2, CH4, N2O and HFCs/HCFCs and SF6. During previous years reported, there was no consumption or emissions of PFCs or NF3. Direct emissions include emissions from stationary and mobile fuel combustion, refrigerants, non-energy related process emissions and emissions from onsite wastewater treatment facilities. Indirect energy-related emissions include the calculated emissions resulting from consumption of purchased electricity, steam, heating and cooling.

The table below presents ICL's greenhouse gas emissions for the years 2021 and 2018 (the baseline year). ICL followed the GHG Protocol and ISO 14064 standard methodologies. An independent assurance process was performed by an external expert, which included verification and validation in accorded with ISO 14064-3 standard for greenhouse gas statements.

Scope 1 & 2 GHG emissions

		Year 2021 (1)	Year 2018 (2)	VS 2018
Scope 1	CO_2e tons (thousands)	2,158	2,220	(2.8%)
Scope 2	CO_2e tons (thousands)	380	720	(47.2%)
Total scope 1+2 GHG emission	CO_2e tons (thousands)	2,538	2,940	(13.67%)

(1) Emissions from facilities acquired during 2021 are not included in the current greenhouse gas measurements.

(2) 2018 is the baseline year for ICL's decarbonization roadmap.

ICL expects to further refine its Scope 3 emissions data collection procedures over time and to include data on Scope 3 emissions in future Disclosures.

ICL's 2021 Scope 1 & 2 emissions are 13.67% lower than the 2018 emissions, on course to meet the 2030 target successfully.

A reduction in emissions was achieved over the period 2018 to 2021 through the commissioning of the Sodom CHP (Combined Heat and Power) plant, which now supplies almost all electricity consumed by ICL's sites in Israel. The electricity generated is of much lower carbon intensity compared to the less efficient oil-fired power plant it replaced, and the majority of the heat generated in combination with power generation is used in the Sodom production facilities, displacing natural gas previously used solely for process heating.

Further reductions mostly resulted from a decrease in Scope 2 emissions due to ICL's decision to purchase renewable electricity for the majority of ICL sites in Europe.

R&D

ICL continues to invest in research and development activities to meet many of the challenges posed by climate change, and to date has lodged over 770 patents, some of which are a response to climate change. Examples of the R&D that ICL is currently engaged in include:

- The development of "next generation fertilization" to promote nutrient use efficiency, biodegradable coatings, nutrient sensing, growth enhancers, nitrogen fixation and soil health.
- Food technology developments in the areas of food texture improvement, stabilization, salt reduction, shelf-life extension and the development of alternative, plant-based proteins, including meat substitutes.
- Studies and development in the areas of E-mobility and sustainability, focusing on energy storage solutions, hydrogen carriers for fuel cells, urban mining and lithium battery recycling.
- The development of novel materials, including flame retardants, paints & coatings additives and biocides.
- Circular economy initiatives, including developments of waste-to-product solutions, waste recycling and efficiency improvement.
- ICL's Industry 4.0 program, which develops IOT concepts in manufacturing, safety and environment, machine learning and artificial intelligence for manufacturing optimization and product development.
- ICL's Digital Agriculture program, which aims to leverage ICL's digital platforms and data-driven solutions to create an agro-professional community, enabling sharing of information and knowledge between growers and agro-professionals, retailers, academia, and food producers to extract the most value from agriculture.

Targets

ICL has established a decarbonization roadmap to achieve net zero GHG emissions by 2050. The near-term milestone is to reduce Scope 1 and 2 GHG emissions by 30% by 2030, when compared to a 2018 baseline. ICL supports the global effort initiated by the Paris Agreement to reduce GHG emissions at a pace that limits global warming to no more than 2℃.

ICL has already implemented several measures included in its decarbonization roadmap, including:

- Commissioning of a high efficiency gas-fired combined heat and power (CHP) plant at ICL's Sodom facility to supply ICL's facilities in Israel, replacing older, oil-fired power generation systems.
- Beginning the transition to the procurement of renewably generated electricity, across all ICL sites, starting with the procurement of renewable electricity for ICL sites in Europe.

Other measures in the Decarbonization Roadmap for future implementation include:

- Phasing out oil shale-firing for power generation at ICL Rotem (Israel), in favour of a more efficient gas-fired power generation plant with much lower GHG emissions.
- Improved measurement of GHG emissions, including digital dashboards for more accurate and up-to-date reporting of emission at site and product levels.
- Eliminating or reducing process GHG emissions.

- Converting ICL's production plants in Israel to the use of natural gas in place of higher carbon intensity energy sources such as fuel oils.

- Increasing energy efficiency through the phasing out of inefficient production technologies, streamlining its production facilities, increasing the efficiency of its consumption of heat and steam, recovering heat where possible.

- Reducing the use of electricity for lighting and air conditioning through the implementation of more efficient technologies.

- Targeting 50% of electricity to be sourced from renewable energy, mainly at sites in Europe and North America. Renewable electricity supplies and market mechanisms such as power purchase agreements are not yet available in other parts of the world, but ICL will seek to increase its share of renewable electricity as it becomes available.

- Planning for installation of solar photovoltaic (solar PV) electricity generation systems in all available and appropriate areas within the operational boundaries of ICL sites in Israel, Spain, Germany and other countries.

- Use of carbon pricing consideration in product development and investment decision-making, in order to raise internal awareness, promote better life-cycle costing decisions, and better prepare our business for future emissions trading schemes.

Energy

We are engaged in efforts improve our energy metrics by increasing our use of clean and renewable energy, utilizing more efficient electricity production units (natural gas-based cogeneration) and implementing a multi-year energy efficiency program.

Renewable Energy

Our Company has created a cross-organizational team which includes representatives of our Global Procurement Organization (GPO) and Operational Excellence unit. They are responsible for increasing the renewable energy component in ICL's fuel mix.

We have already invested in transitioning to renewable energy (externally-supplied electricity) for the majority of the electricity consumed by our European sites. These market-based emission reductions have made a significant impact on our emissions generated in Europe. This approach will be rolled out in North America during 2022, although the market for power purchase agreements and other similar renewable electricity supply contract mechanisms is not yet as developed as in Europe. In other regions where we operate, there are currently no mechanisms to directly procure renewable energy.

In addition, we conducted several feasibility studies across Europe and Israel during 2021 to identify which of our site assets are suitable for Photo-Voltaic (PV) installations. Several statutory challenges are delaying the implementation of PV in Israel. Certain projects have overcome the hurdles and been approved, and construction is expected to commence in early 2022. During 2022, our North American operations will be similarly assessed, and our other main sites globally (predominantly in Brazil and China) will be assessed in 2023.

Long-term, we are looking at projects that are compatible with our net zero (by 2050) goal. As we expect these types of projects to include major infrastructure challenges, we are initiating them now. One of the major projects that we are currently launching is a PV plant combined with Green Hydrogen production at our Sodom site (green hydrogen is defined as hydrogen produced by splitting water into hydrogen and oxygen using renewable electricity).

Natural Gas

In 2010, we made a strategic transition to increase our use of natural gas (NG) instead of heavy fossil fuels (fuel oil, kerosene, diesel and shale oil) to power our largest production plants in Israel. The transition is nearly complete, with more than 95% of ICL Israel's main energy-consuming sites converted to NG. This transition has also significantly reduced our emission of air pollutants (such as NOx and PM) in the areas surrounding our sites.

The remaining step in this transition is to transition away from the combustion of shale oil at our Rotem Israel site. In 2021, we ceased extracting shale oil minerals and commenced the construction of a new NG-fired turbine installation. We expect this new facility to commence operations in 2022, significantly reducing our emissions of GHG (and other pollutants) at the Rotem Israel site.

For more information regarding natural gas agreements, see Note 18 to our Audited Financial Statements and "Item 3 – Key Information - D. Risk Factors - Our operations could be adversely affected by price increases or shortages with respect to water, energy and our principal raw materials".

The European Energy Efficiency Directive (EED)

In July 2021, the European Commission published a proposal to recast the EU Directive on Energy Efficiency, aimed at further stimulating efforts to promote energy efficiency and achieve energy savings in the fight against climate change. This initiative forms part of the EU's package of measures aimed at reducing net greenhouse gas emissions by at least 55% by 2030, with an ultimate objective of becoming climate neutral by 2050. Currently, the EED requires an 0.8% per year energy efficiency improvement through the end of 2023, but the proposal seeks to almost double this figure to 1.5% as of 2024 until 2030. The proposal requires each Member State (MS) to determine their own national contribution (based on a formula of objective criteria and benchmarks), which reflects national circumstances. We fully expect that each MS will develop its own response to these proposed changes to the EED, and the Company will develop plans and strategies to comply with these requirements for all our European operations going forward.

Air Quality

Reducing air emissions is a central goal of our environmental strategy. We are taking steps to reduce air emissions by implementing emission prevention solutions and switching to cleaner fuels. Our sites regularly monitor their emissions of pollutants to better manage our operations.

Israel

In Israel, air emissions from major industrial operations are regulated by the Clean Air Law (hereinafter - the Law) which aims to improve air quality, prevent, and reduce air pollution by implementing both prohibitions and obligations, and protect the health and quality of life of human beings and the environment. The Law addresses emission sources (including all our production plants in Israel) and is intended to serve as a platform for implementing the regulatory principles currently in place in the European Union (EU), specifically the principles of the IED (The Industrial Emissions Directive) that was adopted by the EU.

Our plants in Israel that fall under the definition of Emission Source Subject to Licensing Requirements, have received air emission permits. In the event of deviations from the emission permits' conditions, we could be subject to administrative enforcement measures, as well as to criminal liability. In addition, certain restrictions on our operations and significant capital investments may be imposed on our Company. In order to comply with the emissions permits granted under the Law, we have made significant investments, and will continue to do so as necessary. As a result, some of ICL's air emissions have decreased considerably.

- DSW and DSM will implement major dust reduction projects over the next few years. Our other production sites in Israel will also increase their efforts to reduce particle emissions.

- In June 2021, Rotem Israel's emission permit was renewed by the Israeli Ministry of Environmental Protection (MoEP), which is valid until September 2023. The renewed permit reflects an updated outline of requirements. Postponement in the execution of a limited number of projects was granted within the framework of an administrative order under Section 45 of the Law.

  By the end of 2021, Rotem Israel had completed 77 of 194 specific tasks required by the permit. Rotem Israel is striving to implement the requirements of the permit through a multi-year plan that includes several significant emissions reduction projects. Management still expects difficulties in meeting the execution schedules of a limited number of projects and accordingly continues to work with the MoEP to find a satisfactory solution regarding the timing of the investments, taking into account the impact of uncertainty surrounding Rotem Israel's activity, as far as the implementation of long-term projects is concerned. For more information, see Note 18 to our Audited Financial Statements.

Europe

In Europe, emissions are regulated under the EU IED – Industrial Emission Directive, as well as regional and local regulations. Preventive measures and Best Available Technology (BAT) are applied. These regulations are translated to national legislation. Emission limit values for relevant substances are included as part of the authority's approval. Rules guarantee protection of air, soil and water. In addition, in Europe relevant emissions control is conducted by authority inspection through independent technical supervisory associations and by self-inspection. Relevant plants in the EU are subject to the European SEVESO directive, which requires regular safety inspections and prepare reports.

Americas

Air emissions in the Americas are managed through operating permits issued by the relevant agency responsible for each individual site. In the US, air permits are issued under the authority of the US Environmental Protection Agency's (EPA) Clean Air Act. In Brazil, air emissions are managed under the site's operation license issued by the relevant state environmental agency.

China

Air emissions in China are regulated in accordance with the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution and the Regulations on the Management of Pollutant Discharge Permits.

- SBCL – Bromine leakage occurred during January 2022. According to the guidance of local authorities, production onsite was halted. Corrective actions were taken. Production activity is expected to resume by mid – March, following the approval by authorities.

Water

We regard potable water as a high-value natural resource. Several of our major production sites are located in water-stressed regions. Water conservation is therefore an inherent part of our business culture. Our production facilities maintain various water conservation projects, including using brackish water and recycling treated wastewater. We track the consumption of water at our facilities worldwide and promote the implementation of water efficiency projects.

We expect potable water to become scarcer in the future across the globe. As water scarcity becomes a pressing issue due to climate change and other factors, we expect greater and stricter regulation of water consumption and wastewater quality. We also anticipate that we will need to invest additional resources to enhance our water efficiency and wastewater quality at several of our plants.

Several of our major production facilities are located in Israel. The country, though located in a water-stressed region, manages its water resources efficiently. Desalination plants and Reverse Osmosis (RO) plants are major contributors to the country's potable water resources, thereby reducing potable water scarcity in the country. In addition, industrial facilities, such as our facilities in Sodom, are allowed to use non-potable water where possible.

Further information about water related issues in Israel, see Notes 17 and 18 to our Audited Financial Statements.

Wastewater, By-products, Waste & Hazardous Waste

We track and manage our waste streams and take various steps to reduce waste. We identify and seek to maximize potential reuse and recycling of relevant waste streams and are proactive in searching for 'circular economy' opportunities. For further information, see the "Circular Economy" section above. During production processes at our facilities, industrial liquid and solid wastes are produced. Storage, transportation, reuse and disposal of waste are generally regulated by governmental authorities in the countries in which we operate. Wastewater quality and quantities must comply with local regulations and with permits at relevant sites. We strive to implement zero discharge policies where applicable. Various production sites have adapted their treatment systems to the standards applicable to them. We track and manage our waste streams and take various steps to reduce waste or identify and maximize potential reuse and recycling of relevant waste. Most of the waste is either directly treated by us or treated by external certified vendors.

Although we strive to reduce the likelihood of wastewater leakages or solid waste and hazardous materials unexpected releases, we may not always succeed to prevent such incidents, which may occur, among other things, due to various factors that are not within our control. In the event of difficulties in the reuse or disposal of waste generated in our facilities, interruptions or production stoppage may occur and significant costs may be imposed. If we cannot properly mitigate and reduce the exposure, our operations may be adversely and materially affected.

For further information, see "Item 3 - Key Information— D. Risk Factors— As a leading global specialty minerals company the nature of our activities means that we are inherently exposed to hazards relating to materials, processes, production and mining" and "Item 3 - Key Information— D. Risk Factors— Our ability to operate and/or expand our production and operating facilities worldwide is dependent on our receipt of, and compliance with, permits issued by governmental authorities. A decision by a government authority to deny any of our permit applications may impair the Company's business and its operations".

Israel

Liquid and solid waste and other emissions are regulated by multiple regulations. Our plants in Israel implement waste monitoring and management measures. Each plant is required to inform the authorities on the amount of waste and treatment method for every waste stream under Israel's PRTR (Pollutant Release and Transfer Register) regulation. Wastewater regulations, including effluent limits, are regulated by the MoEP and partly by local authorities.

Pursuant to the conditions set by the MoEP in their Toxins Permits, our plants in Israel have conducted historical land contamination surveys and submitted them to the MoEP.

- ICL Dead Sea (DSW) - Salt by-product is transferred to a large open-air depot, in proximity to DSW's site. The open-air depot's dimensions (height and area) are limited by statutory requirements. DSW is examining alternatives for salt storage/treatment.

- Rotem Israel – The site is implementing a master plan for wastewater treatment, with the principal goal of reducing effluent quantities, by converting some effluents into products, wastewater recycling, reducing water consumption, treatment/neutralization of wastewater and restoration of wastewater ponds. The plan currently includes additional wastewater streams created by air emission purification processes, as required by the Israeli Clean Air Law.

  As part of its treatment of liquid and solid waste, the site treats gypsum waste by ponds and storage. In September 2021, the authorities approved a gypsum storage comprehensive plan that would allow the Company to store gypsum for the next 30 years. In addition, the plan allows the use of "Pond 5", which has been operating since 2018, until the end of its operational life, expected in 2024. The Company began planning the remediation of gypsum Ponds 1 to 3 that were used by Rotem Israel in the past. In accordance with current regulatory requirements, future expansion of the storage piles will need to be positioned on new protective infrastructure. Another requirement is the establishment of restoration methodologies for these large storage piles. Rotem Israel is planning to comply with these requirements and is striving to find alternative uses for the gypsum with external industry partners. For further information, see Note 18 to our Audited Financial Statements.

  The Rotem site has also completed the implementation of a multi-year master plan to prevent ground pollution by fuels or oils.

- Neot Hovav - Pursuant to the requirements of the MoEP, in the coming years our Neot Hovav site will be required to treat existing hazardous waste (historical). This waste is stored in a designated defined area on the site's premises, in coordination with the MoEP. Some of the currently produced waste is also stored in this area. Treatment of this waste is partly conducted through a combustion facility (Bromine Recovery Unit), which recovers hydro-bromine acid. Additional waste quantities are sent to external designated treatment facilities. Once the area is cleared, the Company will be required to conduct soil surveys. For further information, see Note 17 to our Audited Financial Statements.

- ICL Periclase - The site is working to reduce historic Magnesia waste, stored in a designated waste area, and to reuse it for the benefit of a circular economy. ICL Periclase is implementing a project that uses magnesia powder, a non-hazardous material, to fill sinkholes in the Dead Sea region. The project is expected to be completed by January 2023.

- ICL Haifa (F&C) – Treated wastewater of the site's facilities flows into the Kishon River, according to a permit issued by the MoEP. To comply with the standards covering treatment of the wastewater, the site, in coordination with the MoEP, is conducting a project to channel the treated wastewater underground. This project is in advanced stages.

Following laboratory tests that were performed at the site, the MoEP raised a concern regarding local underground water pollution. Therefore, the ICL Haifa site was given two alternatives - sealing the existing runoff pond, or building a new pond. After a thorough examination of the two alternatives, the site decided to build a new pond to reduce the risk to which the plant is exposed.

The production process of phosphoric acid produced in the 1990's at a facility which has since been shut down, has created a by-product in the form of a gypsum pile which is stored at the site. The site is working in coordination with the MoEP and taking the necessary actions according to regulatory requirements, including the Toxins Permit issued to the site.

Europe

Liquid and solid waste and emissions are regulated under the European IED – Industrial Emission Directive. The Company implements waste monitoring and other management measures. It is obligated to inform the authorities of the results. Wastewater regulations, including effluent limits, are regulated by states and partly by communities. We are subject to provisions regarding the avoidance of pollution and conditions for assessing compliance with emission limit values.

Wastewater is partly pre-treated and sent to municipalities and third parties for final treatment before discharge, or at levels that can be discharged to surface waters without treatment. Production processes, in general, do not generate significant volumes of direct solid waste. In event that solid waste must be disposed, we strive to perform in accordance with relevant European requirements.

- ICL Boulby - All wastewater leaving our site in the UK is permitted according to the UK's Environment Agency. The site's wastewater consists of extracted sea water, mine brines, gathered surface rainwater and water treated at the on-site sewage plant. Multiple parameter limits are imposed on the site by the wastewater permit, and no compliance breaches have occurred since the site's transition to producing Polysulphate®, and, in fact, wastewater amounts have been reduced considerably.

- ICL Iberia - A multi-year program is underway to restore large salt piles, while paying close attention to the issue of wastewater drainage and sludge treatment. In April 2021, the Company signed an agreement with the ACA, Catalan Water Agency, for the construction and operation of a new collector. The new collector is infrastructure required for the removal of brine water that will be used for restoration, as well as for production. For further information regarding the restoration plan and the agreement for the construction and operation of the collector in Spain, see Notes 17 and 18 to our Audited Financial Statements.

  ICL Iberia has also successfully passed the audit for the certification of UNE 22470 and 22480 standards, which accredited ICL Iberia as a sustainable mining company. ICL Iberia is also engaged in a program regarding non-mining waste management to valorize and reduce its waste, in accordance with local and European waste management.

Americas

Liquid and solid wastes at our Americas sites are managed in accordance with country and state-specific regulatory requirements. In the US, solid and hazardous wastes are regulated by the Environmental Protection Agency's (EPA) Resource Conservation and Recovery Act. In Brazil, waste is managed under the site's operation license issued by the relevant state environmental agency.

ICL follows a qualification process for waste vendors who assist us in ensuring that waste is properly profiled, treatment standards are followed, and disposal processes meet regulatory requirements. Wastewater is managed through site industrial discharge permits that are managed through federal, state or local agencies. Wastewater treatment is mainly focused on chemical treatment. Wastewater treatment systems are maintained on a regular basis.

- ICL US Gallipolis Ferry - The site operates under a National Pollutant Discharge Elimination System (NPDES) Permit which regulates water discharge from point sources and is renewed every 5 years. The site operates a large Wastewater Treatment Plant (WWTP). Discharge limitations, set by the West Virginia Department of Environmental Protection (WVDEP), are becoming stricter, placing a challenge on the treatment capabilities for some parameters being treated within the current WWTP. Therefore, in 2021 the site installed new technology for its wastewater treatment processes. The site has been very active in pursuing recycling initiatives, which helped achieve a landfill to recycling ratio of 50%. Additionally, the facility entered into a Voluntary Remediation Agreement (VRA) with the former owner of the facility, and the WVDEP. The active remediation has been completed and is being reviewed by the WVDEP for approval. Currently, there is ongoing periodic groundwater sampling, analysis, monitoring, and reporting to the WVDEP, per the VRA.

China

According to the Law of the People's Republic of China on the Prevention and Control of Solid Waste Pollution and the National Catalogue of Hazardous Waste, solid waste is collected, stored and transferred. General industrial solid waste is entrusted for comprehensive utilization by qualified organizations, and hazardous waste is entrusted for treatment by organizations with a Hazardous Waste Business License issued by the Department of Ecological Environment of Yunnan Province.

- YPH- All wastewater at YPH, after physical or chemical treatment, is reused in the production system with zero discharge.

- LYG - During 2021, ICL ceased operations at its LYG plant following a request by the Chinese authorities to either relocate the plant or cease its operation. As part of the closure process, soil surveys were conducted. Once concluded, ICL is expected to receive compensation due to the closure.

Ecological Impact

We manage our mineral extraction sites according to local regulations and depend on concessions that are granted to us. Our broad and varied operations cover the entire lifecycle of our products, from the initial production of raw materials through manufacture of the final product. This is becoming more challenging as the population grows in proximity to our sites. To try to minimize any unexpected disturbances by our facilities to their surrounding communities, we have increased our efforts to take precautions and safety measures in our activities, especially those which involve hazardous materials.

We aim to minimize the ecological impact of both our mining and production activities, beginning at the initial stage of planning, through the implementation of recommendations and finally by monitoring and minimizing their impact. We continuously implement relevant operational methodologies and necessary technologies to prevent unexpected ecological impact. In the event of an ecological impact, we strive to mitigate and remediate the impact, in accordance with best practices and regulatory requirements, including by coordination with the relevant local authorities. For further information, see "Item 3 - Key Information— D. Risk Factors— As a leading global specialty minerals company the nature of our activities means that we are inherently exposed to hazards relating to materials, processes, production and mining".

It should be noted that our Sodom production facility is located in the Jordan Rift Valley, or Syro-African Depression, a seismically active area. For further information, see "Item 3 - Key Information— D. Risk Factors— The locations of some of our mines and facilities expose us to various natural disasters, including as a result of climate change".

- ICL DSW – Due to the negative water balance, the water level in the northern basin of the Dead Sea is decreasing. The receding water levels over the years has required ICL to reposition its pumping station northwards, in order to enable continued operations in the Dead Sea region, which also enables the existence of tourism infrastructure. The P-9 pumping station and feeder canal crossing the Tze'elim stream were constructed in order to maintain operational continuity. The Tze'elim stream alluvial fan is one of the largest and most developed of all the surviving fans in the area, and therefore it is important to preserve it and to protect the biodiversity existing in this habitat. ICL reached an agreement with environmental authorities and organizations, according to which, seven culverts were constructed above the excavated canal to allow flood waters to flow through the original flow channel, without damaging the feeder canal, while maintaining the braided channel fan pattern. In addition, the culverts serve as an ecological corridor, by providing passageways for animals. ICL periodically reviews field data and makes adjustments in accordance with the findings. For further information, see "Item 4 – Information on the company — D. Property, Plant and Equipment — Mineral Extraction and Mining Operations- Dead Sea".

- ICL Iberia - ICL Iberia's past activities have resulted in the salinization of some water wells in the Suria and Sallent sites. Compensation to the relevant owners is under discussion. For more information, see note 17 to our Audited Financial Statements.

- Rotem Israel - In 2017, Rotem experienced an environmental accident in which approximately 100,000 cubic meters of acidic phosphogypsum liquid were released into the surrounding environment, as a result of a breach in its Number 3 detainment pond. The liquid entered the nearby Ashalim Creek (Nahal Ashalim), which flows through an area designated as a nature reserve. To the best of our knowledge, as of the reporting date, criminal investigation of the event is still underway. We took intensive actions to restore the creek, to its state prior to the accident, in full cooperation with the relevant authorities.

Following the incident, the Israel Nature and Parks Authority (INPA) closed the nature reserve to the public. We conducted a risk assessment process of the creek, together with leading experts. The assessment was meant to assure that the creek's hiking trails can be reopened and do not pose risks to hikers' health. The assessment was completed in late 2019 and the results were presented to the authorities. All risk levels were found to be acceptable, and in June 2020, the Ashalim Creek was reopened for hikers. For further information, see Note 18 to our Audited Financial Statements.

Rotem Israel is in a process to remediate its gypsum ponds, based on a remediation plan that was established following the 'Florida Standard' and approved in 2020. The remediation work, which commenced in September 2020, was stalled due to discussions with the MoEP regarding the approval of landscape restoration. Discussions are still on going, but Rotem Israel expects to resume remediation process during 2022. In addition, Rotem Israel is designing a remediation action plan for its acidic wastewater ponds.

In 2020, an application for a class action was filed against the Company, according to which, discharge, leakage and seepage of wastewater from Rotem's Zin site, allegedly caused various environmental hazards to the Zin stream, which resulted in damages. For future information, see Note 18 to our Audited Financial Statements.

Part of the environmental challenges Rotem Israel is facing and handling, including certain environmental class actions against the Company, pertaining to environmental damages originating in the period that the Company was owned by the Israeli government, prior to its privatization.

- ICL R&D Beer Sheva - A soil survey was conducted. The initial results of the survey point to small amounts of contamination. ICL will act in accordance with the survey's findings, and related MoEP guidelines.

- ICL Periclase - In 2021, brine, a non-hazardous substance, leaked from a ruptured pipeline in a nature reserve. No significant damage was recorded, and we are in the process of remediating the area. We committed to testing and replacing the necessary pipeline components, in order to prevent future occurrences.

Biodiversity

Biodiversity, also called biological diversity, is the variety of life found in a place on Earth. A common measure of this variety, called species richness, is the count of species in an area. We recognize the need to consider environmental factors when using land and managing our operations, particularly in ecologically sensitive areas, including areas with unique cultural value. We are committed to ongoing consideration of the impact of our activities on biodiversity in our decision making.

Examples regarding our management of biodiversity at some of our mining sites includes the following:

- ICL DSW - Sodom Saltmarsh Lake. The Ashalim reservoir, located south of the ICL's Dead Sea site, is a wet habitat, situated within a typical arid habitat. It is abundant with rich biological diversity. ICL Dead Sea, whose excavations in the region created this wet habitat, takes extra measures to preserve it and invests in making this unique habitat accessible to the public. In the past, the Sodom salt flats area was a resting stop and habitat for migratory birds. Today, due to changes in the land's use – to agriculture, residential and industrial purposes, almost no salt flats remain. These flats have unique characteristics with high salinity in the soil and unique species that have adapted to these extreme conditions. The salt flats in Israel are a rare habitat and have been shrinking over time. The Sodom Saltmarsh Lake, initially created as a result of ICL Dead Sea's excavation activities, has become a salt flat substitute. The lake was created from a rise in groundwater in the excavated area. Over the past few years, the lake has had relatively good water quality year-round. We also started monitoring the lake, using sensors, to continuously measure its water quality. Vegetation was planted in a stable water environment. The lake is now used as a resting spot for migrating birds and as a nesting site for a wide range of species.

- ICL Boulby - Adjacent to ICL Boubly's mining facilities, and within its operational area, are non-developed turfs where important habitats and species flourish. Most notable are the woodlands at Mines Wood and Ridge Lane Wood, near Dalehouse. These are some of the most wildlife-rich woodlands in the Northeast England / Yorkshire areas. The woodlands are home to invertebrates, birds and mammals. For over a decade ICL Boulby has worked with the Industry Nature Conservation Association (INCA) to monitor and manage the wildlife that exists in proximity to the mine. Key to this process is a Site Biodiversity Action Plan (Site BAP), operated by ICL Boulby within its operational area. The site BAP is designed to conserve the key habitats and species which live at the site, and is assisted by INCA annually. For further information see: "Item 4 – Information on the Company — D. Property, Plant and Equipment — Mineral Extraction and Mining Operations" and Note 18(c) to our Audited Financial Statements.

Hazardous Substances

Some of the substances used at our facilities across the world (such as raw materials, etc.) are considered as hazardous substances. These substances require governmental approvals and registration. Relevant safety measures and procedures for storage and handling are implemented and maintained. Measures are taken to reduce the likelihood and the potential severity of incidents in case of an exposure to hazardous materials. This includes risk assessment, training, personal protective equipment (PPEs) and other relevant mitigation measures for employees and contractors. In addition, suppliers, transporters and vendors are qualified for proper handling of these materials.

Israel

As part of our operations in Israel, we produce, store, transport and use materials that are defined as hazardous materials according to the Israeli Hazardous Substances Law, 1993. Handling such substances requires a special permit for hazardous material from the MoEP ("Toxins Permit") that is renewed annually. All our Israeli companies have a Toxins Permit, as required by law, and they operate according to the special conditions defined in these permits. Leakage or loss of control of these materials could result in an environmental incident and cause damage to people and/or to the environment. We take measures to prevent such occurrences, and, at the same time, we prepare for such occurrences by means of emergency teams training and appropriate equipment for dealing with these types of events.

Europe

Some of the substances used in our European facilities (such as raw materials) are considered hazardous substances. Required approvals and registrations for these substances are secured and maintained. Relevant safety measures and procedures for storage and handling are also implemented and maintained. In addition to these measures, we only use qualified suppliers and transport companies, while qualification and training of employees is conducted on a regular basis. All requirements based on the GHS (Globally Harmonized System of Classification, Labelling and Packaging of Chemicals) are acquired and maintained.

Americas

Hazardous substances are utilized at ICL's facilities in the Americas as raw materials and can also be found as finished products. Where required, registrations for the storage, handling and transportation of these materials are secured and maintained. Measures are taken to reduce the likelihood of releases of hazardous materials by way of supplier and transporter qualification, as well as training of employees, contractors and vendors on the proper handling of these materials.

China

Hazardous substances are utilized at our facilities in China as raw materials and can also be found as finished products. Where required, registrations for the storage, handling and transportation of these materials are secured and maintained. Measures are taken to reduce the likelihood of releases of hazardous materials by way of supplier and transporter qualification, training of employees, contractors and vendors on the proper handling of these materials.

As a global specialty minerals company, we are subject to multiple rules and regulations in terms of product safety. We ensure that the substances we produce, and sell, are handled in accordance with all such rules and regulations throughout their life cycle. These rules and regulations, among other things, impose limitations on the use of specific substances and products, require us to register and label some of our products and more. We continuously monitor these rules and regulations and take the necessary operational measures to ensure that we remain in material compliance with them.

New European Fertilizer Product Regulation

One of the future regulatory changes that may impact our products is the new European Fertilizing Product Regulation (FPR, formerly known as NFR), which was published in in 2019, with an effective date of July 2022. FPR covers a broad scope of materials, including all types of fertilizers, liming materials, biostimulants, growing media, soil improvers, inhibitors and other blends of these materials. The new regulation requires fertilizer producers to monitor new contaminating elements in fertilizer products. In addition, pursuant to FPR, fertilizer producers will have to demonstrate the ability to track their products to ensure their quality in the production and supply chain. The labelling of fertilizer products will need to change, and conformity assessment methodologies will need to be updated. Moreover, new tolerance levels for fertilizer contaminants are included in the FPR. One focus area is the level of cadmium in phosphate containing fertilizers. In addition, FPR includes very challenging biodegradation requirements for polymer coatings on controlled release fertilizers. These requirements need to be established by ICL until July 2026, for continued sale of controlled release fertilizers. We are actively undertaking steps to adjust to these new regulations for all relevant products.

New Chinese Polysulphate standard

A new industry standard for Polysulphate (as a fertilizer) was recently published in China. We are examining how this new standard may affect the supply of Polysulphate to the Chinese market and the options to meet its requirements.

Chemicals Regulation and Registration

Europe and UK

The EU has established one of the most comprehensive chemical regulatory frameworks in the world known as REACH, a regulation setting up a framework for registration, evaluation, authorization and restriction of chemicals in the EU. Chemicals imported or manufactured in the UK are regulated by a new UK chemical legislation similar to EU REACH.

All ICL segments are implementing REACH, and are registering their chemicals as required by law. We have submitted applications for registrations of all chemicals relevant to our businesses in the EU (production and sale). As of the date of this Annual Report, a few substances are under evaluation by the authorities (ECHA and the member state). In addition, there are substances listed as Substances of Very High Concern (SVHC), which may result in various regulatory restrictions.

The following are examples of EU limitations on the use of specific chemicals used as flame retardants, biocides and other uses:

- The European Ecodesign E-Display regulation, published by the European Commission in December 2019, bans the use of halogenated flame retardants in electronic display enclosures. The regulation has been in force as of March 2021. This is the first-time chemicals have been regulated under this regulation and was justified as a means to improve plastics recycling.

  We believe the regulation conflicts with other EU regulatory processes, such as RoHS and REACH, and does not take into consideration current practices of EU plastics recycling. In addition, there are several available technologies for the recycling of plastics with halogenated flame retardants, while alternative flame retardants (not halogenated) present difficulties for plastics recycling. One plant recycling halogenated flame retardants is already in operation (PSLoop). BSEF (the International Bromine Council) has filed a lawsuit against the European Commission, petitioning the EU court to remove the ban. The ruling is expected during 2022.

- Tetrabromobisphenol A (TBBPA or TBBA) flame retardant is under review as part of REACH. The results of the review are expected during 2022. TBBA is also being reviewed under the European Directive on the Restriction of the Use of Certain Hazardous Substances in electrical and electronic equipment (RoHS). The draft assessment was published in December 2019 and includes a proposal to restrict TBBA for its additive uses in plastics for EE&E (Electric and Electronic Equipment). BSEF commented on the proposed regulation, expressing concern regarding the scientific basis to justify any restrictions. The European Commission will review and make its final decision, likely in fourth quarter 2022. TBBA is mostly used as a reactive flame retardant and not as an additive.

  Additionally, in November 2020, a proposal by Norway to classify TBBA as a carcinogen category 1B was made public and open for a consultation period until the end of January 2021. The proposal was reviewed in September 2021 by the Risk Assessment Committee (RAC) of ECHA, which provided an opinion that the classification is warranted. This change is likely to increase pressure to stop the use of TBBA as an additive flame retardant and increase workplace controls for all European manufacturers. A final decision by the Commission is expected during 2022.

- Ammonium Bromide: Sweden has filed a dossier supporting proposed classification as reproductive toxin category 1B under the Classification, Labelling & Packaging (CLP) EU Regulation. In October 2020, the risk assessment committee (RAC) of ECHA provided an opinion that the classification is warranted. The final Commission decision on the classification is expected by Q2 2022. A decision on the further use of ammonium bromide as a biocide will be taken by the BPC (Biocidal Products Committee), probably during 2022, pending provision of additional data to be requested by Sweden.

- Additional specific products of the Industrial Products segment are in the process of evaluation under REACH. For some products, there are draft or final decisions by ECHA to perform additional studies, a process that will take a few years until evaluations are completed. Other products are in the process of evaluation under the Biocides Products Regulation (BPR).

EU Chemicals Strategy for Sustainability

In addition to REACH and the various chemical-specific limitations described above, the European Commission has introduced a new Chemicals Strategy for Sustainability (CSS).

CSS was launched in October 2020 to provide a new long-term strategy for chemicals related policy, in line with the aims of the EU Green Deal. The CSS strives for a toxic-free environment, in which chemicals are manufactured and used in a way that maximizes their societal contribution, but avoids causing harm to the environment or the population, now and in the future. The strategy contains around 80 action points, which may have a significant impact on existing or future legislative frameworks such as CLP (Classification, Packaging and Labelling Regulation) and REACH.

We are carefully monitoring developments related to CSS, in order to be prepared for upcoming regulatory requirements which may affect many of our products.

US

The Toxic Substances Control Act of 1976 (TSCA), which was reformed in 2016, addresses the production, importation, use, and disposal of specific chemicals in the US. The TSCA is administered by the US Environmental Protection Agency (EPA), which regulates the introduction of new and existing chemicals. Under TSCA, certain substances are prioritized by EPA for its risk assessment. EPA publishes projected timelines for prioritized substances and the risk evaluation process. Some ICL products, such as TBBA, are under the TSCA evaluation. We are closely monitoring these publications, which might entail regulatory decisions on restrictions.

The state of New York has passed a bill banning halogenated flame retardants in electronic display casings. The new law impacts display and stands greater than 15 inches. It also places reporting requirements on manufacturers and retailers on the flame retardants they use in these devices. The law is expected to become effective in 2025. We believe the law conflicts with the federal TSCA's Law and the American Chemical Council is evaluating legal action.

Asia

In addition to REACH requirements in the EU, other countries, including South Korea, Turkey and EAEU (Eurasian Economic Union), have adopted, or are in the process of adopting, restrictive regulations similar to REACH, which may affect our ability to manufacture and sell certain products in these countries in the future.

In January 2019, amendments to South Korea's version of REACH (known as K-REACH) came into force. We completed, on time, the notification process under K-REACH, which is a prerequisite for the full registration (pre-registration phase), allowing us to continue selling in South Korea during the transition period, prior to the registration. ICL is working in accordance with the plan established for the registration of its products, which is in line with the deadlines defined by regulation.

In June 2017, Turkey published its version of REACH, called the KKDIK Regulation. According to the KKDIK Regulation, chemicals, in excess of one ton per year, that are imported and/or manufactured in Turkey, need to be reported by December 31, 2020, followed by subsequent full registrations by December 31, 2023. The Company's Turkish representative notified the Turkish authorities regarding its relevant substances in a timely manner.

Eurasia REACH requires companies that manufacture or import substances and mixtures into EAEU (Eurasian Economic Union) countries (Russia, Armenia, Belarus, Kazakhstan and Kyrgyzstan), in any amounts, to register these substances and mixtures. Although the requirement to notify of any such substances is on a voluntary basis, it is important for us to participate in this process, in order to ensure that our relevant substances will be listed in the EAEU inventory. We are participating in the inventory build-up process, and have submitted relevant substances for inclusion by the Russian authorities.

Israel

Following Israel's acceptance to the OECD in 2010, Israel's MoEP published a draft law to establish a national inventory of industrial chemicals and established processes for risk assessment and management of chemicals in Israel. The MoEP proposed that the law will enter into force on March 1, 2023, but it will give manufacturers and importers until September 1, 2024, to register chemicals. ICL is actively involved, via the Israel Manufacturers Association, in providing inputs regarding the proposed law. Once this new regulation enters into force, it is expected that it will have an impact on ICL, importers and manufacturers in Israel, including higher costs and complex administrative processes.

For more details on regulations and limitations of our products, see "Item 4 - Information on the Company— B. Business Overview—Regulatory and Environmental, Health and Safety Matters — Limitations on the Use of Specific Chemicals Used as Flame Retardants, Biocides and Other Uses".

Business Licenses and other permits

In the ordinary course of our Company's business activities, we hold business licenses, permits and governmental approvals, including such related to environmental, health and safety, that are issued by various regulatory agencies to operate our facilities. We may be required to obtain or renew such licenses, permits and governmental approvals in the future, in order to continue our current or future operations throughout the world. ICL strives to comply with the terms and conditions set out in its business licenses and permits, as applicable, and in the event of any non-compliance, ICL acts to amend in full coordination with the relevant agencies. We do not believe that any individual plant facility that is subject to a business license or permit is material to our operation as a whole.

In 2020, our ICL Terneuzen site submitted an application to renew its environmental permit. The application is expected to be addressed by the relevant local authorities in the first quarter of 2022. Our current permit is valid until the new permit is obtained. Local environmental authorities have updated the SVHC list, and for the materials listed there will be a need for adaptations. IPT continues to work together with the Dutch environmental authorities to close any relevant gaps, as identified in a gap analysis conducted in 2021. Please see "Item 3 - Key Information— D. Risk Factors - Our ability to operate and/or expand our production and operating facilities worldwide is dependent on our receipt of, and compliance with, permits issued by governmental authorities. A decision by a government authority to deny any of our permit applications may impair the Company's business and its operations."

Cybersecurity

Our Global IT team handles the operational cybersecurity policies and measures regarding the Group's global infrastructures, in collaboration with the plants' engineering and control units.

ICL's cyber security strategy resides on three fundamental pillars: (a) plants and operational security, (b) critical assets & data protection, and (c) fraud prevention. For each pillar, there is a program that seeks to reduce the risks identified. All these programs are periodically reviewed by internal governance structures to assess their effective impact on the Group's risks. For the purpose of critical plants protection, we continuously cooperate with the National Cyber Directorate - the National CERT, the Ministry of Energy and the Ministry of Environmental Protection in Israel.

As cyberattacks evolve and become more sophisticated, the Group has had to strengthen its prevention and monitorization efforts. As part of such efforts, ICL routinely reviews, reinforces and tests its security processes and procedures through simulation exercises in the areas of physical security and cyber security. The outcome of such exercises is an important part of a feedback process designed to improve the Group's cybersecurity strategies.

As part of our ongoing efforts to strengthen our cyber defenses, we conducted a comprehensive Cyber Maturity survey in 2019 in cooperation with a leading international consulting firm, which was revalidated in 2020, and will be revalidated again in 2022, alongside intrusion drills and instructional videos designed to raise employee awareness. In addition, the Company retained the services of an SOC cyber center operating 24 hours a day, as well as cyber intelligence services. We also conducted a risk assessment of our sensitive IT systems in cooperation with several leading Israeli and international companies in the field of cyber defense. The Group also tests its continuity plans in order to improve disaster recovery in instances where an incident or vulnerability threatens the continuity of one or several critical processes, services or platforms.

Other lines of action also include the adequate training of ICL's management members in the area of security and incident management. Periodically ICL carries out simulation exercises in order to raise the level of awareness and preparedness of certain key personnel. We maintain cybersecurity and fraud insurance policies. These insurance policies are subject to certain loss limits, deductions and exclusions and we can provide no assurance that all losses related to a cybersecurity or fraud incident will be covered under our policies. For further information, see "Item 3 - Key Information— D. Risk Factors— Significant disruptions in our, or our service providers', information technology systems or breaches of our, or our service providers', information security systems could adversely affect our business".

Water Wells Production Permits

The water supply to DSW is executed via approximately 40 drillings, most of which are located within the concession area. Seven drillings - the Ein Ofarim drillings - are located outside the concession area, and DSW is therefore required to sign, from time to time, lease contracts for limited periods with the Israel Land Authority (ILA).

The contracts renewal process is lengthy and DSW has been working for several years to renew the contracts. As of today, five contacts have been renewed until 2026, two contracts that expired in 2016, are still in the process of being renewed.

In addition, the drillings require a drilling license issued by the Water Authority, and at the beginning of every year the Water Authority issues the Company with a water production license that defines the production capacity of each drilling.

In 2017, the Israeli Water Law was amended, according to which saline water of the kind produced for Dead Sea plants by the Company's own water drilling is charged with water fees. The Company objected to the charges relating to water drilling within the concession area, which constitutes about 65% of the total charge, based on various arguments, most notably the provisions of the Concession Law. In October 2021, the Water Authority informed the Company that water fees will not be charged for water production within the concession area.

In addition, in March 2021, a decision was made by the Water Authority, whereby despite the Company's objection, its definition should be changed to "Consumer-Producer", as defined in the Water Law, starting with the production license for 2021. The main implication of this change is an increase in the water fees of about $3 million per year for water from drillings outside the concession area. The Company filed an appeal with the water court against the said decision and the parties presented their arguments in a preliminary hearing. A hearing procedure is being held, in the framework of which an additional deliberation was scheduled for April 2022.

C. ORGANIZATIONAL STRUCTURE

A list of our main subsidiaries, including name and country of incorporation or residence is provided in an exhibit to our Form 20-F filed with the U.S. Securities Exchange Commission, which can be found at www.sec.gov.

D. PROPERTY, PLANT AND EQUIPMENT

The Company operates production facilities in its worldwide locations, including the following:

- Israel: under the Israeli Dead Sea Concession Law, 1961, as amended in 1986 (the "Concession Law"), we have lease rights until March 31, 2030, for salt and carnallite ponds, pumping facilities and productions plants at Sodom. We have other production facilities in Israel, situated on land with a long term lease, including the Oron and Zin plants at Mishor Rotem of the Phosphate Solutions segment (the lease agreement for Oron plant has been under an extension process since 2017), production facilities at Naot Hovav of Industrial Products segment (leased until 2024-2048), as well as production, storage and transportation facilities together with chemicals and research laboratories at Kiryat Ata that belong to the Innovative Ag Solutions segment (leased until 2046 2049). We also use warehouse, loading and unloading sites at Ashdod and Eilat ports (leased until 2030).

- Europe:

  Germany: Production plants of the Phosphate Solutions segment are located at Ludwigshafen, Ladenburg. The production plants of the Industrial Products segment are located at Bitterfeld. All the plants, in addition to Ludwigshafen, are owned by the Company.

  The Netherlands: Production plants of the Industrial Products segment at Terneuzen are owned by the Company. A facility of the Phosphate Solutions segment in Amsterdam is held under a lease until 2040 and a production facility in the southern Netherlands is located on land that is partly owned by the Company and partly held under a long-term lease.

  Spain: Concessions at the potash and salt mines are held under concession agreements described below. Potash and salt production plants, warehouses and loading and unloading facilities of the Potash segment at Catalonia are owned by the Company. The Innovative Ag Solutions segment also owns a liquid fertilizer and soluble fertilizer production plant in Totana, owns another plant for mixing solid fertilizers in Los Patohos and has a concession in Cartagena port until 2024.

  UK: Rights to polyhalite and salt mines are held under concession agreements described below. Polyhalite and salt production plants and warehouses of the Potash segment in Cleveland are owned by the Company. The warehouses and bulk loading and unloading facilities at the port are leased until 2034. The company owns three peat moors of the Innovative Ag Solutions segment and a plant for producing growing media in Scotland. The Innovative Ag Solutions segment also owns a plant in Daventry for producing water conservation and liquid plant nutrition products along with a fertilizer blending site in Rugby.

  Belgium: The Innovative Ag Solutions segment owns a production facility in Grobbendonk for producing water soluble fertilizers.

  Austria: A dairy protein production plant of the Phosphate Solutions segment at Hartberg (Prolactal) is owned by the Company.

- North and South America:

US: Production plants of the Industrial Products segment in West Virginia are mainly owned by the Company. The production plants of the Phosphate Solutions segment in Lawrence, Kansas and St. Louis, Missouri are owned by the Company. The production plants of the Innovative Ag Solutions segment in South Carolina are operated under leases ending in 2025.

Brazil: Production plants of the Phosphate Solutions segment at Sao Jose dos Campos and Cajati are leased by the Company.

Production plants of the Innovative Ag Solutions segment at Suzano I and Suzano II (liquid fertilizers, water-soluble fertilizers, animal nutrition, micronutrients fertilizers), at Uberlandia (improved efficiency phosphorus fertilizers), at Jacarei I (secondary nutrients fertilizers), at Maua (micronutrients fertilizers), at Cruz Alta (liquid fertilizers) and at Cidade Ocidental (liquid fertilizers) are owned by the Company. The production plant at Jacarei II (controlled-release fertilizers) is leased by the Company.

- Asia:

China – Phosphate rock mining rights at the Haikou Mine are derived from mining licenses that are described below. The plants of YPH are owned by the Company, some of them located on land that is owned by the Company, while others are situated on leased land.

Principal Properties

The following table sets forth certain additional information regarding ICL's principal properties as of December 31, 2021:

Property Type	Location	Size (square feet)	Products	Owned/Leased
Plant	Mishor Rotem, Israel	27,094,510	Phosphate Solutions products	Owned on leased land
Plant	Mishor Rotem, Israel	10,763,910	Industrial Products products	Owned on leased land
Plant	Neot Hovav, Israel	9,601,591	Industrial Products products	Owned on leased land
Plant	Zin, Israel	8,484,123	Phosphate Solutions products	Owned on leased land
Plant	Kiryat Ata, Israel	6,888,903	Innovative Ag Solutions products	Leased
Plant	Oron, Israel	4,413,348 (not including phosphate reserve)	Phosphate Solutions products	Owned on leased land
Plant	Sodom, Israel	13,099,679 (not including ponds and Magnesium factory)	Potash products	Owned on leased land
Plant	Sodom, Israel	4,088,800	Magnesium products (Potash segment)	Owned on leased land
Plant	Sodom, Israel	2,326,060	Industrial Products products	Owned on leased land
Conveyor belt	Sodom, Israel	1,970,333	Transportation facility for Potash	Owned on leased land
Pumping station	Sodom, Israel	920,314	Pumping station for Potash segment	Owned on leased land
Plant	Sodom, Israel	667,362	Industrial Products products	Owned on leased land
Power plant	Sodom, Israel	645,856	Power and steam production for Potash segment	Owned on leased land

Warehouse and loading facility	Ashdod, Israel	664,133	Warehouse for Potash and Phosphate Solutions products	Owned on leased land
Headquarters	Beer Sheva, Israel	191,598	Company headquarters	Owned and leased
Plant	Mishor Rotem, Israel	430,355	Phosphate Solutions products	Owned on leased land
Warehouse and loading facility	Eilat, Israel	152,557	Warehouse for Potash and Phosphate Solutions products	Owned on leased land
Headquarters	Tel Aviv, Israel	21,797	Company headquarters	Leased
Plant	Catalonia, Spain	48,491,416	Mines, manufacturing facilities and warehouses for Potash	Owned
Port/warehouse	Catalonia, Spain	866,407	Potash and salt products	Owned on leased land
Plant	Totana, Spain	2,210,261	Innovative Ag Solutions products	Owned
Plant	Cartagena, Spain	209,853	Innovative Ag Solutions products	Owned
Warehouse and loading facility	Cartagena, Spain	184,342	Storage for Innovative Ag Solutions products	Leased
Plant	Shandong, China	692,045	Industrial Products products	Owned on leased land
Plant	Lian Yungang, China	358,793	Industrial Products products	Owned on leased land
Headquarters	Shanghai, China	8,224	Company headquarters	Leased
Plant	Kunming, Yunnan, China	1,161,593	Phosphate Solutions products	Owned land
Plant	Kunming, Yunnan, China	8,345,037	Phosphate Solutions products	Leased land
Pumping station	Kunming, Yunnan, China	36,931	A pumping station for Phosphate Solutions	Leased land
Peat Moor	Nutberry and Douglas Water, United Kingdom	17,760,451	Peat mine -Innovative Ag Solutions	Owned
Plant	Cleveland, United Kingdom	13,239,609	Polysulphate products (Potash segment)	Owned
Warehouse and loading facility	Cleveland, United Kingdom	2,357,296	Polysulphate products (Potash segment)	Owned on leased land

Peat Moor	Creca, United Kingdom	4,305,564	Peat mine - Innovative Ag Solutions	Owned
Plant	Nutberry, United Kingdom	322,917	Innovative Ag Solutions products	Owned
Plant	Daventry, United Kingdom	81,539	Innovative Ag solutions products	Owned and leased
Plant	Terneuzen, the Netherlands	1,206,527	Industrial Products products	Owned
Plant & warehouse	Lawford Heath, Rugby	45,000	Innovative Ag solutions products	Leased
Plant	Heerlen, the Netherlands	481,802	Innovative Ag solutions products	Owned and leased
Plant	Amsterdam, the Netherlands	349,827	Phosphate Solutions products and logistics center	Owned on leased land
European Headquarters	Amsterdam, the Netherlands	59,055	European Company headquarters	Leased
Plant	Gallipolis Ferry, West Virginia, United States	1,742,400	Industrial Products products	Owned
Plant	Lawrence, Kansas, United States	179,689	Phosphate Solutions products	Owned
Plant	Carondelet, Missouri, United States	172,361	Phosphate Solutions products	Owned
Plant	North Charleston, South Carolina, United States	100,000	Innovative Ag solutions products	Leased
Plant	Summerville, South Carolina, United States	40,000	Innovative Ag solutions products	Leased
US headquarters	St. Louis, Missouri, United States	45,595	US Company headquarters	Leased
Plant	Ludwigshafen, Germany	2,534,319	Phosphate Solutions products and Infrastructure	Leased
Plant	Ladenburg, Germany	1,569,764	Phosphate Solutions products	Owned
Plant	Bitterfeld, Germany	514,031	Industrial Products products	Owned
Plant	Cajati, Brazil	413,959	Phosphate Solutions products	Owned
Plant	Sao Jose dos Campos, Brazil	Phosphate plant: 137,573 Blending plant: 80,729	Phosphate Solutions products	Owned on (free of charge) leased land
Plant	Brazil Cidade Ocidental	8,275	Innovative Ag solutions products	Owned
Plant	Brazil Cruz Alta	7,499	Innovative Ag solutions products	Owned
Plant	Brazil Jacarei I	879,248	Innovative Ag solutions products	Owned
Plant	Brazil Jacarei II	967,987	Innovative Ag solutions products	Leased
Plant	Brazil Maua	968,751	Innovative Ag solutions products	Owned
Plant	Brazil Suzano I	3,349,186	Innovative Ag solutions products	Owned
Plant	Brazil Suzano II	637,001	Innovative Ag solutions products	Owned
Plant	Brazil Uberlandia	263,716	Innovative Ag solutions products	Owned
Plant	Belgium	128,693	Innovative Ag solutions products	Owned
Plant	Calais, France	546,290	Industrial Products products	Owned
Plant	Bandırma, Turkey	375,187	Phosphate Solutions products	Owned
Plant	Hartberg, Austria	692,937	Phosphate Solutions products	Owned
Plant	Heatherton, Australia	64,583	Phosphate Solutions products	Leased

Mineral Extraction and Mining Operations

Certain information that follows relating to our mineral extraction and mining operations is derived from, and in some instances is an extract from, the report titled "Technical Report Summary and Resource Estimate" with an effective date of December 31, 2021 (the "Technical Report Summary") and prepared for us by our qualified person, Wardell Armstrong International Ltd ("Wardell"). Wardell has approved and verified the scientific and technical information in the Technical Report Summary and reproduced in this Annual Report. Portions of the following information are based upon assumptions, qualifications and procedures that are not fully described herein. See "Cautionary Note to Investors Regarding Mineral and Resource Estimates." Reference should be made to the full text of the Technical Report Summary, which is included as an exhibit to this Annual Report.

Overview

ICL extracts minerals and conducts mining at ICL Boulby (United Kingdom), ICL Iberia (Cabanasses and Vilafruns in Spain), ICL Rotem (including Oron and Zin) and ICL Dead Sea (Israel), and YPH (China).

Figure 1: Location of the ICL Operations

ICL's mining activities are dependent on concessions, authorizations and permits granted by the governments of the countries in which the mines are located.

- ICL Rotem has been mining phosphates in the Negev in Israel for more than sixty years. The mining is conducted in accordance with phosphate mining concessions, which are granted from time to time by the Minister of Energy under the Mines Ordinance, by the Supervisor of Mines in his Office, as well as the mining authorizations issued by the Israel Lands Authority. The concessions relate to quarries (phosphate rock), whereas the authorizations cover use of land as active mining areas.

- ICL Dead Sea (DSW) comprises 37 evaporation ponds producing potash and salt, among other chemical products, located on the south-west shore of the Dead Sea's southern basin in Israel. DSW is in the production stage and is leased by ICL. Dead Sea Works Ltd., a wholly owned subsidiary, operates the DSW concession covering 652 sqkm, which is in place through 2030.

- ICL Iberia holds mining rights for two underground potash mines, Cabanasses and Vilafruns, located in Spain. ICL owns the land on which the Spanish surface facilities are located and the Spanish government owns the underground mining rights. Cabanasses is in the production stage, while Vilafruns was put on care and maintenance in June 2020. ICL Iberia, a wholly owned subsidiary, operates Cabanasses, which comprise 126 licenses for the extraction of rocksalt and potash covering 693 sqkm.

- ICL Boulby is an underground polyhalite mine in the production stage located in the United Kingdom, of which ICL owns the freehold of approximately 198 hectares of the mineral field, with the remainder held on a leasehold basis. Cleveland Potash Limited, a wholly owned subsidiary, operates ICL Boulby, which comprises 74 mining leases which cover a total area of 822sqkm, primarily offshore.

- YPH is a joint venture between ICL and Yunnan Phosphate Corporation (YPC), controlled by ICL, that owns and operates the open-pit Haikou Phosphate Mine and Processing Facility in the Xishan district of China, of which ICL has a 50% interest. YPH holds two phosphate mining licenses, including the mining license for the Haikou Mine covering 9.6sqkm, which is in the production stage and the Company operates.

In consideration of the concessions, ICL pays royalties and taxes to the governments of Israel, China, UK and Spain. Below are the royalties amounts paid with respect to 2021, 2020 and 2019:

	Israel		Out of Israel	Total
Year Ended December 31,	$ millions	NIS millions	$ millions	
2021	75	242	3	78
2020	75	257	3	78
2019*	82	295	3	85

* In 2019 the Company paid an additional $20 million regarding royalties in Israel relating to prior periods.

The aggregate production data for the properties is summarized in Table 1.

Table 1: Production Data for the Properties

	Production Data for ICL Boulby		
	2021	2020	2019
Polyhalite – Hoisted, kt	784	711	636
Total Polyhalite Production, kt	789	709	632

	Potash Production at Suria Plant		
	2021	2020	2019
Ore hoisted from Cabanasses mine	2,534	1,874	1,831
Ore hoisted from Vilafruns mine	-	484	836
Total Processed (Kt)	2,534	2,358	2,667
Head Grade, % KCl	26.4%	24.2%	23.8%
KCl Produced (Kt)	599	503	569
Product Grade, % KCl	95.5%	95.5%	95.5%

	Potash Production at Sallent Plant		
	2021	2020	2019
Ore hoisted from Vilafruns mine		277	1,183
Total Processed (Kt)	-	277	1,183
Head Grade, % KCl	-	22.4%	22.5%
KCl Produced (Kt)	-	54	234
Product Grade, % KCl	-	95.5%	95.5%

	Total Mine Production of raw ore at Negev (Rotem, Oron and Zin)		
	2021	2020	2019
Tons (Mt)	5	6	7
P_2O_5 % (Before / After Beneficiation)	26% / 32%	26% / 32%	26% / 32%

	Product Produced after processing at Negev Operations (Rotem, Oron and Zin) (Kt)		
	2021	2020	2019
Phosphate Rock	2,431	3,090	2,807
Green Phosphate Rock	531	544	567
Fertilizers	1,082	920	1,033
White Phosphoric Acid	168	171	134
Speciality Fertilizers	72	70	66

	DSW Production (kt)		
	2021	2020	2019
Potash	3,900	3,960	3,334
Compacting plant	1,858	1,707	1,218
Bromine	182	171	181
Cast Mg	18	18	22

	Total Mine Production of raw ore at YPH		
	2021	2020	2019
Millions of tons produced	2.66	2.40	2.15
Grade (% P_2O_5 before/after beneficiation)	21% / 28%	21% / 29%	21% / 29%

	Product Produced after processing at YPH (Kt)		
	2021	2020	2019
Phosphate Rock *	2,194	2,044	1,946
Green Phosphoric Acid	673	632	637
Fertilizers	612	584	516
White Phosphoric Acid	83	71	64
Speciality Fertilizers	76	55	46

*including Enriched & Grinding Rock

Table 2: Estimate Mineral Resources as of December 31, 2021(1)

	Measured Mineral Resources		Indicated Mineral Resources		Measured + Indicated Mineral Resources		Inferred Mineral Resources	
	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities
Commodity: K_2O								
United Kingdom	-	-	24.0	13.7%	24.0	13.7%	17.3	13.5%
Boulby	-	-	24.0	13.7%	24.0	13.7%	17.3	13.5%
Total	-	-	24.0	13.7%	24.0	13.7%	17.3	13.5%
Commodity: KCl								
Spain	96.5	26.4%	60.8	24.7%	157.3	25.7%	361.2	29.1%
Cabanasses	83.9	25.7%	51.4	23.3%	135.3	24.8%	330.5	29.1%
Vilafruns	12.6	31.0%	9.4	32.1%	22.0	31.5%	30.7	28.9%
Israel	225.0	20.0%	1,500.0	20.0%	1,725.0	20.0%	445.0	20.0%
Mine/Property DSW	225.0	20.0%	1,500.0	20.0%	1,725.0	20.0%	445.0	20.0%
Total	321.5	21.9%	1,560.8	20.2%	1,882.3	20.5%	806.2	24.1%
Commodity: P_2O_5								
Israel	247.7	27.5%	10.0	26.0%	257.7	27.5%	-	-
Rotem	247.7	27.5%	10.0	26.0%	257.7	27.5%	-	-
China	3.0	22.3%	2.3	24.0%	5.3	23.0%	0.2	20.0%
YPH	3.0	22.3%	2.3	24.0%	5.3	23.0%	0.2	20.0%
Total	250.7	27.4%	12.3	25.6%	263.0	27.4%	0.2	20.0%

Mineral Resources are reported in-situ and are exclusive of Mineral Reserves. Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. All figures in the above table have been rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding. Mineral Resources are classified in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves JORC Code (2012) for ICL Boulby, Cabanasses and Vilafruns, and the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results for Rotem Israel, DSW and YPH.

Table 3: Estimated Mineral Reserves as of December 31, 2021

	Proven Reserves		Probable Reserves		Total Reserves	
	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities
Commodity: K_2O						
United Kingdom	-	-	8.0	13.8%	8.0	13.8%
ICL Boulby	-	-	8.0	13.8%	8.0	13.8%
Total	-	-	8.0	13.8%	8.0	13.8%
Commodity: KCl:						
Spain	29.0	25.5%	61.6	26.8%	90.6	26.3%
Cabanasses	29.0	25.5%	61.6	26.8%	90.6	26.3%
Vilafruns	-	-	-	-	-	-
Israel	172.0	20.0%	-	-	172.0	20.0
DSW	172.0	20.0%	-	-	172.0	20.0
Total	201.0	20.8%	61.6	26.8%	262.6	22.2%
Commodity: P_2O_5						
Israel	60.2	25.4%	-	-	60.2	25.4%
Rotem Israel	60.2	25.4%	-	-	60.2	25.4%
China	57.7	21.8%	-	-	57.7	21.8%
YPH	57.7	21.8%	-	-	57.7	21.8%
Total	117.9	23.6%	-	-	117.9	23.6%

(1) The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate, and numbers may not sum due to rounding.

Internal Controls

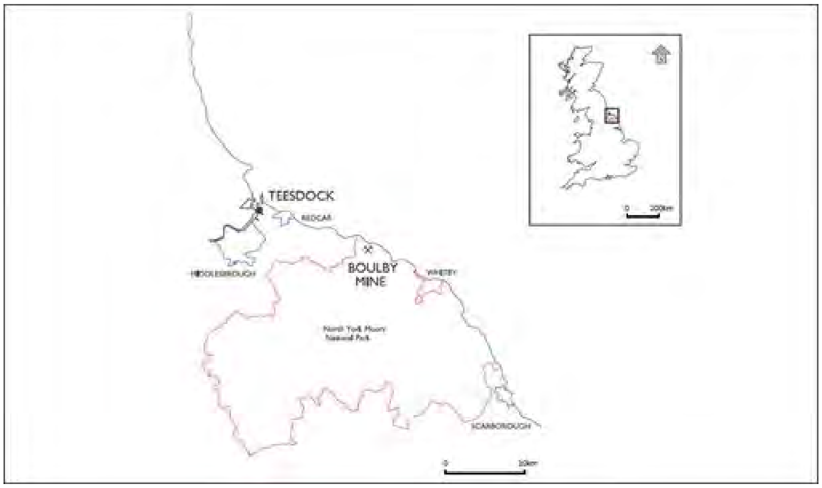
Quality assurance at Rotem Israel, ICL Boulby, ICL Dead Sea, ICL Iberia (Cabanasses and Vilafruns), and YPH in China, involve the use of standard practice procedures for sample collection and includes oversight by experienced technical staff during data collection, management, and interpretation. Certain quality control measures for sample analysis include in-stream sample submittal of standard reference material, blank material, and field duplicate sampling. For data verification, staff members observed drill hole locations and orientations, inspected drill cores, and compared to logs and analytical results, observed core intake, visited outcrops and discussed with on-site geologists, including reviewing working maps and cross-sections. In addition, ongoing reconciliation is conducted between resource estimates and production data. Notwithstanding the above, inherent risks in quality control include potential mislabeling of samples, sample contamination, among others, but the Company maintains a close and diligent monitoring program of all quality control measures for the collection of both exploration and production data with results deemed suitable for use in subsequent estimation of Mineral Resources and Mineral Reserves.

Overview

ICL's mining operations in the United Kingdom are conducted by its wholly owned subsidiary, Cleveland Potash Limited (ICL Boulby Mine). ICL Boulby is an underground polyhalite mine on the coastline of northeast England, approximately 340 kilometers north of London and approximately 34 kilometers to the southeast of the town of Middlesbrough.

The mine site and shafts are approximately centered at a latitude and longitude of 54°33'05.4"N and 0°49'32.5"W. The ICL Boulby mine site has a long history of production dating back to 1969 and the mine owns a private rail line spur that connects it with the deep-water port facilities at Teesport in Middlesbrough. ICL Boulby's mining operations are mainly conducted under the North Sea at a depth of about 1,000 meters below the surface. The operations are currently conducted as far as 8 kilometers offshore subject to mining leases and mineral extraction licenses described below, while the mined mineral processing operations are mainly being done on the surface on land owned by ICL. See "Item 4 - Information on the Company— D. Property, Plant and Equipment— Concessions and Mining Rights".

Figure 2: Location of the ICL Boulby Mine (United Kingdom)



Mining Concessions and Lease Agreements

ICL Boulby owns the freehold of most of the mineral field in and around the mine head, extending to approximately 198 hectares. These freehold minerals are in the process of being registered at the Land Registry. The remainder of the mineral fields are held on a leasehold basis.

The entities involved in renewing or obtaining new leases are ICL Boulby, local solicitors and individual landowners who own the mineral rights, as described above. The conditions that must be met in order to retain the leases are payment of bi-annual fees to the landowners and a royalty payment for minerals extracted from the property to The Crown Estates.

The mineral leases of ICL Boulby, are based on approximately 74 mineral leases and licenses for extracting various minerals, in addition to numerous easements and rights of way from private owners of land under which ICL Boulby operates, and mineral lease rights under the North Sea granted by The Crown Estates. The mineral lease rights with The Crown Estates, include provisions to explore and exploit all targeted and known polyhalite mineral resources of interest to ICL Boulby. Said leases cover a total area of about 822 square kilometers (onshore leases total around 32 square kilometers and offshore leases from the Crown Estates cover around 790 square kilometers). All the lease periods, licenses, easements and rights of way are effective, some until 2022 and others until 2038. The Company is acting to renew the rights necessary for the mining operation which expire in 2022, or, alternatively, to seek ownership of these rights.

Regarding ICL Boulby's planning permit for mineral exploitation, which is valid until 2023, in December 2021, the North York Moors Park Authority Planning Committee approved ICL Boulby Mine’s application for the continuation of polyhalite and salt production for an additional 25 years, commencing 2023 (until 2048).

Historically, the renewal of leases has not been problematic, and the Company is confident in the renewal of all land and mineral leases as required and will receive all government approvals and permits necessary for exploiting all targeted mineral resources.

ICL Boulby has a preferential right to renew some of its leases as it has the Planning Permission to extract minerals. There is no competitive bidding process. The entities involved in renewing or obtaining new leases are ICL Boulby, local solicitors and individual landowners who own the mineral rights, as described above.

The Company believes that it will obtain the renewal of all government's leases and licenses that are necessary for the reserves in the United Kingdom.

United Kingdom Concession - Everris

A UK subsidiary which is a part of the Innovative Ag Solutions segment (hereinafter – Everris Limited), has peat mines in the UK (Creca, Nutberry and Douglas Water). Peat is used as a component to produce professional growing media. All sites are owned by Everris Limited. The current extraction permits are granted by the local authorities and are renewed after examining the renewal applications. The extraction permits for Nutberry and Douglas Water were granted until the end of 2024 and until 2037 for Creca.

Operations

ICL Boulby's mining operations are situated close to the western limits of polyhalite, potash and salt deposition in the Zechstein Basin extending inland in the United Kingdom and below the North Sea into Germany. The polyhalite seam is of the Permian Evaporite Series and is over lain by some 800 meters to 1,300 meters of younger sedimentary rocks. The polyhalite seam averages 4 meters in mineable thickness but varies from zero to more than 11 meters in thickness. The access into the polyhalite bed established in 2010 from one of its main salt roadways.

The ICL Boulby mine is accessed by two vertical shafts. One shaft hoists Polysulphate® and salt and the other provides man-riding and service access. Mining is by continuous mining with shuttle cars and by a modified room and pillar method. Supply of the electricity to the mining operations in the ICL Boulby mine is mainly through electricity purchased on the open market from the national electricity company. There is also a power plant on the site that converts gas into electricity and supplements the electricity supply during peak demand periods.

The processing plant for Polysulphate® uses simple crushing and screening processes to produce standard and granular products in approximately 50:50 ratio. Research is currently underway regarding methods to further enhance the standard products through compaction, granulation, blending and micronutrient addition which, in combination, is anticipated to deliver high value new fertilizer products into the market. In addition, a compaction plant is producing PotashpluS, a compacted blend of Potash Standard (SMOP) and Poly Standard.

In 2021, ICL produced about 789 thousand tons of Polysulphate® and sold about 827 thousand tons, for the total amount of about $76 million (including sales of Polysulphate® downstream products).

Production

The following table sets forth the amount of our total mine production of polyhalite at the Company's mines in ICL Boulby supplied to our beneficiation plants, for the three years ended December 31, 2021, 2020 and 2019:

	2021	2020	2019
Polyhalite – Hoisted, kt	784	711	636
Total Polyhalite Production, kt	789	709	632

Property Value

As of December 31, 2021, the overall book value of the property, plant and equipment of ICL Boulby amounted to about $194 million.

Mineral Resource Estimate

In ICL Boulby's mine, the Company believe there are sizable resources for the purpose of continued production of Polysulphate®, the sale of which in commercial quantities began in 2012. The estimation utilizes assay results from underground exploration drill holes and face sampling with grade control drilling used to aid the geological modelling of the polyhalite seam. The data is considered adequate for use in Mineral Resource estimation; however, classification of Mineral Resources has made consideration for the paucity of quality assurance/quality control (QA/QC) procedures for the existing data set. Work is currently ongoing to modernize sampling methods and implement robust QA/QC procedures. The geological model was used to code and composite the drill hole data based on their stratigraphic position within the seam. Two regional domains were identified: a higher polyhalite grade western region and a lower grade, higher halite eastern region with further sub domains established based on population analysis and grade distribution. The boundary between domains were generally treated as soft boundaries.

Grade estimation was carried out using Ordinary Kriging for the main seam domain (2 – 8 meters above base of seam) in the higher-grade western region, with all other domains estimated using Inverse Distance Weighted (Squared). Estimated grades were validated by visual, statistical, and graphical means on a global and local basis prior to tabulation of the Mineral Resource Estimates. The limited readily available reconciliation data indicates that the resource model performs well overall when compared to plant production data, however, further work is recommended to consistently record and make available grade and tonnage information for all stages of the mining, processing, and shipping of materials.

Mineral Resources were categorized primarily on the search volume used to generate the estimate with additional consideration of drill hole spacing, geological and grade continuity, data density and orientation.

K_2O is an equivalent value calculated from the estimated K based on atomic mass and ratio of K in the compound K_2O. The factor used is K_2O = K x 1.2046.

Mineral Resources are a 7 meters thick horizon optimized for grade (% K) whilst ensuring mining operations are matched to achievable gradients for excavation.

Mineral Resources are reported using a cut-off grade of 10.7% K, or 12.9% K_2O Equivalent, which reflects the current ability to blend, homogenize and upgrade material as part of mine sequencing and processing.

Polyhalite, Halite and Anhydrite are theoretical values calculated from the elemental analysis under the assumption that all elemental K is contained within Polyhalite

We use long hole drilling to provide information for classification of Indicated Resources, however current spacing is insufficient to identify localised variations in polyhalite grade and seam position that would impact on short-scale production increments and cannot be used as a basis for a Measured Resource classification.

ICL Boulby – Summary of Polyhalite Mineral Resources at the end of the fiscal year ended December 31, 2021, based on $120 FOB per ton.

	Resources			
	Amount (Mt)	Grades/qualities (K_2O)	Cut-off grades (K_2O)	Metallurgical recovery (K_2O)
Measured mineral resources	-	-		
Indicated mineral resources	24.0	13.7%	12.9% Equivalent	100%
Measured + Indicated mineral resources	24.0	13.7%		
Inferred mineral resources	17.3	13.5%		

(1) Mineral Resources are reported exclusive of any Ore Reserve.

(2) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(3) Mineral Resources are reported in accordance with the guidelines of the JORC (2012) Codefor Mineral Resources and Ore Reserves.

As of December 31, 2021, ICL Boulby had 41.3 Mt of mineral resources which is inclusive of the reserves total. We are reporting Mineral Resources at ICL Boulby in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves JORC Code (2012) the first time in 2021. The mineral resources estimate for ICL Boulby is based on factors related to geological and grade models and the prospects of eventual economic extraction. For further discussion of the material assumptions relied upon, please refer to Section 11.2 of the Technical Report Summary filed as an exhibit to this Annual Report.

The current base case for the life of mine at Boulby, and geological delineation, continues to nominally be 2030. Further work based on the current Mineral Resource of 24.0Mt is expected to expand the life of mine beyond 2030.

Mineral Reserve Estimate

The Probable Mineral Reserve has been derived from Indicated Mineral Resources included within the life of mine plan. The life of mine plan contains in addition to the 10.4Mt Indicated resource, 3.6Mt of Inferred Mineral Resource which is equivalent to 26% of the life of mine. The current scheduling of the Mineral Reserve is contingent on the simultaneous extraction of a portion of these Inferred Resources on an annual basis. Current and future drilling programs are focused on the upgrade of these Inferred Resources.

ICL Boulby – Summary of Polyhalite (K_2O) Mineral Reserves at the end of the fiscal year ended December 31, 2021, based on $120 per ton.

	Amount (Mt)	Grades/qualities (K_2O)	Cut-off grades (K_2O)	Metallurgical recovery (K_2O)
Proven mineral reserves	-	-		
Probable mineral reserves	8.0	13.8%	12.9%	100%
Total mineral reserves	8.0	13.8%		

(1) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(2) The mineral reserve estimate for the ICL Boulby is classified in accordance with the JORC (2012) Code for Mineral Resources and Ore Reserves.

As of December 31, 2021, ICL Boulby had 8.0 Mt of polyhalite mineral reserves. We are reporting Polyhalite Mineral Reserves at ICL Boulby for the first time in 2021. The mineral reserves estimate for ICL Boulby may be impacted by additional exploration that could alter the geological database and model of mineralization. Material assumptions regarding the technical parameter analysis, forecasted product prices, production costs, permitting decisions, or other factors may positively or negatively affect the reserves estimates. For further discussion of the material assumptions relied upon, please refer Section 12.2 of the Technical Report Summary filed as an exhibit to this Annual Report.

Logistics

The ICL Boulby mine in the United Kingdom is connected by a network of roads running over 11 kilometers southward from the mine entrance, as well as a network of underground roads extending 17.5 kilometers from the mine entrance in the direction of the North Sea. Approximately 80 kilometers of underground tunnels are still open to support present production. The mine has easy access to the national road and train transportation routes. The mine receives good quality drinking water and a stable supply of electricity.

Pursuant to agreements with the North Yorkshire National Parks Authority, the total transport movements by means of the network of roads to and from site to site are limited to a maximum of 150 thousand tons per year and a maximum of 66 trucks per day (no road movements are allowed on Sundays or public holidays). This limitation is not expected to interfere with the future production of ICL Boulby in light of its commitment to maintain the rail link to Teesdock. ICL Boulby's roads and trains are in full compliance with all the requirements.

The rail load-out products are transported on an ICL Boulby-owned rail line which extends approximately eight kilometers from the mine entrance to a junction with the national rail network, and from there the products continue to Teesport, Middlesbrough, via the Network Rail Company, the owner and operator of the main rail line.

Eight trains per day transport Polysulphate®, PotashpluS and rock-salt to the Teesdock. Most of the Polysulphate® output is used as a component of agricultural fertilizers, where volumes are exported by sea from the Teesdock seaport to customers overseas and in the UK.

Rock-salt is taken by train to Teesdock and transported by ship or trucks to local UK authorities for de-icing roads.

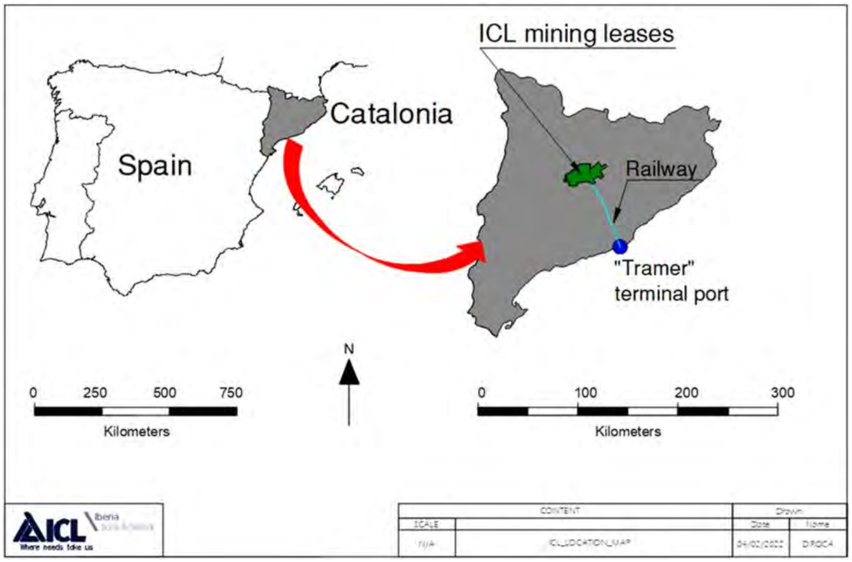
ICL Boulby leases and operates three principal storage and loading facilities: the Teesdock facility, which is located on the Tees River, and two additional storage facilities that are connected to the main rail line – Cobra and Ayrton Works in Middlesbrough.

Overview

The Company's potash mining operations in Spain are carried out by ICL Iberia (a wholly owned subsidiary of the Company) and the marine transportation performed through Trafico de Mercancias (a wholly owned subsidiary of ICL Iberia). ICL Iberia holds mining rights for two underground potash mines, Cabanasses and Vilafruns. As part of the Company's strategic decision to concentrate its production at the Suria site (Cabanasses mine), in June 2020, ICL Iberia accelerated the process of consolidating its sites and accordingly, the potash production at the Sallent site was discontinued. The Vialfruns mine has been maintained on care and maintenance basis since June 2020. As a result, the Company operates only at the Cabanasses mine, which is located in the town of Suria, approximately 12 kilometers north of the district capital of Manresa in the Cardener river valley. The Cabanasses mine is approximately centered on the geographic coordinates: latitude 41°50′27″N and longitude 01°45′07″E. The Vilafruns mine is approximately centered on the geographic coordinates: latitude 41°50′25″N and longitude 01°52′39″E and UTM (WGS84).

Potash extraction is conducted by mining sylvinite, a mixture of potash and salt found in varying concentrations, the potash is then separated from the salt at production plants located near the mines. The Cabanasses mine is located in the province of Barcelona and is approximately 730 to 1000 meters below ground. The mine has three access points (including the ramp) and the mining is by a modified room and pillar method. The mine site is served by roads/railways and is near major highways.

Figure 3: Location of Cabanasses and Vilafruns Mines (Spain)



Potash in Suria was first discovered in 1912 and its commercial development began in 1920. ICL purchased its three Spanish mines in 1998. Potash of late Eocene age occurs in the northeast corner of the Ebro Evaporite Basin which lies along the southern flank of the Pyrenees. Sylvinite and Carnallite are found towards the top of the Cardona Halite at varying depths as a result of deformations associated with the Pyrenean fold and thrust belt.

Mining Concessions and Lease Agreements

ICL Iberia conducts its mining activities in Spain pursuant to concessions granted to it by the Spanish government. ICL Iberia was granted mining rights based on legislation of Spain's Government from 1973 and the regulations accompanying this legislation. Further to the legislation, the government of the Catalonia region published special mining regulations whereby ICL Iberia received individual licenses for each of the 126 different sites that are relevant to current and possible future mining activities. Some of the licenses are valid until 2037 and the remainder are effective until 2067. The concession for the "Reserva Catalana", an additional site where mining did not commence, expired in 2012. The Company is acting in cooperation with the Spanish Government to obtain a renewal of the concession. According to the Spanish authorities, the concession period is valid until a final decision is made regarding the renewal.

A total of 126 licenses for the extraction of rocksalt and potash, awarded to Iberpotash, S.A., cover the Cabansses and Vilafruns operations covering an area of 42,489 hectares (425sqkm) in the province of Barcelona and 26,809 hectares (268sqkm) in the province of Lerida. As part of a renewal process, the Company is required to prepare and present a basic technical report describing the intended use of the mines. As required by law, the concessions are required to be renewed prior to their expiration date. If a concession expires, a bidding process will be initiated. ICL Iberia applies in advance for the renewal of mining concessions and until now, had no difficulties in renewing them.

ICL owns all the lands on which the Spanish surface facilities are located. The Spanish government owns all the underground mining rights and has granted ICL concessions to conduct mining operations under the land. See "Item 4 - Information on the Company— D. Property, Plant and Equipment— Concessions and Mining Rights" and Note 18 to our Audited Financial Statements.

Operations

Extraction of potash from underground mines in Spain is carried out by mining sylvinite (a mixture of potash and salt found in varying potash concentrations). The potash is separated from the salt at the Suria production plant.

The mineral processing includes crushing, grinding, desliming, froth flotation, drying and compacting. In addition, there is a process for crystallization of vacuum salt and pure potash. The power utilized by our Spanish mining operations is purchased from third party electric companies.

According to the consolidation plan, the annual production capacity of potash in Spain is expected to be about 1 million tons by the second half of 2022 and to reach a level of up to about 1.3 million tons in the future, following completion of additional necessary adjustments in the surface production facilities.

Production

The following table sets forth the amount of our total mine production of potash at the Suria plant in ICL Iberia, for the three years ended December 31, 2021, 2020 and 2019:

	Potash Production at Suria Plant		
	2021	2020	2019
Ore hoisted from Cabanasses mine	2,534	1,874	1,831
Ore hoisted from Vilafruns mine	-	484	836
Total Processed (Kt)	2,534	2,358	2,667
Head Grade, % KCl	26.4%	24.2%	23.8%
KCl Produced (Kt)	599	503	569
Product Grade, % KCl	95.5%	95.5%	95.5%

(1) Potash at Vilafruns was extracted until the end of the second quarter of 2020.

Property Values

As of December 31, 2021, the overall book value of the property, plant and equipment of Cabanasses amounted to about $688 million.

The following table sets forth the amount of our total mine production of potash at the Sallent plant in ICL Iberia, for the three years ended December 31, 2021, 2020 and 2019:

	Potash Production at Sallent Plant		
	2021	2020	2019
Ore hoisted from Vilafruns mine	-	277	1,183
Total Processed (Kt)	-	277	1,183
Head Grade, % KCl	-	22.4%	22.5%
KCl Produced (Kt)	-	54	234
Product Grade, % KCl	-	95.5%	95.5%

(1) Potash at Vilafruns was extracted until the end of the second quarter of 2020.

Property Values

As of December 31, 2021, the overall book value of the property, plant and equipment of Vilafruns amounted to about $4.2 million.

Mineral Resource Estimate

The Mineral Resources Estimate of the Cabanasses and Vilafruns deposits have been classified in accordance with the guidelines of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, The JORC Code" edition 2012. The life-of-mine at Cabanasses is based on current drilling approximately 19 years.

Mineral Resource classification was set in the block model by ICL Iberia, using wireframe perimeters to outline the extent of mineralisation. The Mineral Resource classification methodology considers the confidence in the drillhole data, the geological interpretation, geological continuity, data spacing and orientation, spatial grade continuity and confidence in the Mineral Resource estimation process. Areas identified as being below a cut-off grade of 10% KCl and areas of low seam thicknesses are also considered by ICL Iberia as non-recoverable

The Mineral Resource estimate is used to classify Measured Mineral Resources based on a drill spacing of 50m and Indicated Mineral Resources based on a drill spacing of 100m. The remaining peripheral areas, located within the mineralized zone, are considered suitable for classification of Inferred Mineral Resources.

In calculating the cut-off grade and reserves, an average of the previous three years' market prices and operating costs is used as part of the calculations to ensure economic feasibility. The three year average market price used to calculate our reserves for potash per ton of product in Spain is $291 FOB per ton as of December 31, 2021.

In calculating the reserves, an average of the previous three years' currency conversion rates is used as part of the calculations to ensure economic feasibility. The three-year average currency conversation rate used to calculate the reserves is €0.85 per dollar as of December 31, 2021.

Cabanasses – Summary of Potash Resources at the end of the fiscal year ended December 31, 2021, based on $291 FOB per ton.

	Resources			
	Amount (Mt)	Grades/qualities (KCl)	Cut-off grades (KCl)	Metallurgical recovery (KCl)
Measured mineral resources	83.9	25.7%		
Indicated mineral resources	51.4	23.3%		
Measured + Indicated mineral resources	135.3	24.8%	10%	85.5%
Inferred mineral resources	330.5	29.1%		

(1) Mineral Resources are reported exclusive of any Ore Reserve.

(2) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(3) Mineral Resources for Cabanasses have been estimated in accordance with the guidelines of the JORC Code (2012).

As of December 31, 2021, Cabanasses had 465.8 Mt of potash mineral resources. We are reporting Mineral Resources at Cabanasses in accordance with the guidelines of JORC for the first time in 2021. The mineral resources estimate for Cabanasses is based on factors related to geological and grade models and the prospects of eventual economic extraction. For further discussion of the material assumptions relied upon, please refer to Section 11.3 of the Technical Report Summary filed as an exhibit to this Annual Report.

Vilafruns – Summary of Potash Resources at the end of the fiscal year ended December 31, 2021, based on $291 FOB per ton.

	Resources			
	Amount (Mt)	Grades/qualities (KCl)	Cut-off grades (KCl)	Metallurgical recovery (KCl)
Measured mineral resources	12.6	31.0%		
Indicated mineral resources	9.4	32.1%		
Measured + Indicated mineral resources	22.0	31.5%	10%	85.5%
Inferred mineral resources	30.7	28.9%		

(1) Mineral Resources are reported exclusive of any Ore Reserve.

(2) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(3) Mineral Resources for Vilafruns have been estimated in accordance with the guidelines of the JORC Code (2012).

As of December 31, 2021, Vilafruns had 52.7 Mt of potash mineral resources. We are reporting Mineral Resources at Vilafruns in accordance with the guidelines of JORC for the first time in 2021. The mineral resources estimates for Vilafruns is based on factors related to geological and grade models and the prospects of eventual economic extraction. For further discussion of the material assumptions relied upon, please refer to Section 11.3 of the Technical Report Summary filed as an exhibit to this Annual Report.

Mineral Reserve Estimate

The parameters used in determining the cut-off grade considered the geology (continuity, structure), mining method, mining dilution, plant utilization, technical feasibility, operating costs and historical and current product prices. The calculation involves a computerized geological block model using both, the drilling data from the underground drilling campaign and from the exploratory surface drilling, with underground drilling work carried out on a regular basis, around 60,000 meters drilled in 2020; while the surface drilling was done in different times in the last decades. The KCl grade is interpolated using inverse distance method (ID2). Zones that are potentially mineable are defined, considered the thickness, the grade, and the structure of the ore seams; a minimum factor grade (%KCl) multiplied by the thickness (meters) of 80 is considered to define these mineable blocks. Modifying factors are based on historic data for "Dilution", "mining recovery" and "cut-off grade" of 19% KCl etc. are applied. All this data is provided to the Mine Planning Dept. to spatially define the mine planning of access tunnels to all mineable blocks and then mining fleet activity scheduling to plan the life-of-mine.

The cut-off grade calculations are made by the economists of ICL Iberia's finance department. The calculation considers the long-run forecast of selling prices, costs and expected ore production Long-Range-Plan. A conservative approach in the selling prices was chosen.

The proven and probable reserves above the cut-off grade were obtained considering the mining method, mining recovery, mining dilution, selective mining, geological conditions and in plant recovery, based on ICL Iberia's historical data. The mining recovery and dilution factors, which are required in the conversion of resources to reserves consider the mining method and the geological conditions in the mine; and consist of historical yield data based on 20 years of operations at the mines. The mining recovery ranges from approximately 25% to 60% by ICL Iberia's "room and pillar" modified layout. The reserve quantity (in tons) and grade are quoted as those that are expected to be delivered to the treatment plant and are subject to metallurgical recovery factors. Metallurgical recovery factors consist of historical yield data and are based on the previous ten years. A processing plant recovery of 86.5% (similar to the recovery achieved in the Súria treatment plant, in the last 5 years) was chosen. The proven reserves have been determined by information from the underground drillings, using distances of 80 to 150 meter intervals between sample points, while probable reserves have been explored by surface vertical boreholes at sample intervals of up to 1,300 meters. The final product is well over 95.5% KCl to avoid quality losses.

The Suria processing plant has a current capacity to produce approximately 800 thousand tons per annum of potash, but it is expected to reach a capacity of 1 million tons by the second quarter of 2022.

Cabanasses – Summary of Potash Reserves at the end of the fiscal year ended December 31, 2021, based on $291 FOB per ton.

	Amount (Mt)	Grades/qualities (KCl)	Cut-off grades (KCl)	Metallurgical recovery (KCl)
Proven mineral reserves	29.0	25.5%		
Probable mineral reserves	61.6	26.8%	19%	85.5%
Total mineral reserves	90.6	26.3%		

(1) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(2) Mineral Reserves for Cabansses are classified in accordance with the guidelines of the JORC Code (2012).

As of December 31, 2021, Cabanasses had 90.6Mt at 26.3% KCl of potash Ore reserves compared to 88.0Mt at 27.0% KCl as of December 31, 2020, an increase of 0.4%. This increase was due to a decrease in cut-off grade (19% KCl in 2021 compared to 20% KCl in 2020) and was partially offset by production.

There are no Mineral Reserves for Vilafruns as of December 31, 2021.

Logistics

ICL Iberia transports by conveyor belt the excavated ore from the Cabanasses mine to the production plant. The final products potash and salt are transported from the plant to its customers by trucks and trains to the local market, and via railway to Barcelona port to the overseas markets.

A designated railway line is used for the transport of potash from the mines to the Barcelona port. Most of ICL Iberia's shipments are made via a terminal it owns at the port of Barcelona (Trafico de Mercancias – Tramer). ICL Iberia owns and maintains approximately 1.5 kilometers of standard gauge railway at Suria plant that connect to the regional rail network. Until now, up to three trains leave on a daily basis with a total payload capacity of 800 tons, spread out over about 21 freight cars. During 2019, ICL Iberia signed, a new freight rail transport agreement with FGC (Ferrocarrils Generalitat de Catalunya), which is expected to increase the capacity of the rail transport. In 2022, it is expected to increase to 24 freight cars, 1,000 tons and up to seven daily trains. The rail route for potash transport from Suria to the terminal in the port of Barcelona includes a rail route of about 80 kilometers. The production site (Suria) has one rail load out system for the rail to port transport systems. The train traction engine and part of the bulk freight car rolling stock is operated by the owner and operator FGC (Ferrocarrils de la Generalitat de Catalunya).

ICL Iberia owns and operates its own port facilities, which consist of bulk potash and salt storage facilities, comprised of freight car and rail truck conveyor unloading facilities and product storage warehouses.

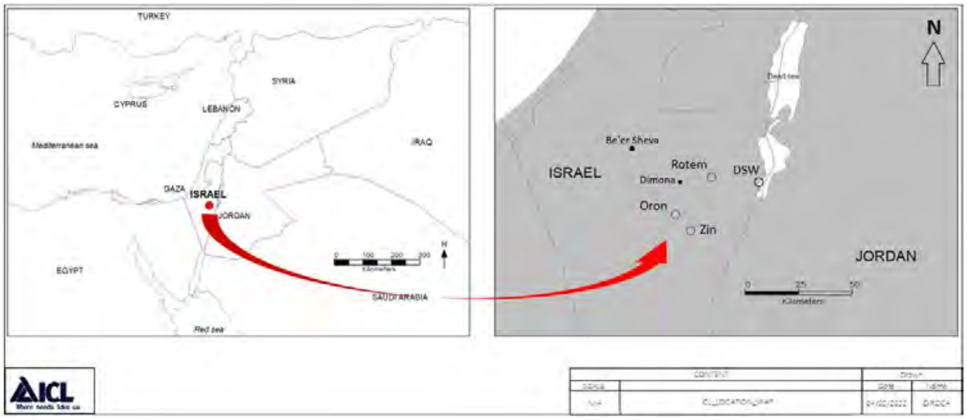
As part of the plan for increasing ICL Iberia's production capacity, an upgrade is being made to the logistical infrastructure at the Suria Site and in the Cabanasses mine (entrance ramp into the mine, commissioned in 2021), the factories and the Company's berth in the Barcelona port, in such a manner that will permit production, transport and export of about 2.3 million tons of potash and salt per year.

The new facilities at the port of Barcelona are managed by ICL Iberia’s subsidiary Tramer and comprise an area of 866,407 square feet divided into three zones.

Overview

Rotem Amfert Negev Limited ("ICL Rotem/Rotem Israel"), a limited liability company and wholly owned subsidiary of ICL, retains three phosphate open pit mines (Rotem, Oron, and Zin) in the Negev desert region of southern Israel, each with its own beneficiation plant. Commencing 2021, ICL Rotem operates only two of its phosphate open pit mines (Rotem and Oron), in light of the discontinuation of the mining activity at Zin in 2020. While the mining activity at Zin was discontinued, the mine restoration at the site continues. The Rotem operation is located approximately 17 kilometers to the south of the town of Arad and east of the town of Dimona (Figure 4), at approximately latitude 31°04′00″N and longitude 35°11′50″E. The Oron and Zin operations lie to the southeast of the town of Yeruham. Oron is approximately centered on the geographic coordinates: latitude 30°54′00″N and longitude 35°00′59″E. Zin operation is approximately centered on the geographic coordinates: latitude 30°50′35″N and longitude 35°05′22″E. The head office of ICL Rotem is in the town of Be′er Sheva. These sites are accessible by road and rail.

Figure 4: Location of the Rotem, Oron, Zin, and DSW Properties (Israel)



Israel has a well-established and high-quality road network making travel and access within the country, and to the ICL properties, straightforward and efficient. Rotem is 150 kilometers by road from Ashdod, a Mediterranean port, via Route 258 and Highways 25 and 40. The Zin mine is located at the end of the current rail network in the Negev desert. It is linked via an internal private haul road to the Oron mine which is 10 kilometers from Zin. All three ICL Rotem production areas are connected by rail to the port of Ashdod on the Mediterranean and by road to Eilat on the Red Sea. Exports are mainly handled via Ashdod, where ICL has its own dedicated facilities, though exports to the Far East, Australia and India can be handled via Eilat.

Mining Concessions and Lease Agreements

Rotem Israel has been mining phosphates in the Negev in Israel for more than sixty years. The mining is conducted in accordance with phosphate mining concessions, which are granted from time to time by the Minister of Energy under the Mines Ordinance, by the Supervisor of Mines in his Office, as well as the mining authorizations issued by the Israel Lands Authority. The concessions relate to quarries (phosphate rock), whereas the authorizations cover use of land as active mining areas.

Rotem Israel had two mining concessions: (1) Rotem Field (including the Hatrurim Field) and (2) Zafir Field (Oron Zin) which were valid until the end of 2021.

The Zafir joint concession included the Oron concession, which was first granted in 1952, and the Zin concession, which was first granted in 1970, as part of the Oron concession. The Zafir concession was renewed every 3 years, in 1995 it was granted for 10 years and thereafter, in 2002, it was granted up to 2021. The Rotem concession was first granted in 1970 and, similar to the Zafir concession, it was granted in 1995 for 10 years. In 2002 it was granted up to 2021. In 2011, the Supervisor expanded the Rotem concession's area, by joining the Hatrurim site to the area of this concession. The matter was transferred to the Israel Lands Authority in order to treat the expansion of the permissible mining area to the Rotem field, in accordance with expansion of the concession area.

In December 2021, the Ministry of Energy granted Rotem Israel an extension to a unified concession (which includes all Rotem's mining fields) for an additional three years, until the end of 2024.

Rotem Israel has two lease agreements in effect until 2024 and 2041 and an additional lease agreement of the Oron plant, which the Company has been working to extend since 2017, by exercising the extension option provided in the agreement.

Mining Royalties

As part of the terms of the concessions in respect of mining of phosphate, Rotem Israel is required to pay the State of Israel royalties based on a calculation as stipulated in the Israeli Mines Ordinance.

In accordance with the Mines Ordinance, the royalty rate for production of phosphates is 5% of the value of the quarried material.

Under the terms of the concessions and in order to continue to hold the concession rights, Rotem Israel is required to comply with additional reporting requirements, in addition to the payment of royalties.

Planning and Building

The mining and quarrying activities require a zoning approval of the site based on a plan in accordance with the Israeli Planning and Building Law, 1965. These plans are updated, as needed, from time to time. As of the reporting date, there are various requests at different stages of deliberations pending before the planning authorities.

In 2016, the District Board for the Southern District approved a detailed site plan for mining phosphates in the Zin Oron area. This plan, which covers an area of about 350 square kilometers, will permit the continued mining of phosphate located in the Zin valley and in the Oron valley for a period of 25 years or until the exhaustion of the raw material – whichever occurs first, with the possibility for extension (under the authority of the District Planning Board).

In addition, the Company is working to promote the plan for mining phosphates in Barir field, located in the southern part of the South Zohar deposit in the Negev Desert.

For further information regarding Rotem Israel's royalties, tax, planning and building proceedings, leases and other matters, and for description of certain risks relating to Rotem Israel's concession, see Note 18 to our Audited Financial Statements and "Item 3 - Key Information— D. Risk Factors", respectively.

Operations

ICL currently operates large surface phosphate mining sites at Oron and Rotem, which are located at the southern part of Israel in the Negev region. The mining activity at Zin was discontinued in mid-2020, while the mine restoration at the site continues.

Each of the said fields in Israel has a similar layered structure and geological composition, with the phosphate preserved as relatively thin layers along the margins and within the axes of two northeast to southwest trending asymmetrical synclines (basins or trough shaped folds). Oron and Rotem lie within a single syncline located northwest of the Zin syncline. The three deposits have been proved over extensive distances in terms of length (Rotem 10 kilometers, Oron 16 kilometers and Zin 22 kilometers) and width (4 kilometers each). The Campanian (Upper Cretaceous period) phosphate rock deposits of Israel are part of the Mediterranean phosphate belt extending from Turkey, through Jordan and Israel, and westward through Egypt, Tunisia and Morocco. The Company began operations at Oron in the 1950s and at Rotem and Zin in the 1970s. These sites are accessible by road and rail. See "Item 4 - Information on the Company— D. Property, Plant and Equipment— Concessions and Mining Rights".

The method of mining in the Negev is by the conventional open pit method, using drilling and blasting, hydraulic excavators and rigid dump trucks or dozers with rippers for overburden removal and front-end loaders and trucks for mining phosphate. Each mine site has varying numbers and thicknesses of over burden, inter burden and phosphate rock layers, so that the size of the mining equipment is conformed to the mining sites and the operating requirements. In all the mines, stripping of the waste material and mining of the phosphate are performed by entirely conventional methods. The Company is committed to continuing the restoration work, as it has been so far, in all its mines.

Phosphate rock from the Rotem mine is transported by truck to a nearby beneficiation plant at Mishor Rotem. In addition, on this site, ICL operate two sulphuric acid plants, three green phosphoric acid plants, a white phosphoric acid plant, three superphosphate plants, two granular fertilizer plants, MKP plant and an oil shale burning plant for production of electricity and steam. ICL also has beneficiation plant at Oron. The product of the process is a high grade, multi purpose phosphate product, and from 2021, most of the production is used to produce phosphoric acid and fertilizers.

The plant at Mishor Rotem is powered primarily from electricity generated by the Company at its sulphuric acid plants and oil shale that the Company mines at Mishor Rotem. In order to ensure the continuity of energy production in Rotem Israel, and in accordance with the policy of the Ministry of Energy and the Ministry of Environmental Protection, the Company is working to accelerate the completion of a project to replace existing energy production infrastructure at Rotem, which utilizes oil shale, with a natural gas-based steam boiler, so it will be completed before the existing mined reserves of oil shale are utilized. All the power utilized by the Oron beneficiation plant is purchased from the national grid in Israel.

For further information and description of certain risks relating to our mining operation at the Negev Desert, see Note 18 to our Audited Financial Statements and "Item 3 - Key Information— D. Risk Factors", respectively.

Production

The following table sets forth the amount of our total mine production of raw ore at the Company's mines in the Negev (and the relevant grade) supplied to our beneficiation plants, for the three years ended December 31, 2021, 2020 and 2019:

	Year Ended December 31,		
	2021	2020	2019
Millions of tons produced	5	6	7
Grade (% P_2O_5 before/after beneficiation)	26% / 32%	26% / 32%	26% / 32%

The following table sets forth the approximate amounts of product produced after processing by our operations in the Negev Desert, for the three years ended December 31, 2021, 2020 and 2019:

	Year Ended December 31,		
	2021	2020	2019
	thousands of tons	thousands of tons	thousands of tons
Phosphate Rock	2,431	3,090	2,807
Green Phosphoric Acid	531	544	567
Fertilizers	1,082	920	1,033
White Phosphoric Acid	168	171	134
Specialty Fertilizers	72	70	66

Property Values

As of December 31, 2021, the overall book value of the property, plant and equipment of ICL Rotem, amounted to about $746 million.

Mineral Resource Estimate

The reported P_2O_5 grade is intended for the phosphate rock product, after physical beneficiation (usually dis-aggregation, sieving and sizing), designed to replicate actual plant performance. The reported grade and tonnages, organic matter and chlorine contents are designated for the in-situ material.

At Rotem and Zin, future resources are located in the deeper, more steeply dipping, or remote parts of the deposits. They have higher average stripping ratios and ore haulage distances than do those at the older, smaller, and more compact mining operation at Oron. In general, production is progressively toward deeper pits.

The three-year average FOB Ashdod market prices used to calculate our resources and reserves in the Negev as of December 31, 2021 are as follows: $686 per ton P_2O_5 for green phosphoric acid, $1,374 per ton for WPA, $1,283 per ton for MKP, and $153 per ton for GSSP.

In estimating the Resources and Reserves, an average of the previous three years' currency exchange rates is used to ensure economic feasibility. The three-year average currency conversation rates used to calculate our resources and reserves in the Negev as of December 31, 2021 are as follows NIS 3.41 per $1.00, $1.15 per €1.00 and $1.31 per £1.00.

Rotem, Zin, and Oron – Summary of Phosphate Mineral Resources at the end of the fiscal year ended December 31, 2021, based on FOB Ashdod market prices: \$686 per ton P_2O_5 for green phosphoric acid, \$1,374 per ton for WPA, \$1,283 per ton for MKP, and \$153 per ton for GSSP.

	Category	White Phosphate	Low Organic Phosphate	High Organic & Bituminous Phosphate	Average Grade (P_2O_5)	Cut-off Grades (P_2O_5)	Metallurgical Recovery (P_2O_5)
			(millions of tons)				
Rotem	Measured			156.7	27.5%	25%	54%
	Indicated			10.0	26.0%		
	M + Ind			166.7	27.5%		
	Inferred			-	-		
Zin	Measured		3.0	18.0	27.5%	23%	56%
	Indicated		-	-	-		
	M + Ind		3.0	18.0	27.5%		
	Inferred		-	.	-		
Oron	Measured			70.0	27.5%	20%	59%
	Indicated			-	-		
	M + Ind			70.0	27.5%		
	Inferred			-	-		
Total	Measured		3.0	244.7	27.5%		
	Indicated		-	10.0	26.0%		
	M + Ind		3.0	254.7	27.5%		
	Inferred		-	-	-		

(1) Mineral Resources are reported exclusive of any Ore Reserve.

(2) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(3) Mineral Resources for Rotem, Zin, and Oron are classified in accordance with the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results.

As of December 31, 2021, ICL Rotem had 257.7 Mt of phosphate resources. We are reporting Mineral Resources at ICL Rotem in accordance with the guidelines of PERC for the first time in 2021. The mineral resources estimate for ICL Rotem is based on factors related to geological and grade models and the prospects of eventual economic extraction. For further discussion of the material assumptions relied upon, please refer to Section 11.4 of the Technical Report Summary filed as an exhibit to this Annual Report.

Mineral Reserve Estimate

In determining these Reserves, a cut-off grade of 20% to 25% P_2O_5 was applied, depending on the processing characteristics of the phosphate rock and the existing mineral processing method. The cut-off grade differs for each mine in accordance with the beneficiation process and enrichment capacity: a cut-off grade of 20% P_2O_5 and lower was applied at Oron, after it has been proven that the required quality can be reached. A cut-off grade of 23% P_2O_5 was applied at Zin, and a cut-off grade of 25% P_2O_5 was applied at Rotem. The cut-off grade for Oron is lower because Rotem has the appropriate beneficiation process for phosphate rock with limestone, which characterizes the white phosphate and, therefore, the beneficiation process, through the flotation process, is extremely efficient. The cut-off grade for the Rotem mine is higher because the beneficiation process has a limited grinding and flotation system, and only medium to high grade phosphate can be fed (which is appropriate for the existing Reserves at Rotem). The cut-off grade for Zin is slightly higher than that of Oron because of the presence of marl and clay that reduces the efficiency of the enrichment process.

For purposes of determining the cut-off grade, utilization and quantities parameters account was taken of the geology factors (continuity, structure), mining method, mining dilution, plant utilization, technical feasibility, operating costs, and historical and current product prices. The parameters employed in the calculation are as follows: on-site tons (multiplying area by layer thickness and phosphate density); recoverable tons (tons of mineral which can be mined, taking into account mining dilution); mineable tons (recoverable tons from which the tons produced are deducted); stripping ratio (the quantity of waste removed per ton of phosphate rock mined); planned dilution; cost per ton for mining (typically related to transport distance to beneficiation plant); cost per ton including reclamation; and unplanned dilution (7%-15% unplanned dilution is taken into account based on the data from the mining operation and the data from the problematic areas). Rotem Israel's yearly mining plan is not determined by the minimum cut-off grade, and fluctuations in commodity prices rarely affect its cut-off grade.

The cut-off grade calculations come from historical yield data and Rotem's historical experience with mining, and are calculated and modelled by its geologists, operation engineers and economists. The calculation takes the ore grade in-situ, converts it into extracted ore with ICL Rotem mining method, and estimates the plant yield depending on the grade. Economic modelling then gives the cut-off figures currently used by ICL Rotem.

The proven reserves above the cut-off grade were obtained from the calculated on-site resources considering the mining method, the rate of mining dilution, and in-plant recovery, based on ICL Rotem's historical data. In order to convert the resources into reserves, account is taken, separately, of the mining dilution rate, mining method and the geological conditions, including historical yield data, and are based on the previous five years' operational data. The mining dilution rate in the Company's mines in Israel's southern region is 2.5% and takes into account the continuity of the layers and the geological structure. The quantity and grade of the calculated reserves are those that are expected to be transferred to the processing plant and are subject to recovery indices in the utilization plant. The updated utilization in the plant varies between the sites as it consists of historical yield data, which is currently 45% for Oron, 46% for Rotem, and 40-46% for Zin. These differences in metallurgical recovery rates are due to rock properties and differences in the beneficiation process at the different mines. Proven reserves have been explored by borehole intersections typically at 70 to 150 meters intervals. Each of the three plants at the mines has been developed over the past few decades for the optimum upgrading of the phosphate rock to concentrate ore containing typically 31% to 32% P_2O_5. The conversion ratio for most of the phosphate layers is 1.8 tons for every 1 cubic meter, where a conversion ratio of 2.0 tons per cubic meter is used for hard, calcareous beds. These factors are used on the basis of long experience and are considered to be reasonable.

The Company continues to check the adaptation of various potential types of phosphate rock for the production of phosphoric acid and its downstream products as part of an effort to utilize and increase existing phosphate reserves. In 2021, the Company will further analyze additional types of phosphate including: R&D, pilots, plant testing activities and other economic feasibility assessments.

In calculating the cut-off grade and reserves, an average of the previous three years' market prices and operating costs are used as part of the calculations to ensure economic feasibility.

In 2019, additional areas in Rotem mine have been defined as low organic content, as well as reassessment of the overburden ratio in some areas in the mine. In addition, at Oron mine more precise mining was utilized. Potential area in Tamar field (part of Rotem mine) is being examined for suitable mining method that could result in future additions to the Company reserves.

- **Rotem mine:** The life of the mine at Rotem is approximately 4 years based on reserves of nominally 8.6 million tons of low organic/low magnesium phosphate (given the current annual mining volume). The low-organic, low-magnesium phosphates are suitable for phosphoric acid production. The annual average production (mining) rate for the low-organic/low-magnesium phosphate at Rotem is 2 million tons per year.

- **Oron mine:** The life of the mine at Oron is approximately 3 years based on a reserve of 8.5 million tons and an average production of 2.8 million tons per year of white phosphate (given the current annual mining volume).

- **Zin mine:** In order to actively address global market volatility, the continuing trend of economic and business uncertainty and to mitigate the implications of the COVID-19 spread and its impact on the Segment's results, several efficiency initiatives and measures have been initiated, which include, among other things, the discontinuation of the production and sale of the phosphate rock activity at Zin plant in 2020.

Currently, we are generating sufficient rock production from other mines and as such, we are not providing a life of mine estimate for Zin. Nevertheless, Zin reserve can be used as part of the future raw materials for MGA production at ICL Rotem and for other downstream products.

Rotem, Zin, and Oron – Summary of Phosphate Mineral Reserves at the end of the fiscal year ended December 31, 2021, based on FOB Ashdod market prices: $686 per ton P_2O_5 for green phosphoric acid, $1,374 per ton for WPA, $1,283 per ton for MKP, and $153 per ton for GSSP.

	Category	White Phosphate	Low Organic Phosphate	High Organic & Bituminous Phosphate	Total (Mt)	Average Grade (P_2O_5)	Cut-off Grades (P_2O_5)	Metallurgical Recovery (P_2O_5)
			(millions of tons)					
Rotem	Proven		8.6	10.0	18.6	26.7%	25.0%	54%
	Probable		-	-	-	-		
Zin	Proven		12.4	17.7	30.1	25.5%	23.0%	56%
	Probable		-	-	-	-		
Oron	Proven	8.5	3.0		11.5	23.1%	20.0%	59%
	Probable	-	-					
Total	Proven	8.5	24.0	27.7	60.2	25.4%		
	Probable	-	-	-	-	-	-	

(1) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(2) Mineral Resources for Rotem, Zin, and Oron are classified in accordance with the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results.

As of December 31, 2021, ICL Rotem had 60.2 Mt of phosphate reserves compared to 53 Mt as of December 31, 2020, an increase of 13.6%. This increase was primarily due to the addition of Tamar field (Low Organic) to the reserves and Bituminous Phosphate at Rotem, as a result of a change in Reserve determination methods. Assumptions regarding the technical parameter analysis, forecasted product prices, production costs, permitting decisions, or other factors may positively or negatively affect the reserves estimates.

Logistics

Most of ICL's products, whether in solid or liquid state, are transported in bulk from Rotem and Oron by road and rail to either the Ashdod port or by road to the Eilat port. From Eilat, ICL's products are transported by ship to markets in the Far East, and from Ashdod, they are transported by ship to Europe and South America.

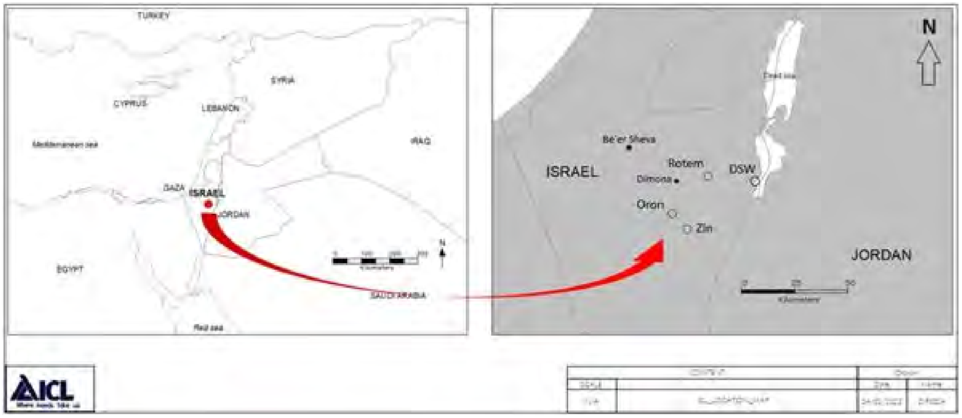
Within the Rotem site, there is a rail loading facility that typically loads up to 30 wagons for each delivery. Approximately 1.4 million tons of products per year are transported by rail to Ashdod port, about 230 thousand tons by road to Ashdod and about 80 thousand tons are transported by road to the port of Eilat.

ICL Tovala is responsible for transporting phosphate rock from the processing facilities in road going rigid trucks and trailers. Each trailer has a payload of 40 tons. In 2021, about 1.3 million tons of phosphate rock were transported from the Oron mine by truck for additional processing and about 70 thousand tons of phosphate rock were transported from Zin, which ceased operations in 2020 and the transfer of the remaining inventory ended in early 2021, to Rotem for further processing.

From Ashdod port, approximately 650 thousand tons of sulphur are transported to Rotem each year. Sulphur arrives at the port of Ashdod from overseas, where it is loaded into road-going trucks and transported to the Company's sulphur dispatch 5 kilometers away. At the depot, it is loaded into rail cars and then transported to Rotem. The port of Ashdod is located on the Mediterranean coast, approximately 40 kilometers south of Tel Aviv and approximately 120 kilometers northwest of the Rotem site and the Tzefa site.

Overview

Figure 4: Location of the DSW, Rotem, Oron and Zin Properties (Israel)



ICL Dead Sea (DSW) is located on the south- west shore of the Dead Sea's southern basin (Figure 4). It is one of the world's largest producer and supplier of potash products, in addition to a range of chemical products. The main product produced at the plant is muriate of potash (MOP) for use as agricultural fertilizer. The DSW comprises 37 'ponds' covering an area of 146.7sqkm and its associated processing facilities. The DSW processing facilities are approximately centered on the geographic coordinates: latitude 31°02'18"N and longitude 35°22'15"E. Water from the northern Dead Sea basin is pumped into evaporation ponds which cause the salt (carnallite) to precipitate out of solution and to sink and deposit on the bottom of the ponds. A dredge harvests the carnallite and pumps this solution to the processing facilities located at the southern end of the site.

The DSW are located alongside Highway 90 which runs broadly north – south from the port of Eliat in the south, northwards alongside the Dead Sea and onwards through Tiberias on the Sea of Galilee in the north of the country. Products from the DSW are transferred to either the port of Ashdod (Mediterranean) or port of Eilat (Red Sea). For Ashdod, an 18 kilometers conveyor transfers potash product from the DSW to a terminal at Tsafa and then onwards by train or road truck. For transport to Eilat, road trucks are used for the entire journey.

Mining Concessions and Lease Agreements

Pursuant to the Israeli Dead Sea Concession Law, 1961 (hereinafter – the Concession Law), as amended in 1986, and the concession deed attached as an addendum to the Concession Law, DSW was granted a concession to utilize the resources of the Dead Sea and to lease the land required for its plants in Sodom for a period ending on March 31, 2030, accompanied by a priority right to receive the concession after its expiration, should the Government decide to offer a new concession.

The concession covers a total area of 652 sqkm, including the evaporation ponds that cover an area of 146.7 sqkm.

In accordance with section 24 (a) of the Supplement to the Concession Law, it is stated, among other things, that at the end of the concession period all the tangible assets at the concession area will be transferred to the government, in exchange for their amortized replacement value – the value of the assets as if they are purchased as new at the end of the concession period, less their technical depreciation based on their maintenance condition and the unique characteristics of the Dead Sea area. Pursuant to section 24 (b) of the Supplement to the Concession Law, it is stated that capital investments made 10 years before the concession ends (i.e., April 2020) to the end of the concession period require a prior consent of the Government, unless they can be fully deducted for tax purposes before the end of the concession period. However, the Government's consent to any fundamental investment that may be necessary for the proper operation of the plant, will not be unreasonably delayed or suspended. In 2020, a work procedure was signed between the Company and the Israeli Government for the purpose of implementing section 24(b).

The procedure determines, among other things, the manner of examining new investments and the consent process. In addition, the procedure determines the Company's commitment to invest in fixed assets, including for preservation and infrastructure, and for ongoing maintenance of the facilities in the concession area (for the period beginning in 2026) and the Company's commitment to continue production of potassium chloride and elemental bromine (for the period commencing 2028), all subject to the conditions specified in the procedure. Such commitments do not change the way the Company currently operates.

In consideration of the concession, DSW pays royalties and lease rentals to the Government of Israel and is subject to the Law for Taxation of Profits from Natural Resources, on top of the regular income tax.

For further information regarding ICL Dead Sea royalties, tax and other matters, see Notes 15 and 18 to our Audited Financial Statements and "Item 3 - Key Information— D. Risk Factors— Our minerals extraction operations are dependent on concessions, licenses and permits granted to us by the respective governments in the countries wherein they are located".

Operations

The concentration of the minerals extracted from the Dead Sea (including potash and bromide), constituting the raw materials for production, is on the rise due to the hydrological deficit experienced by the Dead Sea over the past 40 years.

ICL's extraction of minerals from the Dead Sea begins with an evaporation process facilitated by the hot and dry desert climate of the Dead Sea region, which is the lowest point on the earth's surface. Due to the hydrological deficit, the sea is declining at the rate of over 1 meter per year and is now about 436 meters below sea level. As a result, the Dead Sea is divided into two parts: the natural Northern Basin and the Southern Basin, on the basis of which dams were installed and artificial evaporation ponds were constructed.

The production process begins with the pumping of brine from the Northern Basin into the evaporation ponds in the Southern Basin (a distance of about 12 kilometers) via the Company's pumping stations. In 2021, ICL pumped approximately 443 million cubic meters of water from the Northern Basin into the evaporation ponds, of which, approximately 282 million cubic meters of brine were rechanneled at the end of the process to the Northern Basin. In 2021, the Company produced from the Dead Sea approximately 3.9 million tons of potash, 187 thousand tons of bromine, 18.2 thousand tons of metal magnesium, 111 thousand tons of salt and 131 thousand tons of solid magnesium chloride.

Due to the constant decline in water level (annual average of 1.1 meters which has been recorded in recent years), we are required to relocate the P-88 pumping station, after 21 years of service drawing water from the Northern Basin. During 2021, all the pumping units were assembled, the works on raising the settling basin to allow for extensive ground settlement was completed and the new P-9 pumping station started operating in early 2022.

Nevertheless, the Company expects no impact on its operations due to the current sea water level, which will allow the continued operation of our existing P-88 pumping station until the second half of 2022.

The evaporation ponds extend over an area of approximately 150 square kilometers and are divided into two sub systems – an array of ponds for precipitating salt (mineral waste from the production process), and a series of ponds for precipitating carnallite (the target mineral constituting a raw material for production of potash).

The salt pond known as Pond 5 is the largest pond in the series of ponds, having an area of approximately 80 square kilometers. Pond 5 was built during the 1960s by construction of a large dam, where in the center of the dyke surrounding it a partition (separation clay core) was installed for sealing and prevention of potential leakage of solutions. This dam demarks the Southern Basin of the Dead Sea on the Israeli side and allowed the continued existence of the Southern Basin due to the system of pumping stations and flowing channels that are operated as part of the industrial operational system of the evaporation ponds. In order to continue and operate Pond 5, the dyke was raised several times during the last 50 years. In 2013, DSW completed the cut off project that aimed to minimize the seepage from the northern pond. As part of the project, sheet piles were inserted up to the depth of 33 meters to the ground along the length of 18.6 kilometers. The evaporation processes give rise to concentration of the brines and the sinking of the salt to the floor of the pond. The remaining brines are rich in potash, magnesium and bromide. These brines are pumped into the systems of other ponds, and as a result of the continued evaporation, the "carnallite" precipitates. Carnallite is the raw material used for production of potash, metal magnesium and chlorine. The carnallite is harvested by floating barges and is sent, as slurry, to our production plants. The brine from the end of the carnallite ponds is used as a raw material in the production of bromine and magnesium chloride.

The rise of the water level of Pond 5 -

The minerals from the Dead Sea are extracted by way of solar evaporation, whereby salt precipitates onto the bed of Pond 5, located in one of the sites of DSW. The precipitated salt creates a layer on Pond 5 bed with a volume of approximately 16 million cubic meters per year. The production process of the raw material requires that a fixed brine volume is preserved in Pond 5. Failure to maintain a constant volume of brine in Pond 5 could result in a reduction in production capacity. To this end, up to the end of 2021, the raising of the brines' level of Pond 5 was according to the rate at which the pond floor rises, while performing the salt harvest. Since the solutions' level maximum height (15.1 meters) was reached at the end of 2021, from 2022 onwards, the solutions' volume in Pond 5 will be preserved by way of harvesting the salt ("the Permanent Solution" and/or "the Salt Harvesting Project" as described below).

Raising the water level of Pond 5 above a certain level may cause structural damage to the foundations of hotel buildings situated close to the water's edge, to the settlement of Neve Zohar and to other infrastructure located along the western shoreline of the Pond. Until the end of 2020, in order to ensure that Pond 5 water level does not exceed the maximum height (15.1 meters), the Government of Israel, through the Dead Sea Preservation Government Company Ltd., implemented a project for construction of coastline defenses, together with DSW (which financed 39.5% of the project's cost), as part of which the dike along the western beachfront of Pond 5, across from the hotels, was raised, together with a system for lowering subterranean water. The construction work with respect to the hotels' coastlines was completed and currently the Dead Sea Preservation Government Company Ltd. is carrying out elevation work in the intermediate area between the two hotel complexes.

The "Permanent Solution", which should provide a defense at least until the end of the current concession period in 2030, was established in the agreement with the Government of Israel signed in 2012. The purpose of the agreement was, among others, to provide a permanent solution for raising the water level in Pond 5 and stabilizing the water therein at a fixed level by harvesting salt from this pond and transferring it to the Northern Basin of the Dead Sea. According to the agreement, the planning and execution of the Permanent Solution will be through the Salt Harvesting Project which will be performed by DSW. In addition, the agreement stipulates that from January 1, 2017, the water level in the pond will not rise above 15.1 meters. Nevertheless, in the event of a material deviation from the project's timetables, without the Company having violated its obligations, the Company will be permitted to request raising of the water level above 15.1 meters.

The Company bears 80% and the State of Israel bears 20% of the cost of the Salt Harvesting Project. However, the State's share will not exceed NIS 1.4 billion.

A salt dredger, which is part of the implementation of the Salt Harvesting Project, commenced operations in the fourth quarter of 2020. In 2021, the dredger has been operated successfully, dredging according to plan 6 million cubic meters of salt, which allowed DSW to set the level at its maximum height at the end of 2021. The P-9 pumping station operation commenced in early 2022.

For further information, see Note 18 to our Audited Financial Statements and "Item 3 - Key Information— D. Risk Factors— The accumulation of salt at the bottom of the salt Pond 5, the central evaporation pond in our solar evaporation pond system used to extract minerals from the Dead Sea, requires the water level of the pond to be constantly raised in order to maintain the production capacity of extracted minerals".

The receding level of the Dead Sea - not to be confused with the rising water level in Pond 5 discussed above. These two seemingly contradictory phenomena are occurring simultaneously, as Pond 5 is located in the Southern Basin on a different plane than the main body of the sea lying to its north, necessitating a special pumping station to constantly feed the pond with water. While the brine level of Pond 5 is rising due to the accumulation of salt on its floor and the continuous pumping of brine from the Northern Basin of the Dead Sea, the water level of the Northern Basin is receding, due to the reduction of the flow from the Jordan river to the Northern basin and due to the water pumping the ICL and Arab Potash Company (APC) are using for their production processes. As a result of the decline of the Dead Sea level, sinkholes appear and their appearance in the Dead Sea area has increased over the years. Most sinkholes develop in the northern Basin of the Sea, where the pumping station and the feeding canal of DSW are located. In order to protect these operational infrastructures, DSW monitors the area and fills sinkholes when they appear.

Additional effect of the decline of the Dead Sea level is the erosion of Arava stream, which flows along the international border between Israel and Jordan. This erosion could endanger the stability of the eastern dykes in the future in the array of salt and carnallite ponds. The Company is endeavoring to analyze the matter and to find solutions for preventing or retarding this occurrence in the long term. The Company is carrying on ongoing monitoring and acting on site in order to protect the dykes. As part of these efforts, research was conducted, designed to gather information for the detailed planning of a project to prevent the continued erosion of the stream. The research phase was completed in 2020 and the detailed design is expected to commence in early 2022. Prior to commencing the project, obtaining permits from the authorities is required, due to its engineering complexity, proximity to the border, soil instability and environmental sensitivity of the entire area. Insofar as it is decided to commence with the project, the Company estimates that its completion is likely to take several years.

For further information, see "Item 3 - Key Information— D. Risk Factors— The receding water level in the Northern Basin of the Dead Sea, may require capital and/or operational expenses in order to enable the continuation of the Company's operations in the Dead Sea".

Since 2018, the Company has also been operating a new cogeneration power station in Sodom, Israel. The new power station supplies electricity and steam required to support the production of ICL's plants at the Sodom site and sells its surplus electricity to other ICL companies and external customers via the national grid in Israel. The new power station has a capacity of about 330 tons of steam per hour and about 230 MWh. The Company is operating the new power station concurrently with the former power station, which will continue to operate on a limited basis as "hot back-up". Due to its full natural gas operation, high efficiency and advanced pollution reduction technologies, the new plant also allows for significant reductions in direct air emissions including greenhouse gas emissions.

Production

The following table sets forth the amount of our total mine production at the Company's mines in DSW supplied to our beneficiation plants, for the three years ended December 31, 2021, 2020 and 2019:

	Production (Kt)		
	2021	2020	2019
Potash	3,900	3,960	3,334
Compacting plant	1,858	1,707	1,218
Bromine	182	171	181
Cast Mg	18	18	22

Property Value

As of December 31, 2021, the overall book value of the property, plant and equipment of ICL Dead Sea, as presented in its financial statements (which are based on replacement cost accounting), amounted to about $6 billion. For further information, see Note 15E to our Audited Financial Statements.

Mineral Resource Estimate

The DSW is not a typical mining operation with a finite Mineral Resource, explored by drilling, that is estimated and classified. It is also not a typical solution mining operation that would require an assessment of porosity and fluid flow. However, even though the source of brine is renewed to a certain extent by inflow to the northern Dead Sea basin, the resource cannot be considered either fully renewable or infinite, given that there are certain engineering, licensing and environmental constraints. The Mineral Resource estimate is therefore based on the following steps:

1. Determination of pumping rate of brines from northern Dead Sea area to lagoons.

2. Determination of expected recovery of product as based upon:

    a. Ability to determine composition and consistency of supply

    b. Ability to predict consistency of evaporation and mineral precipitation

    c. Ability to predict consistency of split into various products

3. Determination of Mineral Resource classification is based upon:

   a. Any variation in supply composition

   b. Any variation in return flow of brines to the northern Dead Sea basin to assess efficiency and consistency of process

   c. Variation in precipitation of mineral amounts

   d. Accuracy of sonar measurements in determining reconciliation

4. Consideration of the length of extraction license held by ICL

5. Assessment of potential changes to any of the above factors during the remaining length of license.

Mineral Resources must have reasonable expectations of eventual economic extraction. Therefore, in assessing Mineral Resources for DSW we also consider the length of the license allowing abstraction of waters from the northern Dead Sea basin to DSW.

It is also important to consider future outside impact on what is a dynamic system. The primary factor that could impact on the source brines is the continuing drop in the sea level of the northern Dead Sea area and its potential effect on the chemistry of the Dead Sea waters. Water deficit, as a result of reduced inflow, has the result of changing chemistry of the remaining brine. The concentration of KCl has increased over time (at a rate of +0.05% over 20 years) and the concentration of NaCl has decreased because of halite deposition in the northern Dead Sea basin. This reduction in water level with associated changes in water chemistry are predicted to continue. The increased KCl content of the Dead Sea brine is predicted to cause an increase of DSW's potash production at a rate of an additional 11.5kt per year from 2020, with an increased potash production of approximately an additional 230kt over current rates by 2040.

DSW - Summary of Potash Mineral Resources at the end of the fiscal year ended December 31, 2021, based on $255 FOB per ton.

Classification	Product	Amount (Mt)	Grades/qualities (KCl)	Cut-off Grades (KCl)	Metallurgical Recovery (KCl)
Measured	KCl	225	20%		
Indicated	KCl	1,500	20%	n/a	100%
Inferred	KCl	445	20%		
Total	KCl	2,170	20%		

(1) Potential brine volume is based upon the estimated pumping rate from Northern Dead Sea multiplied by potential extraction period until the year 2133.

(2) Mineral Resources are reported exclusive of any Ore Reserve.

(3) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(4) Mineral Resources for the DSW are classified in accordance with the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results.

As of December 31, 2021, DSW had 2,170 Mt of potash resources. We are reporting Mineral Resources at DSW in accordance with the guidelines of PERC for the first time in 2021. The mineral resources estimate for DSW is based on factors related to predictive models following assumed water inflow to the Dead Sea as well as the prospects of eventual economic extraction. For further discussion of the material assumptions relied upon, please refer to Section 11.5 of the Technical Report Summary filed as an exhibit to this Annual Report.

Mineral Reserve Estimate

The Mineral Reserves Estimate of the Dead Sea deposits have been classified in accordance with the definitions presented in Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results.

DSW – Summary of Potash Reserves at the end of the fiscal year ended December 31, 2021, based on $255 FOB per ton.

	Amount (Mt)	Grades/qualities (KCl)	Cut-off grades (KCl)	Metallurgical recovery (KCl)
Proven mineral reserves	172	20%		
Probable mineral reserves	-	-	n/a	100%
Total mineral reserves	172	20%		

(1) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(2) Mineral Reserves for the DSW are classified in accordance with the guidelines of the PERC Code (2021).

As of December 31, 2021, DSW had 172 Mt of potash reserves. We are reporting Potash Mineral Reserves at DSW for the first time in 2021. The mineral reserves estimate for DSW may be impacted by material assumptions regarding forecasted product prices, production costs, permitting decisions (most notably the 2030 expiration of the concession, which is assumed to occur for purposes of calculating the reserves; an extension would increase reserves), or other relevant factors that may positively or negatively affect the reserve estimate. For further discussion of the material assumptions relied upon, please refer to Section 12.5 of the Technical Report Summary filed as an exhibit to this Annual Report.

The current life of the mine at DSW is nominally 9 years (to 2030) based on the reserve of 172 Mt (carnallite) and the current annual mining production volume shown above. "Mining" is set at 100% with 0% planned dilution.

Logistics

The potash produced at ICL's Dead Sea facilities is transported by means of a conveyor belt that was built over 18 kilometers to the railhead located at Tzefa in Mishor Rotem, and from there the output is transported to the Ashdod port by train or by truck, mainly to the Eilat port. Metal magnesium is transported by means of containers that are loaded on trucks from the Company's site in Sodom to the railhead at the Tzefa site. Thereafter, the Company transports the containers to the Haifa/Ashdod ports by means of train.

The port of Eilat is located in the far south of Israel on the Red Sea coast. It is approximately 180 kilometers due south of Rotem and about 200 kilometers from Sodom and is accessible by road. Shipments exiting the Eilat port are to the Far East, whereas sales to Europe and the USA exit from the Ashdod port. Sales of fertilizers and potash from Rotem and the Dead Sea are not shipped from the Haifa port since it has no infrastructure for loading bulk products and the cost of overland transport is more expensive than transport to Ashdod.

YPH China

Overview

YPH, ICL's subsidiary in China, which is equally owned with Yunnan Phosphate Chemicals Group Corporation Ltd. ("YYTH"), holds two phosphate mining licenses that were issued in July 2015, by the Division of Land and Resources of the Yunnan district in China: (1) a mining license for the Haikou Mine (hereinafter – Haikou) which the Company operates and which is valid until January 2043, and (2) a mining license for the Baitacun Mine, which was renewed in 2021, and is valid until 2023. The Company intends to conduct a risk survey to assess the feasibility and profitably of mining the site.

With respect to the mining rights, in accordance with China "Natural Resources Tax Law", YPH pays royalties of 8% on the selling price based on the market price of the rock prior to its processing.

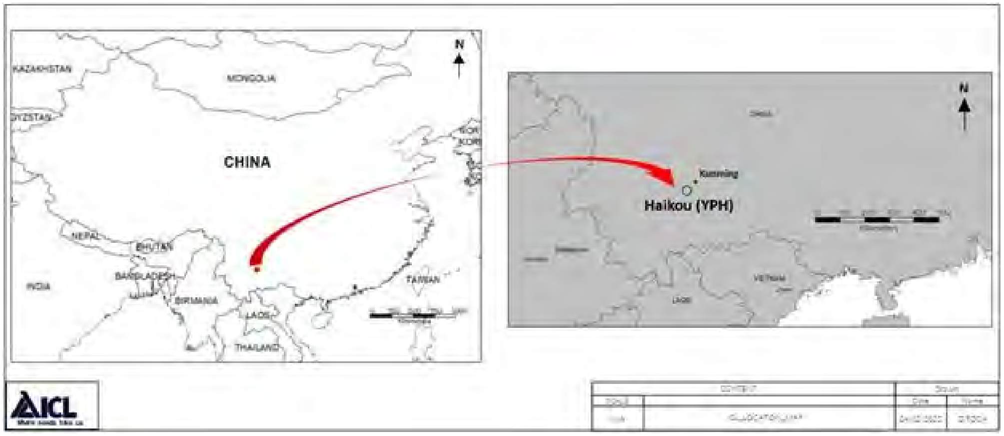
In 2016, a subsidiary of YYTH (hereinafter – YPC) issued a statement whereby in 2010 it entered into agreements with the local authority of Jinning County, Yunnan Province and Jinning Lindu Mining Development and Construction Co. Ltd. (hereinafter - Lindu Company), according to which Lindu Company is permitted to mine up to two million tonnes of phosphate rock from a certain area measuring 0.414 square kilometers within the area of the Haikou mine (hereinafter – the Daqing Area) and to sell such phosphate rock to any third party in its own discretion.

YPC has undertaken that YPH’s mining right in the Haikou mine will not be adversely affected by the above-mentioned arrangements. It was decided that YPH should conduct further communications with YPC and Lindu Company, for the purpose of protecting its legal rights and to urge the parties to reach a fair, just, and reasonable solution to this issue, as soon as possible. Considering the above, ICL did not include this area as part of YPH's reserves.

For further information regarding our concessions in China including royalties, mining licenses, rights and other matters, and for description of certain risks relating to our operations in China, see Note 18 to our Audited Financial Statements and “Item 3 - Key Information— D. Risk Factors”, respectively.

The access to Haikou mine is by means of a network of roads, as well as an accessible rail network that links to the state rail lines. The average production capacity at Haikou in 2021 increased due to several projects, including the flotation expansion project, and is approximately 2.7 million tons per year.

Figure 5: Location of Haikou Mine (China)



Mining Concessions and Lease Agreements

YPH holds two phosphate mining licenses that were issued in July 2015, by the Division of Land and Resources of the Yunnan district in China: (1) a mining license for the Haikou Mine (hereinafter – Haikou), which the Company operates and which is valid until January 2043, and (2) a mining license for the Baitacun Mine, which was renewed in 2021, and is valid until 2023. The Company intends to conduct a risk survey to assess the feasibility and profitably of mining the site.

Haikou is an open-pit mining site located alongside the Haikou Town, in the Xishan district, proximate to the city of Kunming. The Baitacun is located several kilometers from the Haikou mine, wherein the mining activities have not yet commenced.

The Haikou mine has been in operation since 1966 and the concession area is spread over 9.6 square kilometers. The Haikou mine is divided into four areas. The phosphate sources in areas 1 and 2 have almost been fully depleted. The mining in area 3 began in 2015 and the mining activities in area 4 began at the end of 2017.

For further information regarding our concessions in China including royalties, mining licenses, rights and other matters, and for description of certain risks relating to our operations in China, see Note 18 to our Audited Financial Statements and "Item 3 - Key Information— D. Risk Factors", respectively.

Operations

The phosphate deposits at both mines are part of an extensive marine sedimentary basin in which the phosphate is situated in two layers – an upper layer and a lower layer. The thickness of the upper layer varies from 2.5 to 11 meters and is about 7.6 meters on average, whereas the thickness of the lower layer varies from 2 to 9 meters and is about 6.1 meters on average. The mining is executed based on layers and quality thereof. Each layer has 3 quality categories: Grade I (highest grade) > 30% P_2O_5, Grade II- 24%-30% P_2O_5 and Grade III- 15%-24% P_2O_5. Structurally, the Haikou mine is moderately complex, which requires precision mining that is accomplished through use of relatively small mining tools. The phosphate is covered by hard rock layers that require blasting, except for the upper ground level, which is removed and used for reclamation of the mined areas. The phosphate layers are also partially hard and require blasting.

The mining in the Haikou Mine is via open mining using conventional methods by means of drilling and blasting, hydraulic excavators, mining trucks and tractors for mining phosphates.

In the first stage, mining of the upper ground level is being stripped and stored or spread out over mined areas for purposes of reclamation. In the second stage, drilling, blasting and stripping of the upper overburden level is executed. In the third stage, mining of the phosphate is performed by drilling and blasting of every layer separately (between which an interburden layer exists having a thickness of 11 meters, which is also drilled, blasted and stripped) and the phosphate is then loaded on truck and being transported to the beneficiation plants.

Based on the patches' appearance of the medium and high-grade phosphate, the mining is performed through use of small mining tools, trucks with a capacity of 40 tons and excavators having a bucket capacity of 3 to 6 cubic meters.

The phosphate is low organic type, and as such it is suitable for phosphoric acid production. Close to the Haikou mine, there are two beneficiation plants: flotation and scrubbing. These facilities are accessible by roads, and the scrubbing plant is accessible by roads and train. The output of these facilities is designated for the production plants of acids and fertilizers, located several kilometers from the Haikou mine, which include four sulphuric acid factories, three green phosphoric acid factories, one factory for manufacture of technical grade white phosphoric acid, one factory for manufacture of food grade white phosphoric acid and an additional six fertilizer factories. These factories are powered by electricity generated from the sulphuric acid production process as well as from the national power network. These facilities have been continuously developed and maintained for the last 40 years and are in a good condition. The access to the production site is also by road and train.

Production

The following table sets forth the amount of our total mine production of raw ore at the Haikou mine (and the relevant grade) supplied to our beneficiation plants, for the three years ended December 31, 2021, 2020 and 2019:

	Year Ended December 31,		
	2021	2020	2019
Millions of tons produced	2.66	2.40	2.15
Grade (% P_2O_5 before/after beneficiation)	21% / 28%	21% / 29%	21% / 29%

(1) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

The following table sets forth the approximate amounts of product produced after processing by our operations at the Haikou mine, for the three years ended December 31, 2021, 2020 and 2019:

	Year Ended December 31,		
	2021	2020	2019
	thousands of tons	thousands of tons	thousands of tons
Phosphate Rock *	2,194	2,044	1,946
Green Phosphoric Acid	673	632	637
Fertilizers	612	584	516
White Phosphoric Acid	83	71	64
Specialty Fertilizers	76	55	46

*including Enriched & Grinding Rock

Property Value

As of December 31, 2021, the overall book value of the property, plant and equipment of Haikou amounted to about $307 million.

Mineral Resource Estimate

The Mineral Resource is reported as in-situ and exclusive of the Mineral Reserve tons and grade. Mineral Resource categorization of Measured, Indicated, and Inferred Mineral Resources, presented in Table 1, is in accordance with the definitions presented in Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results and in S-K 1300.

YPH Haikou – Summary of Phosphate Mineral Resources at the end of the fiscal year ended December 31, 2021, based on three-year average market prices used to calculate our reserves at the Haikou mine as of December 31, 2021 are as follows: $406 per ton for green phosphoric acid (MGA), $931 per ton for white phosphoric acid (WPA), $1,024 per ton for MKP, $211 per ton for GTSP, $328 per ton for NPS, $268 per ton for MAP 55% and $652 per ton for MAP 73%.

	Measured		Indicated		Inferred		Measured + Indicated		Cut-off Grades (P_2O_5)	Metallurgica Recovery (P_2O_5)
Mining Area	Mt	(P_2O_5)	Mt	(P_2O_5)	Mt	(P_2O_5)	Mt	(P_2O_5)		
Block 1 and 2	0.6	23.0%	0.02	22.4%	-	-	0.7	23.0%	15%	89.3%
Block 3	1.6	22.0%	2	24.1%	-	-	3.8	23.2%		
Block 4	0.7	22.4%	0.2	23.1%	0.2	20.0%	0.9	22.5%		
Total	3	22.3%	2.3	24.0%	0.2	20.0%	5.3	23.0%		

(1) Mineral Resources are reported on a dry in-situ basis and are exclusive of Mineral Reserves.

(2) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(3) Mineral Resources are classified in accordance with the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results.

(4) The reported Mineral Resource estimate was constrained by limiting polygons for the purpose of establishing reasonable prospects of economic extraction based on potential mining, metallurgical and processing grade parameters identified by mining, metallurgical and processing studies performed to date on the project. A minimum cut-off grade of 15% P_2O_5 has been applied for reporting purposes.

As of December 31, 2021, Haikou had 5.3 Mt of phosphate resource. We are reporting Mineral Resources at Haikou in accordance with the guidelines of PERC for the first time in 2021 The mineral resources estimate for Haikou is based on factors related to geological and grade models and the prospects of eventual economic extraction. For further discussion of the material assumptions relied upon, please refer to Section 11.6 of the Technical Report Summary filed as an exhibit to this Annual Report.

Mineral Reserve Estimate

Haikou mine has 57.7 million tons (after deduction of 5%: losses 3% and dilution 2%) of proven reserves of phosphate rock which located in 4 separated blocks (blocks 1-4). The annual average production capacity is around 2.9 million tons (in 2021 2.66 million tons were mined). The proven reserves are sufficient for almost 21 years at such rate. Another 4 million tons of phosphate is placed in several piles around the mine and this reserve will be fed to the flotation plant in the next few years.

The average quality of the phosphate is around 21.8% P_2O_5 and is divided into 3 grades: Grade I (highest grade) > 30% P_2O_5, Grade II- 24-30% P_2O_5 and Grade III- 15-24% P_2O_5. Around 20% of the phosphate has >27% P_2O_5 and is usually beneficiated in the scrubbing facility, in the flotation plant, or in the grinding facility.

In determining these reserves, a cut-off grade of 15% P_2O_5 was applied in accordance with the flotation ability to produce usable concentrate rock (28.5% P_2O_5), which is the average quality required to produce phosphoric acid in the Yunnan region. In practice, the Haikou mine is able to process and use all the phosphate that exists in the deposit. The phosphate layers' borders are physically well defined, also has very low P_2O_5 content (usually around 5%), and the mining process does not leave any unmined phosphate below the cut-off grade behind.

The reported Mineral Reserve estimate was constrained by Pit designs and includes diluting materials and allowances for losses. All Proven Reserves were derived from the Measured Mineral Resource classification, and all Probable Reserves were derived from the Indicated Mineral Resource classification only. The results of the Mineral Reserve estimate are supported by the outcomes of an economic analysis completed in support of the operational business plan. The QP is satisfied that the stated Mineral Reserves classification of the deposit appropriately reflects the outcome of the technical and economic studies.

The three-year average market prices used to calculate our reserves at the Haikou mine as of December 31, 2021 are as follows: $406 per ton for green phosphoric acid (MGA), $931 per ton for white phosphoric acid (WPA), $1,024 per ton for MKP, $211 per ton for GTSP, $328 per ton for NPS, $268 per ton for MAP 55% and $652 per ton for MAP 73%.

In calculating the reserves, an average of the previous three years' currency exchange rates is used to ensure economic feasibility. The three-year average currency conversation rates used to calculate our reserves as of December 31, 2021 are as follows: 6.75 RMB per $1.00.

The life of the mine at Haikou is approximately 23 years, based on reserves of approximately 57.7 million tons (given the annual average production (mining) capacity of around 2.5 million tons); The phosphate from Haikou mine is suitable for phosphoric acid production.

Based on the Company's knowledge, we have all government's approvals and permits that are necessary for our reserves in China.

The following table sets forth our estimated phosphate reserves at the Haikou Mine as of December 31, 2021:

YPH Haikou – Summary of Phosphate Mineral Reserves at the end of the fiscal year ended December 31, 2021, based on three-year average market prices used to calculate our reserves at the Haikou mine as of December 31, 2021 are as follows: $406 per ton for green phosphoric acid (MGA), $931 per ton for white phosphoric acid (WPA), $1,024 per ton for MKP, $211 per ton for GTSP, $328 per ton for NPS, $268 per ton for MAP 55% and $652 per ton for MAP 73%.

	Category	Low Organic Phosphate (Mt)	Average Grade (P_2O_5)	Cut-off Grade (P_2O_5)	Metallurgical Recovery (P_2O_5)
Block 1 + 2	Proven	6.9	21.8%	15%	89.3%
	Probable	–	–		
Block 3	Proven	39.0	21.9%		
	Probable	–	–		
Block 4	Proven	11.9	21.3%		
	Probable	–	–		
Total	Proven	57.7	21.8%		
	Probable	–	–		

(1) All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.

(2) Mineral Reserves reported on a dry basis delivered to the processing plant primary crusher.

As of December 31, 2021, Haikou had 57.7Mt at 21.8% of phosphate reserves compared to 51Mt at 21.9% as of December 31, 2020, an increase of 13% contained phosphate. This increase was primarily driven by a change in methodology used to calculate reserves and was partially offset by production. Assumptions regarding the technical parameter analysis, forecasted product prices, production costs, permitting decisions, or other factors may positively or negatively affect the reserves estimates.

Logistics

YPH holds the Haikou mine, several factories for production of various types of fertilizers located close to the Haikou mine and two plants for production of downstream products – one located close to the Haikou mine and the fertilizers factory and the other in proximity to the Kunming airport.

Most of the transported raw materials from the Haikou mine to the acid factories is executed via pipeline (slurry), whereas a small part of the raw rock is transported by trucks.

Most of the outputs are sold to the local market in North China and are transported from the fertilizers' factory directly to the customers, by train or marine shipment, mainly from two exit ports (QinZhou port and Fangchengang), while a small part of the output sold is transported to customers in the Yunnan region. Fangcheng port and Zhanjiang port are also used for importing sulphur, in the amount of 600 thousand tons per year subject to YPH’s demand and option through existing sources.

Item 4A – UNRESOLVED STAFF COMMENTS

Not Applicable.

Item 5 – OPERATING AND FINANCIAL REVIEW AND PROSPECTS

A. OPERATING RESULTS

Principal Factors Affecting Our Results of Operations and Financial Condition

As a multinational company our financial results are affected by changes in the demand for basic agricultural products, global economic trends, changes in terms of trade and financing, and fluctuations in currency exchange rates. As part of our business strategy implementation, we take steps to adapt our marketing and production policies to evolving global market conditions, improve cash flows, diversify sources of finance, strengthen our financial position and to optimize efficiency and minimize costs.

The following table sets forth the total Government Takes (GT) the Company had paid to the State of Israel in 2021, 2020 and 2019:

Year Ended December 31,	$ millions	NIS millions
2021	507	1,636
2020	346	1,192
2019	425	1,514

The GT include, among others, royalties, leases, dividend withholding tax, payroll taxes and social security and payments relating to taxes, including advances regarding the Surplus Profit Levy.

In 2021 and 2020, about 4% and 5%, respectively, of our total sales derived from sales in Israel. In 2021 and 2020, about 49% and 48%, respectively, of our total sales derived from production activities outside of Israel. There is not a single customer on which we are materially dependent, or that accounted for more than 10% of the Company's total sales in 2021.

Trends affecting our operating expenses

Energy expenses accounted for approximately 6% and 7% of our total operating costs in 2021 and 2020, respectively, a year-over-year increase of approximately 10%. Electricity expenses in 2021 and 2020 amounted to $147 million and $113 million, respectively, comprising 42% and 36%, respectively, of our total energy expenses. Natural gas expenses in 2021 and 2020 amounted to $131 million and $139 million, respectively, comprising 38% and 44%, respectively, of our total energy expenses. Oil and oil products expenses in 2021 and 2020 amounted to $17 million and $15 million, respectively, each accounting for 5% of our total energy expenses.

ICL is one of the largest natural gas consumers in Israel and has taken a strategic decision to use natural gas to power its largest production plants in Israel. This transition of ICL's facilities has significantly reduced emissions of air pollutants in the areas surrounding ICL facilities, improved the quality of the output, reduced maintenance expenses, and has led to significant monetary savings due to transiting away from more expensive fuels. For further information, including details of the specific natural gas purchasing agreements undertaken by the Company, see Note 18 to our Audited Financial Statements and "Item 4 - Information on the Company—B. Business Overview—Regulatory and Environmental, Health and Safety Matters — Energy".

Marine transportation expenses in 2021 and 2020 amounted to approximately $369 million and $213 million, respectively, comprising 6% and 5%, respectively, of our total operating costs. The increase is primarily attributed to an increase in marine transportation prices.

Our financial statements are presented in US dollars. Most of our sales are in US dollars, even though a portion of our sales is in other currencies, mainly euros. Part of our operating expenses in Israel are denominated in NIS and, consequently, devaluation of the average NIS exchange rate against the US dollar has a positive impact on our profitability, while appreciation has the opposite effect. Devaluation of the average exchange rate of the euro against the US dollar has a negative impact on our profitability, while appreciation has the opposite impact. On the other hand, devaluation of the euro against the US dollar improves the competitive ability of our subsidiaries whose functional currency is the euro, compared with competitors whose functional currency is the U.S. dollar. In 2021, the Company's operational results were negatively impacted mainly by the upward revaluation of the shekel against the dollar during the year, partly offset by the upward revaluation of the euro against the dollar and the devaluation of the Brazilian real against the dollar. For further information, see "Item 5 – Operating and Financial Review and Prospects— A. Operating Results— Results of Operations".

We hedge part of our exposure to the risks described above, which include exposure to sales and operating expenses that are not denominated in our functional currency. The main exposure drives from operating expenses denominated in NIS and other currencies that are not the functional currency of our subsidiaries, and exposure to marine transportation prices and energy prices. Our management determines the extent of our hedging activities based on their estimation of our sales and operating expenses, as well as their expectations of the developments in the markets in which we operate. See "Item 11 - Quantitative and Qualitative Disclosures about Market Risk— Risk Management".

Trends Affecting our segments

From March 2020, when the World Health Organization declared the COVID-19 a pandemic, and recommended containment and mitigation measures worldwide, the pandemic has continued to create business and economic uncertainty and volatility in global markets. Many countries around the world are experiencing further outbreaks of the pandemic and governments are once again imposing various restrictions. In parallel, there is a recovery trend in the volume of economic activity around the world that has led on the one hand, to significant demand for certain products and services, and on the other hand, disruptions to worldwide supply chain routes and some raw materials.

We continue to take measures to ensure the health and safety of our employees in all of our facilities and offices, as well as those of our suppliers, our business partners, and the communities in which we operate, to maintain the level of operations throughout our various facilities around the world, and to minimize the pandemic's potential impact on our business.

We have modified some of our work practices to enable our employees to accomplish critical tasks in new ways, leveraging innovation and prioritizing resources. We have implemented communication technologies to maintain work routines, enabling our employees to engage with each other, as well as with our business partners, through digital platforms and other remote access tools.

In 2021, manufacturing continued at our sites around the world without interruption. We have not experienced material delays in production or distribution. The Company continues to respond to the evolving business environment, adjusting to rapidly changing conditions, taking appropriate measures to further enhance operational efficiency and profitability.

However, it remains difficult to assess the future impacts of the pandemic on our operations in light of the uncertainty of its duration, the extent of its intensity, its effects on global supply chains and global markets, the extent of its impact on the markets in which we operate, especially on emerging markets and the impact of additional countermeasures that may be taken by governments and central banks.

Trends Affecting Industrial Products Segment

The operations of ICL's Industrial Products segment are largely affected by the level of activity in the electronics, construction, automotive, oil drilling, furniture, pharmaceutical, agro, textile and water treatment markets.

In 2021, about 45% of the worldwide use of bromine was for flame retardants, about 20% was for clear brine fluids and the remainder was used for intermediates, industrial uses, water treatment and other uses.

In 2021, ICL sold approximately 264 thousand tons of bromine compounds (25% higher compared to 2020), 87 thousand tons of phosphorus compounds (9% higher compared to 2020), 43 thousand tons of magnesia and calcium products (2% higher compared to 2020) and 331 thousand tons of Dead Sea Salts (3% higher compared to 2020).

During 2021, the Industrial Products segment experienced significant recovery in most markets, achieving all-time records of annual sales and operating income, driven by strong demand for the segment's products. This can be attributed to several factors including the record high bromine price in China, which derived from the government's restrictions on energy consumption, as well as safety and environmental audits that effected local bromine production, increased demand for bromine based flame retardants supported by the segment's production capacity expansions, the continued recovery in oil prices leading to renewal of drilling activities and the strong demand for phosphorus based flame retardants which benefitted from environmental restrictions on Chinese producers as well.

Below are the trends of the business line’s main activities -

Flame retardants: 2021 was characterized by high demand across all applications, mainly driven by strong demand in most end markets such as printed circuit boards, electronics, automotive and textile which is correlated with recovery of the worldwide economic activity beginning end of 2020 and during 2021.

Demand for ICL's phosphorus-based flame retardants was high during 2021 as Chinese regulatory authorities required the shutdown and relocation of several local production facilities located in dense population areas. Furthermore, Chinese authorities imposed energetic restrictions on large energy consumers, including phosphorus producers, resulting in Chinese phosphorus supply disruptions. In addition, demand was high in the construction and automotive industries.

The trend of pressure exerted by “green” organizations in the area of environmental protection to reduce the use of bromine-based flame retardants continues. On the other hand, development and commercialization of new sustainable polymeric or reactive bromine-based flame retardants. along with new fire safety regulations in developing countries and as part of new growing global trends, are serving to increase the use of these products.

Elemental bromine: 2021 was characterized by higher elemental bromine sale quantities and record high selling prices, driven by high demand from one side and natural depletion of bromine resources in China, Chinese bromine supply disruptions following governmental restrictions on local production and strong demand for brominated flame retardants on the other side. Commencing November 2021, a relative softening of bromine demand was evident.

Clear brine fluids: 7-year record high oil prices led to recovery and renewal of drilling activities in several global regions and higher year-over-year demand. The Industrial Products segment enjoyed the advantage of storage capability in the Gulf of Mexico, allowing it to respond immediately to emerging needs.
During 2021, ICL supplied clear brine fluids to the United Arab Emirates, directly from Israel for the first time. ICL is expected to supply an initial $6 million of materials by the end of this year, and the Company intends to increase its clear brine fluid sales to the Emirates during 2022

Biocides: The Company recorded a minor sales increase of industrial Brominated Biocides supported by high bromine demand. Sales of Fuzzicide which is exposed to competition in the pulp and paper application, slightly decreased.

Inorganic bromides: Demand returned for Mercury emissions control, supported by high natural gas prices which caused many power plants to switch back to coal as the primary energy source.
In addition, there was increased demand for HBr for the Purified Terephthalic Acid (PTA) market, mainly in China, following growth in the GDP.
Higher BOIs sales were due to high demand in the agro & pharma markets, together with low supply from China.

Phosphorus-based industrial compounds: Slightly higher sales are attributed to recovery of the aviation sector after the 2020 COVID-19 pandemic peak, as well as to higher demand of power plants fluids following maintenance shutdowns that were postponed from 2020 to 2021, which was necessary to cope with the increase of private consumption during the pandemic in 2020. New power plants fluids business opportunities in China are an additional factor contributing to the increase in sales.

Magnesia and Calcium Products: Most magnesia and Calcium product lines were sold out, due to strong demand from the dietary supplements and pharmaceutical end-markets, and as selling prices continued to increase.

Solid MgCl2: An above-average snow season in the western US, followed by relatively strong pre-season sales, contributed to record high sales of solid MgCl2 during 2021, despite constraints prevailing in the marine transportation sector in the last year.

Pure and packed KCl: We experienced higher sales of technical grade KCl following recovery of the oil drilling market, higher demand in the feed market and sharp price increases correlated with potash price increases in the fertilizers market. The demand for pure KCl remained relatively stable.

Trends Affecting Potash Segment

During 2021 Wheat, Corn, Rice, and Soybean increased by 40.9%, 35.4% 16.3% and 8.9% respectively. These price increases occurred due to the continued spread of COVID-19 pandemic, including its different mutations, leading countries to continue with their increased concerns regarding food security for their people, especially in China. Good agricultural fundamentals supported this, mainly in Brazil expressed as high barter ratios.

In addition, the WASDE report, published by the USDA in February 2022, further supported the above, while showing a decrease in the expected ratio of the global inventories of grains to annual consumption to 28.4% for the 2021/22 agriculture year, compared to 29.2% for the 2020/21 agriculture year, and 30.5% for the 2019/20 agriculture year.

Global potash market - average prices and imports:

Average prices		2021	2020	VS 2020
Granular potash – Brazil	CFR spot ($ per tonne)	534	238	124.4%
Granular potash – Northwest Europe	CIF spot/contract (€ per tonne)	361	244	48.0%
Standard potash – Southeast Asia	CFR spot ($ per tonne)	389	245	58.8%
Potash imports				
To Brazil	million tons	12.6	11.0	14.5%
To China	million tons	7.6	8.7	(12.6)%
To India	million tons	2.5	4.1	(39.0)%

Sources: CRU (Fertilizer Week Historical Price: January 2022), FAI, Brazil and Chinese customs data.

It should be noted that in June 2021 Canpotex member, Mosaic, announced an estimated decrease in production of 1Mt from July 2021 to March 2022, due to a halt in operations of its K1 and K2 mines, as a result of increased flooding, and the re-operation of its Colonsay site to offset this loss, which was later announced to be earlier than expected. Another Canpotex member, Nutrien, reported that it would increase accordingly its production from the fourth quarter of 2021.

In addition, the Australian BHP mining company announced in August 2021 that it intends to fund the continuation of its Jansen project (in Saskatchewan, Canada), thereby expressing confidence in the medium to long-term potash market, given that this projected ramp-up is forecasted in 2027.

Global potash prices have been strongly supported by tight supply and by the ongoing political condition in Belarus, which began in August 2021, following an incident in which a commercial airliner was forced down, leading to uncertainty regarding continued supply from Belaruskali by BPC, its trade arm.

For reference, in 2020, Belaruskali was responsible for about 21% of potash exported globally (according to CRU, August 2021). In January 2021, BPC announced the sale of 800 thousand tons of potash to India at a price of $247 per ton (CFR), $17 above the price concluded in its previous contract, while in February 2021, BPC announced that it reached an agreement with its customers in China for potash supply at the same price, which reflected an increase of $27 per ton over the previous contract price. As a result, several large potash producers responded with dissatisfaction noting that this price does not reflect conditions in the global potash market. In April 2021, BPC revised its contract price in India to $280 per ton (CFR), following which ICL and APC supply contracts were concluded at the same price.

In June 2021, the EU imposed sanctions on Belarus following the aforementioned incident from May 2021, in which a commercial airliner was forced down by Belarus, limiting the potash grades that can be traded, although it remains the EU's main export. In August 2021, the UK joined the EU sanctions in light of the accumulation of immigrants at Belarus-EU borders. That same date, Canada and the USA also imposed sanctions on Belarus, however, in December 2021, the implementation of the American sanctions, which included a ban of trade that limited access to the US dollar-based financial system, thus having an unstated extra-territorial effect, was postponed from December 2021 to April 2022 maintaining favorable prices despite the seasonal nature of that period. Prices further increased following the submission of a draft law, in mid-December 2021, by Lithuania's transport ministry for the immediate termination of any business activities with Belarus but stabilized toward the end of December.

Another factor that contributed to the satisfactory price environment was the increased uncertainty in USA potash supplies in September 2021, as a result of Hurricane Ida's damage to the Mississippi river system and good spring weather forecasts. The global uncertainty in potash supply increased in November, due to storm damage to railways in Canadian British Columbia, specifically those leading to the port in Vancouver.

Magnesium Trends

During the second half of 2021, the magnesium global market experienced a severe shortage of supply due to an energy shortage and as a result of environmental and safety audits carried out in several provinces in China, pushing up market prices. Demand in the aluminum market (in which magnesium is used as a strengthening element) was strong following the global economy recovery, after the negative impact of COVID-19 in 2020. The demand from the automotive sector was impacted by the global shortage in semiconductor chips.

Trends Affecting Phosphate Solutions segment

Phosphate specialties sales amounted to $1,341 million in 2021 approximately 18% higher than 2020 based on record sales along the entire phosphates value chain.

Sales of phosphate commodities amounted to $1,135 million in 2021, approximately 34% higher than 2020, mostly due to significantly higher market prices, which was partly offset by lower sales volumes. A significant year-over-year increase in average selling prices of phosphate fertilizers, partly offset by higher raw materials costs and lower sales volumes, led to an operating income of $152 million in 2021, compared to operating loss of $51 million in 2020.

Global phosphate specialties were not significantly disrupted during the full year of 2021, despite the logistical and operational restrictions imposed in certain countries due to the ongoing spread of the COVID-19 pandemic. ICL's robust and diversified customer portfolio and the wide geographic reach of its phosphate specialties businesses - coupled with strong demand for salts and acids - prevented a material impact from the pandemic on the segment's business performance. On the contrary, as a result of the continued pressure on the supply chain, raw materials, and production costs, prices and demand for phosphate supply and our product solutions increased significantly year-over-year.

Food grade phosphates sales were notably higher year-over-year with a continued focus on integrated solutions and next generation product development.

Sales of Industrial salts increased year-over-year, with higher demand in all regions and most industries, supported by continued recovery from COVID-19 related weakness in 2020.

Purified phosphoric acid (WPA) revenues increased year-over-year with higher sales volumes and prices in all regions. In addition, Company's YPH joint venture in China has been experiencing growing demand for its specialty mono ammonium phosphate (MAP) solutions for production of lithium iron phosphate (LFP) batteries, destined for electric vehicles and other energy storage offerings. ICL continues to explore ways to expand its presence in this evolving market in Asia, North America and Europe, through capacity expansions and business development.

Dairy proteins sales decreased year-over-year, due to reduced demand from key customers for organic products, which was partially offset by conventional milk and goat ingredients. ICL continues to focus on expanding its global leadership position in the organic cow and goat ingredients market for high-end applications.

In the fourth quarter of 2021, ICL opened its alternative-protein facility in St. Louis, US, which will produce a plant-based meat substitute for use by food companies, food-service distributors, restaurants and grocery chains. The significant investment represents an expansion of ICL's global Food Specialties portfolio and the company's focus on developing healthier and more sustainable food products.

Phosphate commodity fertilizers prices surged during 2021 following crop prices surge, due to worldwide governments' food security concern policy adoption continuation, especially by the Chinese one, on the light of COVID-19 pandemic continuing spread. This was boosted by restricted supply by China and Russia, following July 22 China's State Administration for Market Regulation (SAMR) guidance of local manufacturers to take care for a minimal domestic stock, followed by its September 27 order to halt exports till June 2022, while in October 2021, the Chinese customs started enforcing this order in ports. In Russia, the authorities-imposed on November 3, 2021, quotas regarding Nitrogen containing fertilizers exports valid from December 1 to May 31, 2022, due to a surge in global Natural gas prices.

In the US, this was boosted, mainly with regard to MAP, following US International Trade Commission (ITC) decision from March 11, 2021, to ratify the Department of Commerce (DoC) decision from February 9, 2021, to accept Mosaic's June 26, 2020, petition to impose countervailing duties on imports of phosphate fertilizers from Morocco and Russia, while setting rates of 19.97%, 9.19% and 47.05% on phosphate fertilizers imports from OCP, PhosAgro and EuroChem, respectively, for at least 5 years. Hurricane Ida damages, in the period between late August and early September, to the Mississippi River system, as well as to Mosaic's production plants, boosted this even further, leading last company to announce an estimated production cut of 300,000 tons, although in November 2021, the company announced the reoperation of its Louisianan's site.

In Brazil, MAP prices surged during year's beginning, but lowered its pace towards year's end due to affordability destruction and the high imports from China, Morocco, and Russia.

In India, domestic depleting DAP stocks on the light of continuing global DAP prices surge led the local government to change twice its original decision not to increase DAP's Nutrient Based Subsidy (NBS) for the 2021/22 agricultural year of 10,213 INR/t, first to 24,213 INR/t on May 10 and then to 32,991 INR/t on October 12.

OCP (Morocco) concluded October 29 its fourth quarter phosphoric acid supply contracts to India at a price of $1,330 per ton (CFR 100% P2O5), an increase of $170 per ton compared to the previous quarter. This was the seventh consecutive price increase indicated in these quarterly contracts since the first quarter of 2020, with an accumulated increase of $740/ton, reflecting the continuing positive global sentiment in the phosphate commodity fertilizers market. OCP hasn't concluded yet its phosphoric acid supply contracts to India for 2022 first quarter.

Global phosphate commodities market - average prices:

Average prices	$ per ton	2021	2020	VS 2020
DAP	CFR India Spot	618	331	87%
TSP	CFR Brazil Spot	562	251	124%
SSP	CFR Brazil inland 18-20% P2O5 Spot	297	177	68%
Sulphur	Bulk FOB Adnoc monthly contract	181	60	202%

Source: CRU (Fertilizer Week Historical Prices, January 2021).

Trends affecting Innovative Ag Solutions segment

Innovative Ag Solutions segment is active in two main markets: agriculture and turf & ornamental markets. The specialty fertilizers business is characterized by higher efficiency resulting in higher prices and lower quantities compared to traditional commodity fertilizers.

Traditional commodity producers continue to expand into the specialty fertilizers markets, offering specialized, higher value and price products. Consolidation is another global trend, characterized by mergers of large fertilizer suppliers as well as acquisition of small specialty fertilizer players by the large input players.

Specialty Agriculture markets:

The specialty agriculture markets include all open field crops (rice, maize, potatoes etc.), orchards and greenhouses.

Our offering for the specialty agriculture sector includes three main product groups: (1) Soluble fertilizers, which includes water-soluble straights (such as MKP, MAP and PeKacid), and water-soluble NPK (WSNPK); (2) controlled release fertilizers (CRF); (3) liquid NPKs; 4) Seed treatment; (5) Biostimulants; (6) Adjuvants; (7) Soil conditioner.

Specialty agriculture markets are constantly growing, driven by global population growth, lack of arable land and regulations. New regulations, both local and national, require limiting amounts of fertilizers applied, thus increasing the usage of efficient fertilizer applications. Examples of such regulation can be found in China's limitation of nitrogen use and the control of nitrogen leaching in several countries in Europe. Growth in demand is significant in China, India and Brazil, while in Europe growth is more moderate.

During 2021, sales volumes of specialty agriculture products increased, supported by COVID-19-related strong demand, as well as the appreciation of the euro against the US dollar. Selling prices were higher compared to 2020 in most product lines, driven by strong demand, supply chain constraints and higher raw materials prices.

Sales volumes of straight fertilizers improved during the year, supported by increased production capacity and disruptions in Chinese supply.

The competitive landscape in the soluble fertilizer market continues to evolve, as some commodity-oriented players are strengthening their positions in specialty fertilizer markets with a full range offer of water-soluble MAP, water soluble NPK and NOP. There has been a substantial increase in capacity of WSNPK blending in China, encouraged by a government policy to improve fertilizer application efficiency and reduce total fertilizer consumption. WSNPK is seen as more efficient than traditional commodity fertilizers. In parallel, compound NPK producers are searching for a new growth engine, which is also fueling the growth of WSNPK capacity.

CRF markets are growing across the globe, including in China – which has experienced the highest growth as well as increased production capacity (mainly from Kingenta and Moith), as well as in the US, although the main capacity increase can be found in lower quality CRF type (e.g. by Pursell in Alabama). Trials show the economic and environmental benefits of using CRF, but a much wider adoption of CRF by growers is hindered by its price premium over traditional fertilizers.

As part of the Company's strategy to grow its crop nutrition businesses organically and through M&A, in January 2021, ICL completed the acquisition of Fertiláqua, one of Brazil's leading specialty plant nutrition companies. ICL expects to leverage Fertiláqua's strong market presence and distribution capabilities to increase the sales of its organic fertilizers, controlled-released fertilizers and other specialty plant nutrition products to the Brazilian market, one of the world's fastest growing agriculture markets. Fertiláqua also expands ICL's specialty crop nutrition product portfolio with complete plant life-cycle solutions for plant nutrition & stimulation, soil revitalization, seed treatment and plant health utilized across all key Brazilian crops, including soybeans, corn, sugarcane, cotton, coffee, fruits and vegetables.

In July 2021, the Company successfully completed the acquisition of the South American plant nutrition business of ADS. ADS offers a broad range of solutions for plant nutrition and stimulation, soil treatment, seed treatment and plant health, covering all key Brazilian crops and as such, significantly expands ICL's product portfolio and profitability, while providing further seasonal balance between the Northern and Southern hemispheres.

The strategic acquisition of these two specialty fertilizer businesses positions ICL as the leading specialty plant nutrition company in Brazil, one of the world's fastest growing agriculture markets.

Turf and Ornamental Horticulture

Turf and Landscape

The segment's Turf and Landscape market business serves the professional turf (i.e. golf & sport fields) and the landscape & lawn markets.

During 2021, the professional turf market demand experienced strong growth for all product categories, supported by the golf sector due to higher usage rate of golf courses, leading to more maintenance and new applications.

The landscape market continued to grow in Europe. As many consumers stayed at home due to COVID-19 lockdowns and restrictions looking for professional support from landscapers to maintain or renew their gardens. Furthermore, in key countries in Europe, the housing market expanded increasing the needs for new gardens.

There is a trend of consolidation in distribution channels in the Turf & Landscape market.

Ornamental Horticulture

The Ornamental Horticulture market includes container nursery growers, pot-plants and bedding plants (greenhouses).

Towards the end of 2020, the ornamental horticulture business experienced a recovery following the first half of the 2020 COVID-19 lockdown. This led to growers experiencing a robust sales season of green goods throughout the wholesale market, garden centers and retail markets, thereby increasing the number of ornamental plants growers, driving strong increase in demand for specialty inputs, such as controlled release fertilizers. Throughout 2021, the exponential growth slowed due to steep increases in the cost of raw materials, which increased specialty fertilizers' prices, impacting demand in the fourth quarter of 2021. The ornamental sector experienced availability and supply challenges, as well as a large increase in input costs such as growing media, plastic pots and specialty fertilizers, which negatively impacted the profitability in the sector.

Expected Expenses for Equity and Cash Compensation Plans

Based on the existing grants under the amended 2014 Equity Compensation Plan, the expected total expenses for the periods ended December 31, 2022, December 31, 2023, and December 31, 2024, are approximately $16 million, $8 million, and $3 million, respectively. For further information see Note 19 to our Audited Financial Statements.

In addition, based on long-term incentive framework (hereinafter – Cash LTI Plan), the expected total expenses for the next 3 years are about $40 million. The expenses are subject to achievement of certain financial targets over the 3 years and can be affected by the change in share price. For further information see Note 16.I to our Audited Financial Statements.

Results of Operations

In our year-to-year comparisons, we present the primary drivers of change in the Company's results of operations. This discussion is based, in part, on management's best estimates of the main trends' impact on its businesses. We have also based the following discussion on our financial statements, and as such, you should read such discussion together with them.

We have elected to omit discussion on the earliest of the three years covered by the consolidated financial statements presented. Refer to Item 5 - Operating and Financial Review and Prospects located in our Form 20-F for the fiscal year ended December 31, 2019, filed on March 5, 2020, for reference to discussion of the fiscal year ended December 31, 2018, the earliest of the three fiscal years presented.

Set forth below are our results of operations for the years ended December 31, 2021 and 2020.

	For the Years Ended December 31,		% Increase (Decrease)
	2021	2020	
	$ millions	$ millions	
Sales	6,955	5,043	38%
Cost of sales	4,344	3,553	22%
Gross profit	2,611	1,490	75%
Selling, transport and marketing expenses	1,067	766	39%
General and administrative expenses	276	232	19%
Research and development expenses	64	54	19%
Other expenses	57	256	(78)%
Other income	(63)	(20)	215%
Operating income	1,210	202	499%
Finance expenses, net	122	158	(23)%
Share in earnings of equity-accounted investees	4	5	(20)%
Income before taxes on income	1,092	49	2129%
Taxes on income	260	25	940%
Net income	832	24	3367%
Net income attributable to the shareholders of the Company	783	11	7018%
Earnings per share attributable to the shareholders of the Company:			
Basic earnings per share (in dollars)	0.61	0.01	6000%
Diluted earnings per share (in dollars)	0.60	0.01	5900%

Results of operations for the year 2021

	Sales	Expenses	Operating income
		$ millions	
YTD 2020 figures	5,043	(4,841)	202
Total adjustments YTD 2020*	-	307	307
Adjusted YTD 2020 figures	5,043	(4,534)	509
New Brazilian Businesses' contribution	341	(290)	51
Quantity	353	(243)	110
Price	1,081	-	1,081
Exchange rates	137	(191)	(54)
Raw materials	-	(246)	(246)
Energy	-	(27)	(27)
Transportation	-	(154)	(154)
Operating and other expenses	-	(76)	(76)
Adjusted YTD 2021 figures	6,955	(5,761)	1,194
Total adjustments YTD 2021*	-	16	16
YTD 2021 figures	6,955	(5,745)	1,210

* See "Adjustments to reported operating and net income (non-GAAP)" above.

- Sales – The Company's sales increased by $1,912 million compared to 2020. The increase was primarily related to a $278 increase in the average realized price per ton of potash year-over-year, as well as an increase in the selling prices of phosphate fertilizers, acids, bromine and phosphorus-based flame retardants, bromine-based industrial solutions, Innovative ag solutions products, phosphate specialties business and FertilizerpluS products. In addition, an increase was recorded in sales volumes of bromine-based flame retardants, Innovative ag solutions products, bromine-based industrial solutions, mainly clear brine fluids, FertilizerpluS products, phosphate specialties business and specialty minerals. In addition, the increase in sales included an increase of $341 from the acquisitions of Fertiláqua and ADS and the appreciation of the average exchange rate of the euro, the Chinese yuan and the Israeli shekel against the dollar. The increase was partly offset by a decrease in sales volumes of Potash and phosphate fertilizers.

- Cost of sales – Cost of sales increased by $791 million compared to 2020. The increase was primarily related to higher prices of sulphur consumed during the period, raw materials used in the production of bromine- and phosphorus-based flame retardants, commodity fertilizers and ammonia. In addition, an increase of $225 million was derived from the acquisitions of Fertiláqua and ADS, as well as an increase of $185 million in sales volumes of bromine-based flame retardants, Innovative ag solutions products, bromine-based industrial solutions, mainly clear brine fluids FertilizerpluS products, phosphate specialties business and specialty minerals. Another contribution to the increase was due to the appreciation of the average exchange rate of the Israeli shekel, the euro and the Chinese yuan against the dollar and higher electricity prices. The increase was partly offset by a decrease in sales volumes of potash and phosphate fertilizers.

- Selling and marketing – Selling and marketing expenses increased by $301 million compared to 2020, mainly due to higher transportation costs, higher sales volumes, the acquisitions of Fertiláqua and ADS and favorable exchange rate.

- General and administrative – General and administrative expenses increased by $44 million compared to 2020, mainly due to higher labor costs, the appreciation of the average exchange rate of the Israeli shekel and the euro against the dollar and the acquisitions of Fertiláqua and ADS.

- Research and Development – Research and development expenses increased by $10 million compared to 2020, mainly due to higher labor costs.

- Other expenses, net – Other expenses, net, decreased by $242 million compared to 2020. The decrease was primarily due to higher expenses in 2020 related to impairment of assets, early retirement of employees, site closure and restoration costs (see 'Adjustments to reported operating and net income – non-GAAP financial measures' above).

Below is a geographical breakdown of our sales by customer location:

	Year Ended December 31,	
	2021	2020
	$ millions	$ millions
Europe	2,159	1,822
Asia	1,876	1,432
North America	1,186	859
South America	1,305	517
Rest of the world	429	413
Total	6,955	5,043

- Europe – The increase in sales was primarily related to an increase in sales volumes and selling prices of Innovative ag solutions products, bromine and phosphorus-based flame retardants, phosphate salts and white phosphoric acid (WPA), as well as a higher selling prices of phosphate fertilizers and potash. The increase was partly offset by a decrease in sales volumes of potash, phosphate fertilizers and clear brine fluids.

- Asia – The increase in sales was primarily related to an increase in sales volumes and selling prices of bromine-based flame retardants, bromine industrial solutions products, Innovative Ag Solutions segment products and phosphate salts, as well as an increase in the selling prices of potash, phosphate fertilizers and acids. The increase in sales was also supported by an increase in sales volumes of clear brine fluids and the positive impact of the appreciation of the average exchange rate of the Chinese yuan against the dollar. The increase was partly offset by a decrease in sales volumes of potash, phosphate fertilizers and acids.

- North America – The increase in sales was primarily related to an increase in sales volumes and selling prices of potash, phosphate fertilizers, bromine and phosphorus-based flame retardants, especially minerals products, phosphate-based food additives and Innovative ag solutions products.

- South America – The increase in sales was primarily related to an increase in sales volumes and selling prices of specialty agriculture products, which include sales from our acquired Fertiláqua and ADS business, potash, phosphate fertilizers and white phosphoric acid (WPA), as well as an increase in sales volumes of clear brine fluids. The increase was partly offset by a decrease in selling prices of clear brine fluids.

- Rest of the world – The increase in sales was primarily related to higher sales volumes and selling prices of specialty fertilizers products and higher selling prices of specialty minerals products.

Financing expenses, net

Net financing expenses in the year ended December 31, 2021, amounted to $122 million, compared to $158 million in the corresponding year, a decrease of $36 million. This decrease derived mainly from changes in hedging transactions results in the amount of $39 million.

Tax expenses

The tax expenses for the year ended December 31, 2021, amounted to $260 million compared to $25 million for the year ended December 31, 2020, reflecting an effective tax rate of about 24% and 51%, respectively. The relatively high effective tax rate in previous year was mainly due to the recognition of deferred tax on significant impairment losses and provisions at a beneficiary tax rate.

Segment Information

Segment revenue, expenses and results include inter-segment transfers which are based on transaction prices in the ordinary course of business. These are aligned with reports that are regularly reviewed by the Chief Operating Decision Maker. Inter-segment transfers are eliminated as part of the financial statements' consolidation process.

Results of operations for the year 2021 – Industrial Products segment

	2021	2020
	$ millions	$ millions
Segment Sales	1,617	1,255
Sales to external customers	1,601	1,242
Sales to internal customers	16	13
Segment Operating Income	435	303
Depreciation and amortization	65	77
Capital expenditures	74	84

Below is a geographical breakdown of our sales to external customers, by customer location:

	Year Ended December 31,	
	2021	2020
	$ millions	$ millions
Europe	529	458
Asia	597	405
North America	360	296
South America	62	40
Rest of the world	53	43
Total	1,601	1,242

	Sales	Expenses	Operating income	
	$ millions			
YTD 2020 figures	**1,255**	**(952)**	**303**	
Quantity	198	(104)	94	↑
Price	150	-	150	↑
Exchange rates	14	(26)	(12)	↓
Raw materials	-	(57)	(57)	↓
Energy	-	2	2	↑
Transportation	-	(22)	(22)	↓
Operating and other expenses	-	(23)	(23)	↓
YTD 2021 figures	**1,617**	**(1,182)**	**435**	

- Quantity – The positive impact on the segment's operating income was primarily due to higher sales volumes of bromine- and phosphorus-based flame retardants, as well as bromine-and phosphorus industrial solutions and specialty minerals products.

- Price – The positive impact on the segment's operating income was primarily related to the record level of elemental bromine prices in China and higher selling prices of bromine- and phosphorus-based flame retardants, as well as specialty minerals products.

- Exchange rates – The unfavorable impact on the segment's operating income resulted primarily from the appreciation of the average exchange rate of the Israeli shekel against the US dollar, which increased operational costs. This was partly offset by the appreciation of the average exchange rate of the euro against the US dollar.

- Raw materials –The negative impact on the segment's operating income was primarily related to higher prices of raw materials used in the production of bromine- and phosphorus-based flame retardants.

- Transportation - The negative impact on the segment's operating income was primarily related to higher marine transportation costs.

- Operating and other expenses – The negative impact on operating income was primarily related to higher operational costs and royalties, due to higher revenue.

Results of operations for the year 2021 - Potash segment

	2021	2020
	$ millions	$ millions
Segment Sales	1,931	1,346
Potash sales to external customers	1,401	979
Potash sales to internal customers	94	95
Other and eliminations (1)	436	272
Gross Profit	894	472
Segment Operating Income	399	120
Depreciation and amortization*	165	166
Capital expenditures	298	296
Average realized price (in $) (2)	337	230

(1) Mainly includes polysulphate produced in UK, salt produced in underground mines in the UK and Spain, magnesium-based products and sales of electricity produced in Israel.

(2) Potash average realized price (dollar per ton) is calculated by dividing total Potash revenue by total sales' quantities. The difference between FOB price and average realized price is mainly marine transportation costs.

Below is a geographical breakdown of our sales to external customers, by customer location:

	Year Ended December 31,	
	2021	2020
	$ millions	$ millions
Asia	511	431
Europe	442	354
South America	506	230
North America	216	86
Rest of the world	93	82
Total	1,768	1,183

	Sales	Expenses	Operating income	
		$ millions		
YTD 2020 figures	1,346	(1,226)	120	
Quantity	72	(85)	(13)	⬇
Price	496	-	496	⬆
Exchange rates	17	(48)	(31)	⬇
Energy	-	(30)	(30)	⬇
Transportation	-	(97)	(97)	⬇
Operating and other expenses	-	(46)	(46)	⬇
YTD 2021 figures	1,931	(1,532)	399	

- Quantity – The negative impact on the segment's operating income was primarily related to a decrease in sales volumes of potash from both ICL Dead Sea and ICL Iberia.

- Price – The positive impact on the segment's operating income was primarily related to an increase of $278 in the average realized price per ton of potash year-over-year, as well as an increase in the selling prices of FertilizerpluS products.

- Exchange rates – The unfavorable impact on the segment's operating income related primarily to the appreciation of the average exchange rate of the Israeli shekel and the British pound against the US dollar, which led to a negative effect on operating income. This was accompanied by the appreciation of the average exchange rate of the euro against the US dollar, which contributed to sales as much as it increased operational costs.

- Energy - The negative impact on the segment's operating income was primarily due to an increase in electricity prices, mainly in Europe.

- Transportation – The negative impact on the segment's operating income was primarily related to an increase in marine transportation costs.

- Operating and other expenses – The negative impact on the segment's operating income was primarily related to a higher operational cost, as well as higher payments of royalties due to the increase in potash prices.

Potash – Production and Sales

Thousands of Tons	2021	2020
Production	4,514	4,527
Total sales (including internal sales)	4,434	4,666
Closing inventory	355	275

- Production – In 2021, potash production was 13 thousand ton lower than the corresponding year, mainly due to a planned shutdown of more than one week at ICL Dead Sea during the first quarter of 2021.

- Sales – The quantity of potash sold in 2021 was 232 thousand tons lower year-over-year, as significantly higher sales to the US, Brazil, Vietnam and Taiwan were offset by lower sales to China and India.

Results of operations for the year 2021 – Phosphate Solutions segment

	2021	2020
	$ millions	$ millions
Segment Sales	2,432	1,948
Sales to external customers	2,334	1,871
Sales to internal customers	98	77
Segment Operating Income	307	66
Depreciation and amortization*	215	210
Capital expenditures	238	275

Below is a geographical breakdown of our sales to external customers, by customer location:

	Year Ended December 31,	
	2021	2020
	$ millions	$ millions
Europe	748	651
Asia	610	468
North America	491	371
South America	358	227
Rest of the world	127	154
Total	2,334	1,871

	Sales	Expenses	Operating income	
		$ millions		
YTD 2020 figures	1,948	(1,882)	66	
Quantity	35	(2)	33	↑
Price	384	-	384	↑
Exchange rates	65	(71)	(6)	↓
Raw materials	-	(159)	(159)	↓
Energy	-	(1)	(1)	↓
Transportation	-	(32)	(32)	↓
Operating and other expenses	-	22	22	↑
YTD 2021 figures	2,432	(2,125)	307	

- Quantity – The positive impact on the segment's operating income was primarily related to an increase in the sales volumes of acids in all regions, salts and phosphate-based food additive. This trend was partly offset by a decrease in sales volumes of phosphate fertilizers.

- Price – The positive impact on the segment's operating income was primarily related to an increase in the selling prices of phosphate fertilizers and acids, as well as higher selling prices in the phosphate specialties business.

- Exchange rates – The unfavorable impact on the segment's operating income was primarily related to the appreciation of the average exchange rate of the Israeli shekel against the dollar, which increased operational costs. This was partly offset by the depreciation of the average exchange rate of the euro against the dollar which contributed to the operating income.

- Raw materials – The negative impact on the segment's operating income was due to higher prices of sulphur consumed during the period.

- Transportation – The negative impact on the segment's operating income was primarily related to an increase in marine and inland transportation costs.

- Operating and other expenses – The positive impact on operating income was primarily related to lower operational costs.

Results of operations for the year 2021 – Innovative Ag Solutions segment

	2021	2020
	$ millions	$ millions
Segment Sales	1,245	731
Sales to external customers	1,226	715
Sales to internal customers	19	16
Segment Operating Income	121	40
Depreciation and amortization	38	25
Capital expenditures	36	20

Below is a geographical breakdown of our sales to external customers, by customer location:

	Year Ended December 31,	
	2021	2020
	$ millions	$ millions
Europe	421	332
Asia	156	126
North America	117	103
South America	378	21
Rest of the world	154	133
Total	1,226	715

	Sales	Expenses	Operating income
		$ millions	
YTD 2020 figures	731	(691)	40
New Brazilian Businesses' contribution	341	(290)	51
Quantity	71	(52)	19
Price	60	-	60
Exchange rates	42	(38)	4
Raw materials	-	(39)	(39)
Energy	-	1	1
Transportation	-	(2)	(2)
Operating and other expenses	-	(13)	(13)
YTD 2021 figures	1,245	(1,124)	121

- New Brazilian businesses' contribution - In January 2021, the Company completed the acquisition of Fertiláqua and in July 2021, the acquisition of ADS.
- Quantity – The positive impact on the segment's operating income was due to strong sales volumes in most regions and business lines, primarily in specialty agriculture and turf and ornamental products.
- Price – The positive impact on the segment's operating income was due to higher sales prices in most business lines, especially in specialty agriculture and turf and ornamental products.
- Exchange rate – The favorable impact on the segment's operating income was primarily related to the appreciation of the average exchange rate of the euro against the dollar, which contributed to the segment's revenue. The appreciation in the average exchange rate of the Israeli shekel against the dollar offset each other and had no impact on the segment's operating income.
- Raw materials – The negative impact on the segment's operating income was primarily related to higher costs of commodity fertilizers and ammonia.
- Operating and other expenses – The negative impact on operating income was primarily related to higher operational costs, mainly selling and marketing costs.

B. LIQUIDITY AND CAPITAL RESOURCES

Overview

As of December 31, 2021, ICL had a balance of $564 million in cash, cash equivalents, short-term investments and deposits. In addition, the Company has unutilized long-term credit facilities of $1,030 million and a securitization agreement in the amount of $300 million, of which the Company has utilized approximately $180 million of the facility's framework

Furthermore, our net financial liabilities were $2,449 million, including $2,436 million of long-term debt (excluding current maturities) and short-term debt of $577 million (including current maturities of long-term debt). The long-term debt consists of debentures of $1,708 million together with loans from financial institutions and lease liabilities of $728 million, while the short-term debt consists of short-term loans from financial institutions and lease liabilities of $327 million and current maturities of debentures and loans of $250 million. For more information about the currencies in which the Company's liabilities are denominated and their interest rates, see Note 13 to our Audited Financial Statements.

We aim to secure sources of financing for our operating activities and investments while diversifying the sources of financing among various financial instruments, and between local and international financing entities. The Company's sources of financing are short and long-term loans from banks (mainly international banks) and institutional entities in Israel, debentures issued to institutional investors in Israel and the United States, and securitization of customer receivables. The Company utilizes the various financing facilities according to our cash flow requirements, alternative costs and market conditions.

We believe that our sources of liquidity and capital resources, including working capital, are adequate for our current requirements and business operations and should be adequate to satisfy our anticipated working-capital requirements during the next twelve months, along with its capital expenditures and other current corporate needs.

Distributions of dividends to ICL from its subsidiaries and transfers of funds through certain countries may under certain circumstances result in the creation of tax liabilities. However, taxation on dividend distributions and funds transfers have not had, and are not expected to have, a material impact on our ability to meet our cash obligations.

As of December 31, 2021, we had no material off-balance sheet arrangements, other than the amounts described in Notes 10 and 18A to our Audited Financial Statements.

The Company's primary contractual obligations consist of commitments to purchase raw materials and energy in the ordinary course as well as agreements to secure its gas supply needs. For information about the Company's contractual obligations, see Note 18 to our Audited Financial Statements.

Credit Facilities

In January 2021, ICL completed the acquisition of Fertiláqua for a consideration of $131 million, including net debt of $43 million.

Subsequently, in March 2021, we signed a framework credit facility agreement with MUFG Bank for a period of two years, according to which the Company can withdraw up to BRL 230 million (about $42 million). As of the date of this Report, the Company has withdrawn BRL 180 million (about $33 million), with a maturity date of March 2023.

In July 2021, we completed the acquisition of the South American plant nutrition business of ADS for a total consideration of about $443 million, including net debt of about $104 million.

In September 2020, the Company entered into a new securitization agreement with three international banks for a committed amount of $300 million and an additional uncommitted amount of $100 million, maturing in September 2025. The securitization agreement replaces a previous one in the amount of $350 million which matured in September 2020. The new agreement includes similar terms as the previous agreement. As of December 31, 2021, ICL utilized approximately $180 million of the facility's framework.

In October 2021, an additional bank joined the credit facility agreement, increasing the revolving credit facility by an additional $100 million, leading to an aggregate $1.2 billion. Most banks signed on to continue the credit facility agreement, and from March 2023 to March 2025, the total credit facility will amount to $1 billion. For further information see Note 13 to the Company's Annual Financial Statements. As of December 31, 2021, ICL utilized approximately $170 million of the facility's framework.

Debentures

In January 2021, we repaid $84 million of a private placement bond as scheduled. In March 2021, the Company repaid NIS 392 million (approx. $118 million) Series E Bond, out of the total NIS 1,569 million (approx. $487 million), as scheduled. In December 2021, the Company repaid an amount of $ 69.4 million loan from a European bank, in accordance with the agreement.

In September 2021, we executed a new €250 million sustainability linked loan ("SLL") agreement, with a five-year term through 2026 and a fixed annual interest rate of 0.8%. The loan is an innovative step forward in our ongoing sustainability efforts and includes three sustainability performance targets. These targets were designed to align with ICL's sustainability strategy and goals, and each will be assessed at specific times during the term of the loan by third party certification. As part of this effort, ICL is targeting an annual 4% to 5% reduction in direct and indirect Scope 1 and Scope 2 CO_2e emissions resulting from ICL global operations. As of the 2021 fiscal year, third-party monitoring will commence in accordance with accounting and reporting standards published by the GHG Protocol. The Company is also planning to expand its participation in the Together for Sustainability (TfS) global initiative that is dedicated to developing and implementing a global supplier engagement program that assesses and improves sustainability sourcing practices. Through 2025, the Company is committed to add, each year, a significant number of TfS qualified vendors who meet certain criteria in the areas of management, environment, health and safety, labor and human rights, ethics, and governance. In addition, ICL will continue to focus on inclusion, equality and expanding the representation of women among its senior management, executive and Board of Director roles. ICL has worked to increase the number of women in senior management, and this segment has already grown from 9% in 2018 to 19% in 2021. As part of the SLL, the Company has set a target for women to hold at least 25% of senior management roles by the end of 2024.

In September 2021, ICL Iberia signed a new loan agreement in the amount of €25 million with a 45-month term through 2025 and a fixed annual interest rate of 0.95%.

Ratings and financial covenants

S&P

On June 23, 2021, the S&P credit rating agency reaffirmed the Company's international credit rating and senior unsecured rating of 'BBB-'. In addition, the S&P Ma'alot credit rating agency reaffirmed our credit rating of 'ilAA' with a stable rating outlook.

Fitch Ratings

On June 21, 2021, Fitch Ratings reaffirmed our long-term issuer default rating and senior unsecured rating at 'BBB-'. The outlook on the long-term issuer default rating is stable.

Financial Covenants

For a description of material financial covenants in the Company's loan agreements and any potential risk relating to compliance with them, credit facilities, sale of receivables under securitization transaction and information on material loans and debentures outstanding as of December 31, 2021, see Note 13 to our Audited Financial Statements.

Sources and Uses of Cash

The following table sets forth our cash flow for the periods indicated:

	Year Ended December 31,	
	2021	2020
	$ millions	$ millions
Net cash provided by operating activities	1,065	804
Net cash used in investing activities	(579)	(583)
Net cash used in financing activities	(244)	(105)

Operating Activities

Cash flow provided by operating activities are a significant source of liquidity for the Company. In 2021, the cash flow from operating activities amounted to $1,065 million, compared with $804 million last year. This increase is mainly due to an increase in the net income.

Investing Activities

Net cash used in investing activities in 2021 amounted to $579 million, compared with $583 million last year. In 2021, the amount includes net cash paid for business combination, which was offset by proceeds received from the divestment of YYTH shares and repayment of a loan to the buyer of the fire safety business.

Financing Activities

Net cash used in financing activities in 2021 amounted to $244 million, compared with $105 million last year. This increase is mainly due to higher dividend payments in the current year.

Principal Capital Expenditures

ICL had cash capital expenditures of $611 million and $626 million for the years ended December 31, 2021 and 2020, respectively. These capital expenditures comprise of investments in fixed and intangible assets.

ICL'S principal capital expenditures over the last three years have consisted of work on the following main projects:

New P-9 Pumping Station in Sodom. Due to the receding water level in the Northern basin of the Dead Sea, the water line is receding from the current pumping station and construction of a new pumping station is therefore necessary. The new P-9 pumping station will serve as the main brine intake station for pumping brine from the Dead Sea to the coastal transmission system. The project consists of a sea base for the pumps, a bridge to the shore, a shore base, delivery pipes and an open canal. The new P-9 pumping station commenced its operation in January 2022.

New alternative-protein fiber production facility. As part of ICL's efforts to expand its global Food Specialties portfolio, focusing on the development of healthier and more sustainable food products, in December 2021, the Company launched its new 10,000-square-foot alternative-protein fiber production facility in St. Louis, USA. The new facility will produce, at full capacity, more than 15 million pounds of plant-based protein fibers to be used in the production of meat substitute products sold by food companies, food-service distributors, restaurants and grocery chains.

New white phosphoric acid (WPA) facility in YPH. In our subsidiary YPH in China, we are expanding production of specialty phosphate solutions, among other things, by the construction of a white phosphoric acid (WPA) facility, which commenced its operation in 2021. The new WPA facility will add up to 70 thousand tons of food grade acid production capacity, once fully ramped-up. The facility produces qualified commercial food-grade acid quantities and is expected to strengthen our phosphate specialties operations and enable additional diversification into higher value-added products.

Salt harvesting in the Dead Sea. A project aiming to provide a permanent solution for raising the water level in Pond 5 and stabilizing of the water therein at a fixed level by harvesting of the salt from this pond and transferring it to the Northern Basin of the Dead Sea. According to the agreement with the Israeli government, the planning and execution of the Salt Harvesting Project will be performed by DSW. The Company will bear 80% and the state of Israel will bear 20% of the costs of the Salt Harvesting Project. However, the State's share will not exceed NIS 1.4 billion. The salt dredger, as part of the Salt Harvesting Project, commenced operation at the end of 2020.

Raising the coastal dikes of evaporation pond 5 at the Dead Sea. The objective of the project was to protect from structural damage to the foundations and the hotel buildings situated close to the water's edge, to the settlement of Neve Zohar and to other infrastructure located along the western shoreline of the Pond. The project was implemented by the Government of Israel, through the Dead Sea Preservation Government Company Ltd., together with DSW (who financed 39.5% of the project's cost). The construction work with respect to the hotels' coastline was, the Dead Sea Preservation Government Company Ltd. is conducting elevation work in the intermediate area between the two hotel complexes. As the maximum height of the level of the solutions (15.1 meters) was reached at the end of 2021, from 2022 onwards, the solutions' volume in Pond 5 will be preserved by way of harvesting the salt as part of the Salt Harvesting Project.

Consolidation of production sites and the ramp project in Spain. The Company consolidated its activities into one site by means of expanding the Suria production site and discontinuing the mining activity at Sallent. In addition, in 2021, we successfully completed the excavation of the ramp connecting the Cabanasses mine with the Suria plant, including the installation of operational equipment and infrastructure, as well as an upgrade of the mine's surrounding logistics infrastructures. The consolidation of the facilities and the ramp project are expected to increase our production capacity to an expected annual running rate of approximately 1 million tons by the second half of 2022, while lowering cost per ton.

New production capacity of TBBA in Neot Hovav. In the face of growing demand for TBBA and the signing of several long-term strategic agreements, the Company is working to increase its production capacity. Accordingly, the Company has built a new facility to increase its TBBA production capacity, which has operated at full capacity since the beginning of 2021.

In addition, in 2021, ICL entered into the fast-growing EV market segment through the sale of phosphate-based raw materials for the production of LFP batteries in China and expects to grow that business in the coming years, by increasing production capacity, global R&D collaborations and by moving downstream through innovative solutions.

The Company finances its capital expenditures from cash flows from operations and from credit facilities.

C. RESEARCH AND DEVELOPMENT, PATENTS AND LICENSES, ETC.

Research and development

ICL's R&D and Innovation (RD&I) activities are part of our global strategic plan and include product, formulation, and process developments. The activities include both internal research and collaborative research with universities, institutes, and start-ups. Our RD&I is aimed towards current and future market and customer needs in addition to identifying new uses for our core minerals and derivatives. The Company's core RD&I activities support each of our business segments, while the longer-term strategic projects, digital platforms, and technological solutions for farmers and agronomists are coordinated at the corporate level.

Fields of RD&I include:

Next Generation Fertilization: nutrient use efficiency, biodegradable coatings; nutrient sensing; growth enhancers; nitrogen fixation and soil health.

In 2021, we acquired Fertiláqua, one of Brazil's leading specialty plant nutrition companies, and the South American Plant Nutrition business of ADS. These acquisitions helped to establish ICL as the leading specialty plant nutrition business in Brazil and allows us to offer a broad range of solutions for plant nutrition and stimulation, covering all key Brazilian crops. The product portfolio includes enhanced efficiency fertilizers and controlled-release fertilizers, soil and foliar micronutrients, secondary nutrients, bio-stimulants, and adjuvants. In addition, the two companies provide us with significant R&D knowledge and capabilities which are being used to supplement our existing R&D infrastructure.

Food Technology: texture improvement, stabilization, salt reduction, shelf-life extension and alternative proteins.

E-mobility/Sustainability: energy storage; hydrogen carriers for fuel cells; lithium battery recycling.

Novel Materials: flame retardants; paints & coatings additives; biocides.

Circular economy: waste to product; recycling; efficiency improvement.

Industry 4.0: IOT in manufacturing, safety and environment; machine learning and artificial intelligence for manufacturing optimization and product development.

Digital Agriculture:

ICL's digital platform continues to evolve in our mission to integrate multiple precision-ag technologies (sensors, imagery, and others) with additional agronomical research data from multiple partners.

Digital technology developed by ICL digests data from multiple sources, automatically aggregating, standardizing and enriching it, thus creating one harmonized data lake with strong AL/ML engines. Those powerful engines enable us to deploy advanced data-driven solutions that drive real time agronomic decisions making like increasing crop yields and farmer's profitability. An increasing number of global partners are joining our revolutionary digital platform including leading global academic institutions and multinational agriculture companies solidifying this strong digital foundation with high quality and highly actionable agronomic data.

These efforts enable ICL to leverage its digital platform and data driven solutions to create an agro-professional community that enables sharing of information & knowledge between all parties: growers and agro-professionals, dealers, retailers and food producers to extract the most value from agriculture.

Below are the main areas of the R&D activities by segments:

Industrial Products

- New flame retardants for printed wire boards: commercialization of new phosphorus-based solutions for PWB according to emerging demands from the market, for example, Polyquel® P100. This is a polymeric phosphorus-based flame retardant active ester curing agent for epoxy laminates with superior performance. It is in the market development stage.

- Flame retardants for polyurethanes: development of new phosphorus-based solutions and integrated phosphorus/bromine solutions as flame retardants for the polyurethane market (flexible and rigid foam). For example, our VeriQuel® F series, a new flexible phosphorus based active flame retardant for flexible polyurethane being launched in the market, and VeriQuel®R100, new reactive phosphorus-based flame retardant for rigid insulation foams in building and construction markets.

- Energy storage: continued development of bromine-based energy storage solutions for Br-battery companies, using diverse compounds, and commercialization of the new bromine based electrolyte.

- Biocides: continued development of new materials for water treatment and prevention of biofilm in industrial water-cooling systems and pulp & paper plants. Promotion of the Bactesperse® technology for pulp & paper, Reverse Osmosis membranes & cooling towers.

- Phosphorus based products: Development of new phosphorus-based solutions for hydraulic fluids.

- A new product, Bromoquel®, for safer handling of bromine was developed and implemented in the plants.

- New fire retardants for the textile market were developed and are in the market development stage e.g., Alexiflam NF-LS product.

- A new product to treat uncontrolled Chlorine release is being developed and reached a pilot testing stage.

- Magnesia based products: Development of formulations to fulfill unmet needs in the markets such as eliminating Aluminum salt in deodorants, for example, CareMag® D, which is already in the market with several leading international companies.

- Knowledge transfer and technical support for the manufacturing of Lopon® ST (a stabilizer used as an additive in silicate-based paints) at our Bitterfeld plant (Germany). First production runs are expected during January 2022.

- Additional products were developed for baby care applications (CareMag® B) and a cosmetic face mask (CareMag® M).

- Use of artificial intelligence for identifying new applications for bromine and bromine derivatives.

- Support of production: improving product quality, production costs, energy-saving, recycling and waste treatment. Changing and improving processes while using the principles of green chemistry.

- Implementation of a new modified process for TBBA production was assimilated in the plants.

- Troubleshooting and equipment maintenance cycle improvement using better construction materials preventing accelerated corrosion, wear & tear and equipment adaptation.

- A special emphasis is given to research in the sustainability field on developing recycling technologies for all kinds of materials, e.g., polymers and rare earth metals, etc., and on the recycling and use of side streams/by-products.

Total R&D expenses by the Industrial Products segment in 2021 amounted to about $23 million.

Potash

- Efficiency activities and synergy measures to increase potash production and reduce its cost per ton at potash and magnesium plants in Sodom.

- Advancement of research regarding environmental protection, including development of methods for treating and reducing effluents.

- Analysis of alternative methods for increasing the production capacity of carnallite at our evaporation ponds.

- Implementation of the R&D department recommendations designed to clear bottlenecks, focused on flotation and crystalizing areas, for the purpose of increasing production capacity at ICL Iberia.

Total R&D expenses in 2021 in the Potash segment were about $5.6 million.

Phosphate Solutions

- The segment continues to check the adaptation of various potential types of phosphate rock to produce phosphoric acid and its downstream products as part of an effort to utilize and increase existing phosphate reserves. In 2022, the Company will further analyze additional types of phosphate including R&D, pilots, plant testing activities, and other economic feasibility assessments.

- Research regarding environmental protection, including the development of methods to treat and reduce effluents and applications for Phosphogypsum uses.

- Integration of secondary source Phosphate technologies (circular economy) - immediate uses in our production facilities in Europe and development of future sources for our fertilizer products, including technology road map for recycle and recovery of Phosphorous and nitrogen from secondary sources to transform our products into sustainable fertilizers.

- Development of fertilizers with higher agronomic nutrient efficiency (NUE).

- Development of a new PK fertilizer that is fully water soluble.

- R&D Food Specialties supported further growth in the traditional markets and application areas of Meat/Poultry/Seafood (MPS), Dairy, and Bakery by expanding its footprint in emerging markets.

- Continued diversification and development of a product portfolio for meat substitutes. Several patent applications were filed in 2021 to protect ICL's proprietary technologies. The newly developed continuous process to produce vegan protein fibers will be implemented in a dedicated US plant, which started to operate in Q4 2021. The product is suited for tender white meat imitations for chicken and fish replacements; the emulsion technology was successfully transitioned from vegetarian to vegan to emulate hotdogs, cold cuts, etc. The award-winning technology for ROVITARIS® textured proteins was further improved in terms of quality to drive a global roll-out outside the US.

- The established dedicated Front-End Innovation group screened over 100 technologies and start-ups within the first year. The corporate incubator platform Planet ICL invested in Protera Bioscience whose focus is the discovery and upscaling of protein-based functional ingredients.

Total R&D expenses in the Phosphate Solutions segment in 2021 were about $8 million.

Innovative Ag Solutions

The Innovative Ag Solutions segment promotes innovation and development of new products and services.

Main R&D targets:

- Development of controlled release fertilizers with a faster biodegradable coating to satisfy the upcoming requirements from the EU Fertilizer Product Regulation in July 2026.

- Development of new biostimulant products and fertilizer products with embedded biostimulant to boost their performance.

- Improvement of liquid and fully soluble fertilizers.

- Development of products which improve water use efficiency.

- Improvement of micronutrients solutions and sulfur fertilizer solutions

- Development of tailor-made formulations based on customer requirements.

Total R&D expenses in the Innovative Ag Solutions segment in 2021 were about $13 million.

Circular Economy

For the past few years, we have engaged in the Circular Economy. For further information see "Item 4 - Information on the Company— Environment Social and Governance Practices— Circular Economy".

Intellectual property

We believe that our intellectual property is crucial for protecting and developing our business activities. ICL has about 770 granted patents in various countries and 220 patent families.

The Company also has over 3,000 registered trademarks worldwide, including inter-alia:

- Fyrol® - a brand name for a range of phosphorus-containing flame retardants targeting flexible and rigid polyurethane foam applications.
- Joha® - a global trademark for dairy specialties, which specializes in emulsifying salts for processed cheese.
- Merquel® - a line of inorganic brominated salts which can be used to control mercury emissions from coal power plants.
- Osmocote® - a leading brand in the area of controlled released fertilizers which uses innovative technologies and is used globally by container nursery stocks, pot-plant growers and more.
- Peters® - a brand of water-soluble fertilizers, specifically designed for bedding-, pot- and container nursery plants.
- Tari® - a brand in the meat industry as well as in the artisan business which focuses on the production and processing of meat products with functional additives, spices and flavors.
- Brifisol® - a global brand in the meat and seafood industries, which concentrates in improving texture by adding cryoprotectant for frozen food products such as meat, shrimp, fish filets and more.
- Rovitaris® - a brand name for plant-based meat alternatives that are virtually indistinguishable from their traditional meat counterparts.

We do not believe that the loss of any single or group of related patents or trademarks would have a material effect on our operations or our financial results.

D. TREND INFORMATION

Trend information is included throughout the other sections of "Item 5 - Operating and Financial Review and Prospects— A. Operating Results". In addition, the fluctuations in the operating results may continue in the upcoming quarters. Specific material drivers of these trends are identified in the discussion above with respect to the years ended December 31, 2021 and 2020. Seasonality of our business is included in "Item 4 - Information on the Company— B. Business Overview".

E. CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements in conformity with IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

The evaluation of accounting estimates used in the preparation of ICL's Financial Statements requires the Company's management to make assumptions regarding interpretations of laws which apply to the Company, circumstances and events involving considerable uncertainty. The Company's management prepares the estimates based on past experience, various facts, external circumstances, and reasonable assumptions relating to the pertinent circumstances of each estimate. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

Note 2 to our Audited Financial Statements contains a table that sets forth information about assumptions made by ICL with respect to the future and other reasons for uncertainty regarding to estimates that have a significant risk of resulting in a material adjustment to carrying amounts of assets and liabilities in the next financial year.

Item 6 – DIRECTORS, SENIOR MANAGEMENT ND EMPLOYEES

A. DIRECTORS AND OFFICERS

The following table lists the names and ages of our directors as of the publication date of this Annual Report. The mailing address of our directors is c/o ICL Group Ltd., 23 Aranha Street, Millennium Tower, Tel Aviv, 6120201, Israel.

Name	Age	Commencement date as director	Director Qualification		Financial Expertise		Membership in Board Committees
			Under the Israeli Companies Law	Under the NYSE rules	Under the Israeli Companies Law	Under the SEC rules	
Yoav Doppelt (Executive Chairman of the Board)	53	12/18 and as CoB since 07/19	(3)		-	-	Operations Committee (Chair)
Aviad Kaufman	51	March 2014	(3)		Financial Expert	-	Financing Committee (member)
Avisar Paz	65	April 2001	(3)		Financial Expert	-	Financing Committee (member) Operations Committee (member)
Lior Reitblatt	64	November 2017	Independent Director	Independent Director	Financial Expert	Audit Committee Financial Expert	Audit & Accounting Committee (member) Compensation Committee (member) Financing Committee (member) Operations Committee (member)
Ovadia Eli	76	August 2011	(3)		-	-	Safety, Environment, Climate & Public Affairs Committee (member) Operations Committee (member)
Reem Aminoach	60	March 2017	(4)	Independent Director	Financial Expert	-	Safety, Environment, Climate & Public Affairs Committee (member) Operations Committee (member)
Sagi Kabla	45	February 2016	(3)		Financial Expert	-	Financing Committee (Chair) Safety, Environment, Climate & Public Affairs Committee (member) Operations Committee (member)
Tzipi Ozer Armon	55	January 2020	Independent Director	Independent Director	Financial Expert	-	-
Gadi Lesin	54	March 2021	Independent Director	Independent Director	Financial Expert	Audit Committee Financial Expert	Audit & Accounting Committee (member) Safety, Environment, Climate & Public Affairs Committee (member) Operations Committee (member)
Dr. Miriam Haran(1)	72	July 2021	External Director	Independent Director	Financial Expert	Audit Committee Financial Expert	Audit & Accounting Committee (Temporary Chair until 05/22) Compensation Committee (Chair) Safety, Environment, Climate & Public Affairs Committee (Cahir)
Dafna Gruber(2)	56	January 2022	External Director	Independent Director	Financial Expert	Audit Committee Financial Expert	Audit & Accounting Committee (will become Chair as of 05/22) Compensation Committee (member)

(1) Dr. Miriam Haran's first 3-year tenure commenced as of the date of approval of ICL's shareholders in July 2021. Dr. Haran replaced Dr. Nadav Kaplan which served as an external director until August 19, 2021. For additional information about Dr. Haran, refer to her bio below.

(2) Ms. Dafna Gruber's first 3-year tenure commenced as of the date of approval of ICL's shareholders in January 2022. Ms. Gruber replaced Ms. Ruth Ralbag who served as an external director until November 3, 2021. Ms. Ruth Ralbag notified the Chairman of ICL's Board of Directors in October 2021 of her decision to resign from her position as an external director of the Board, following her recent appointment to the position of CEO of Clalit Health Services in Israel, which will require all of her time. For additional information about Ms. Gruber, refer to her bio below.

(3) Messrs. Yoav Doppelt, Aviad Kaufman, Sagi Kabla, Avisar Paz and Ovadia Eli are not considered independent directors under the above rules by virtue of the positions they hold, or previously held, with our controlling shareholder or in the Company.

(4) Mr. Reem Aminoach meets all qualifications under the Companies Law for Independent Director but was not formally classified as one.

For further details see "Item 6 - Directors, Senior Management and Employees — C. Board Practices — External Directors".

Yoav Doppelt. Mr. Doppelt serves as the Chief Executive Officer of Israel Corp. Previously Mr. Doppelt served as the Chief Executive Officer of Kenon Holdings Ltd., a global company (NYSE: KEN), and Executive Chairman of IC Power Ltd., a power generation company, from March 2014 to September 2017. Prior thereto, Mr. Doppelt was the founder and Chief Executive Officer of the Ofer Group's private equity fund where he was involved in numerous investments in the private equity and technology sectors. Mr. Doppelt has served as the Chief Executive Officer of XT Investments (formerly known as XT Capital and Ofer Hi-Tech) since 2001. Mr. Doppelt has actively led several public offerings of equity and debt offerings in the US and Europe, and he has extensive operational and global business experience with growth companies. Mr. Doppelt also serves as Chairman of OPC Energy Ltd. (TASE: OPC), as well as a director of Zim Integrated Shipping Services Ltd and of Melisron Ltd. Mr. Doppelt holds a BA degree in Economics and Management from the Technion – Israel Institute of Technology, and an MBA degree from Haifa University.

Aviad Kaufman. Mr. Kaufman is the Chief Executive Officer of One Globe Business Advisory Ltd, the chairman of Israel Corporation Ltd., and a board member of Kenon Holdings Ltd., OPC Energy Ltd. and other private companies, each of which may be associated with Mr. Idan Ofer. From 2017 until July 2021, Mr. Kaufman served as the Chief Executive Officer of Quantum Pacific (UK) LLP and from 2008 until 2017 as Chief Financial Officer of Quantum Pacific (UK) LLP (and its predecessor Quantum Pacific Advisory Limited). From 2002 until 2007, Mr. Kaufman fulfilled different senior corporate finance roles at Amdocs Ltd. Previously, Mr. Kaufman held various consultancy positions with KPMG. Mr. Kaufman is a certified public accountant and holds a Bachelor's degree in Accounting and Economics from the Hebrew University in Jerusalem (with distinction), and a Master's of Business Administration in Finance from Tel Aviv University.

Avisar Paz. Mr. Paz served as the Chairman of the Board of Directors of OPC Energy Ltd. until January 3, 2021. Previously, Mr. Paz served as the Chief Executive Officer of Israel Corp. and prior to that, as the Chief Financial Officer of Israel Corp. Mr. Paz received a B.A. degree in Economics and Accounting from Tel-Aviv University and is a certified public accountant in Israel (CPA).

Lior Reitblatt. Mr. Reitblatt served as Chief Executive Officer and Chairman of the Board of Super-Pharm (Israel) Ltd. Mr. Reitblatt has also previously served, among other positions, as Chairman of the Board of Life Style Ltd. and member of the board of Office Depot Israel Ltd. Mr. Reitblatt is a certified public accountant, and holds a BA degree in Accounting and Economics from Tel Aviv University and an MBA degree from the University of California, Berkeley.

Ovadia Eli. Mr. Eli served as the Chairman of the Board of Oil Refineries Ltd for two terms, the first from 1996 to 2003 and the second from 2015 to August 2021. Mr. Eli also served as Chairman of the Board of the Israel Airports Authority, Israel Military Industry (I.M.I), Shmanim Besisyim Haifa Ltd. and I.C.P.I. Mr. Eli served as a member of the Board of Directors of Salt Industries Israel Ltd., Shaarei Ribit Ltd., Zim Integrated Shipping Services Ltd. and OPC Rotem Ltd. Mr. Eli holds a BA degree in Educational Counseling and Bible Studies from Haifa University and is a graduate of the Lifshitz Teachers College in Jerusalem.

Reem Aminoach. Mr. Aminoach currently serves as director of Israel Aerospace Industries. Until recently, Mr. Aminoach served as the founding partner of the accounting firm Shtainmetz Aminoach & Co. In his military service, Mr. Aminoach, a brigadier general, served as a member of the General Staff Forum of the IDF, Head of Budgets at the Ministry of Defense, Financial Advisor to the IDF Chief of Staff and Head of the IDF Budget Division. Previously, Mr. Aminoach served as director at Ofer Investments Ltd. and as director and Chairman of the Audit Committee at Zim Ltd., of the Israel Corp. group. Mr. Aminoach also served as a member of the Board of Governors of Hadassah Medical Center. Mr. Aminoach is a certified public accountant, and holds a BA degree in Accounting and Economics, Tel-Aviv University (academic honors, Dean's honor list) and MBA degree in Business Administration, Tel-Aviv University.

Sagi Kabla. Mr. Kabla is the Chief Financial Officer of Israel Corp. since December 2015. Mr. Kabla serves as director of Oil Refineries Ltd and previously served as Senior Executive of Business Development, Strategy and IR at Israel Corp. Prior to joining Israel Corp., Mr. Kabla held various management roles at KPMG Corporate Finance and M&A. Mr. Kabla holds an MBA degree in Finance from COMAS and a B.A. degree in Economics and Accounting from Bar-Ilan University and he is qualified as a certified public accountant (Israel).

Tzipi Ozer-Armon. Ms. Ozer-Armon serves as the Chief Executive Officer of Lumenis Ltd. Before joining Lumenis, she headed the Japanese market activities of Teva Pharmaceutical Industries Ltd. and served as Senior Vice President of Sales and Marketing at SanDisk. Previously, Ms. Ozer-Armon also served as VP & General Manager at MSystems. In addition to ICL, Ms. Ozer-Armon is a director at the Strauss Group Ltd., SimilarWeb and IACC. Ms. Ozer-Armon holds a BA degree, magna cum laude, in Economics, and an MBA degree in Finance and Marketing from Tel-Aviv University, and she is an AMP graduate of the Harvard Business School.

Gadi Lesin. Mr. Lesin served as President and CEO of Strauss Group Ltd. ("Strauss Group"), an international food and beverage company and the largest food company in Israel, from 2009 to 2018. Mr. Lesin successfully led the Strauss Group through a time of intense economic, global and social change. Under his leadership, the Strauss Group strengthened its international operations, more than doubled its equity value, and grew its profits significantly. Mr. Lesin currently serves as a director in ORIAN SH.M. Ltd. and as an external director in Electra Consumer Products, both companies listed on the TASE. Mr. Lesin holds a bachelor's degree in business management from the Tel Aviv College of Management and an MBA degree from Ben Gurion University.

Miriam Haran. Dr. Haran has been involved in environmental management and safety issues for over forty years in various key positions. Dr. Haran is currently serving as chair of Israel Resource Efficiency Center – a knowledge and consulting center for reducing the environmental impact of industry by streamlining raw materials, energy, water, etc. She is chair of the Weitz Center for Sustainable Development and a board member of M.A.I – a major Israeli recycling company of electrical and electronic waste as well as the chair of the Public Safety Committee in the Prime Minister's Office. Dr. Haran previously served as Director General, Deputy Director General and Chief Scientist of Israel's Ministry of Environmental Protection, as well as the Head of Ono Academic College's MBA Program in Environmental Management. Dr. Haran has served in numerous scientific, corporate, and public organizations. She was Chair of the Israel Consumer Council, Environmental Consultant, Board Member of The Environmental Services Company Ltd. (ESC), Board Member of BGN Technologies Ltd., and Member of the General Assembly of the Jerusalem Institute for Israel Studies. Dr. Haran was Senior Researcher at A.Y. Laboratories, Researcher at Unikoor Biotechnology, Researcher and Senior Lecturer at the Hebrew University, and Researcher at Rutgers University in Newark, New Jersey. Dr. Haran served as an external director of ICL between 2010-2018. Dr. Haran holds a B.Sc. in Natural Sciences from the Hebrew University of Jerusalem and a PhD in Organic Chemistry from Brandeis University.

Dafna Gruber. Ms. Gruber currently serves as the Chief Financial Officer of Netafim Ltd., a precision irrigation solutions company. Prior to joining Netafim Ms. Gruber held Chief Financial Officer positions in various companies including Clal Industries from 2015 to 2017, Nice Systems Ltd. from 2007 to 2015, and Alvarion Ltd. from 1999 to 2007. Ms. Gruber currently serves as an external director or independent director of several public companies, including Nova Measuring Instruments Ltd, Tufin Software Technologies Ltd, Cognyte Ltd. and Cellbrite Ltd. Ms. Gruber is a certified public accountant and holds a BA degree in Accounting and Economics from Tel Aviv University.

The following table lists the names, ages and positions of our Executive Officers (who are not directors) as of the publication date of this Annual Report. The address for sending notices is c/o ICL Group Ltd., 23 Aranha Street, Millenium Tower, Tel Aviv, 6120201, Israel.

Name	Age	Position
Raviv Zoller	58	President & Chief Executive Officer
Amir Meshulam(1)	45	Senior Vice President, Global Internal Auditor
Anantha N. Desikan	54	Executive Vice President, ICL Chief Innovation and Technology Officer
Anat Tal-Ktalav	53	President, ICL Industrial Products Division
Aviram Lahav(2)	62	Chief Financial Officer
Chris Millington(3)	53	President, ICL Phosphate Specialty Solutions Division
Elad Aharonson	48	Executive Vice President, ICL Innovative Ag Solutions Division
Ilana Fahima	56	Executive Vice President, Chief People Officer
Lilach Geva-Harel	45	Executive Vice President, Global General Counsel
Meir Mergi	59	President, Potash Division
Miri Mishor	58	Executive Vice President, Global Information Technology
Nitzan Moshe	54	Executive Vice President, ICL Global Operations
Noam Goldstein	61	Executive Vice President, Operational Excellence, Energy, and Innovation

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(1) See C. Board Practices – Internal Auditor.

(2) On January 1, 2022, Mr. Aviram Lahav joined ICL as Chief Financial Officer, replacing Mr. Kobi Altman.

(3) On January 1, 2022, Mr. Chris Millington entered into office as President, ICL Phosphate Specialty Solutions Division, replacing Ofer Lifshitz.

Raviv Zoller. Mr. Zoller has served as ICL's President and Chief Executive Officer since May 14, 2018. Prior to joining ICL, from 2008, Mr. Zoller served as the Chief Executive Officer of I.D.I. Insurance Company Ltd. ("Bituach Yashir"), which is listed on the TASE. In 1999, Mr. Zoller founded Ness Technologies Inc., which began trading on NASDAQ in 2004 and served as its President and Chief Executive Officer until 2007. Mr. Zoller voluntarily served from 2012 to October 2019 as Chairman of the Ethiopian National Project (ENP), a non-profit organization. Mr. Zoller holds a B.A. degree in Economics and Accounting from Tel Aviv University and is a qualified certified public accountant.

Anantha N. Desikan. Dr. Anantha Desikan was appointed Chief Innovation & Technology Officer of ICL in November 2018 and was promoted to EVP in November 2019. Dr. Desikan joined ICL in 2007 and has served in senior commercial and technology management roles including Senior Vice President of ICL Industrial Products' Flame Retardants business (2014-2018), President, ICL-IP America (2013-2015) and VP Global Phosphorous R&D (2007-2013). Prior to joining ICL in 2007, Dr. Desikan held technology management roles at Supresta and Akzo Nobel. Mr. Desikan holds a Ph.D and M.S degree in Chemical Engineering from Clarkson University, Potsdam, New York, and a B.S. degree in Chemical Engineering from Coimbatore Institute of Technology, Madras University, India.

Anat Tal-Ktalav. Mrs. Anat Tal-Ktalav serves as President of ICL´s Industrial Products Division since August 2018. Mrs. Tal-Ktalav joined ICL in 1995 and served in various leading positions in the Industrial Products business segment, including Marketing Director of Flame Retardants, Vice President for Industrial Solutions (Bromine and Compounds Business Line), Deputy to the President of ICL Industrial Products, and as the Executive Vice President of ICL Industrial Products. Mrs. Tal-Ktalav holds a degree in Chemical Engineering from Ben Gurion University.

Aviram Lahav. Mr. Lahav serves as ICL CFO since 2022. Mr. Lahav previously held several senior positions as CFO of ADAMA group, a global agro-chemical company and part of Syngenta Group, and also as CEO of ADAMA Agricultural Solutions. Prior to this experience, he worked at Delta Galil Industries, moving from group CFO to CEO of the U.S. division and then to global CEO and COO. Mr. Aviram is a certified public accountant (CPA) as of 1987, holds a BA in economics and finance from the Hebrew Jerusalem University and is a graduate of the Harvard Business School Advanced Management Program (AMP).

Chris Millington. Mr. Millington serves as President, ICL Phosphate Specialty Solutions Division since 2022. Mr. Millington joined ICL in 2021. He has more than 25 years of C-Level and Senior Executive experience with global and regional expertise transforming B2B and B2C businesses in North America, Europe, and the Asia Pacific, working at the highest levels within large, publicly listed, global and private companies. Since 2019 Mr. Millington has been a retained Executive Adviser to major global PE funds and advising ingredient industry companies on strategy, M&A, and business transformation. From 2012-18, Mr. Millington worked for Firmenich initially running the Americas, before being promoted to President of the Flavor Division, a 1 Bio + business with global presence, transforming the division to being the growth leader of the industry and driving a strong M&A agenda. Prior to this, he served as Global Head of Foodservice Beverages at Nestlé; the youngest ever VP to manage a global BU at Nestlé HQ, and then established the first AP regional office for Nestle Professional in Singapore. Mr. Millington holds a business degree and has attended multiple IMD and London Business School courses in support of his ongoing leadership development.

Elad Aharonson. Mr. Aharonson has been serving as President of ICL's Innovative Ag. Solutions since April 2021. Prior to joining ICL, Mr. Aharonson served at Elbit Systems 2004 and held various senior management positions; he served as Executive Vice President and General Manager -for ISTAR Division, from 2015 to 2021. From 2011 to 2015, he served as Executive Vice President and General Manager – for UAS Division. Prior thereto, from 2009 to 2011, he also served as Vice President – for UAV Systems. Mr. Aharonson holds a Law Degree (LL.B.) and a BBA from the Hebrew University of Jerusalem, Israel.

Ilana Fahima. Ms. Fahima serves as EVP, Chief People Officer, since November 2018. Prior to joining ICL, Ms. Fahima served as Vice President HR for Global Quality and Head of Israel HR at Teva Pharmaceutical Industries Ltd. Before joining Teva, Ms. Fahima held several positions at Maccabi Health Services, among them Regional HR Director and Regional Service Manager. Ms. Fahima holds a BA degree in Social Work and an MBA degree in Health Care Management, both from Ben Gurion University.

Lilach Geva-Harel. Mrs. Geva-Harel serves as EVP, ICL's Global General Counsel since February 1, 2019. Prior to joining ICL, from 2009 Mrs. Geva-Harel served as Senior Deputy to the Chief Executive Officer and Head of Investments House's Headquarters of Psagot Investment House Ltd., as well as its General Legal Counsel. Mrs. Geva-Harel was previously a Partner in the Merger & Acquisitions Department at Gross, Kleinhendler, Hodak, Halevy, Greenberg & Co. Law Offices (GKH). Mrs. Geva-Harel serves as a director at REE Automotive Ltd. (NYSE: REE) a global company. Mrs. Geva-Harel holds an LLB degree and an LLM degree, both from Bar Ilan University and is a member of the Israel Bar**.**

Meir Mergi. Mr. Mergi serves as President of ICL Potash Division since March 2021 (first as acting President and starting January 2021 as President). From March 2017 to Meir served as SVP, ICL Dead Sea Operations. Prior to that Meir held the position of VP Operations in the Performance Products Division, based in Germany. From 2010 to 2014, Mr. Mergi served as the CEO of the Dead Sea Magnesium and before that he held various senior positions in the operations of Dead Sea Magnesium. Meir holds a BSc degree in Materials Engineering and MBA in Business Management, both from Ben Gurion University.

Miri Mishor. Mrs. Mishor serves as EVP, ICL Information Technology since 2014. Mrs. Mishor joined ICL in 1986 and served in various positions, including CIO of ICL Industrial Products and VP Information Systems of ICL Fertilizers. Mrs. Mishor holds a B.Sc. degree in Mathematics and Computer Science and a M.Sc. degree in Industrial Management from Ben Gurion University.

Nitzan Moshe. Mr. Moshe serves as EVP, ICL Operations since October 2019. From 2014 to the present, Mr. Moshe has served as SVP, Operations of ICL Industrial Products. Prior to that, Mr. Moshe held several senior positions at Rotem Amfert Negev, Ltd., including VP of its Acids & Fertilizers Division, Head of Procurement and Contracts, and Manager of Rotem's Sulfuric Acid Plant. Nitzan holds a MBA degree and BSc degree in Chemical Engineering, both from Ben Gurion University, Israel.

Noam Goldstein. Mr. Noam Goldstein serves as ICL EVP for Operational Excellence, Innovation & Energy since March 2021. Mr. Goldstein joined ICL in 1986 and served in various positions in the Potash Division, including Vice President of Business Development, CFO in Europe, Vice President of Infrastructure, Senior Vice President Operations at ICL Dead Sea, and until recently as the president of ICL´s Potash Division. Mr. Goldstein holds a B.A. degree in Economics and Business Administration from the Hebrew University of Jerusalem and a M.A. degree in Economics from Ben Gurion University. Mr. Goldstein is also a graduate of the Heschel Sustainability Leadership Fellowship Program.

Family Relationships

There are no family relationships between any members of our executive management and our directors.

Arrangements for Election of Directors and Members of Management

There are no arrangements or understandings with major shareholders, customers, suppliers or others pursuant to which any of our executive management or our directors were elected.

B. COMPENSATION

Directors Compensation: Under the Companies Law, the compensation of directors generally requires the approval of the HR & Compensation Committee, the Board of Directors and the shareholders, in that order. The approval of the HR & Compensation Committee and the Board of Directors must be in accordance with the Company's compensation policy. In special circumstances, the HR & Compensation Committee and Board of Directors may approve a compensation arrangement that is inconsistent with the Company's compensation policy, provided that they have considered the same considerations and matters required for the approval of a compensation policy in accordance with the Companies Law, and the approval of the Company's shareholders is by the Special Majority for Compensation, as described in "Item 7 - Major Shareholders and Related (and Interested) Party Transactions – B. Related (and Interested) Party Transactions – Approval of Directors and Officer Compensation".

Generally, shareholder approval is not required for director compensation payable in cash (annual and participation fees) up to the maximum amounts set forth in regulations promulgated under the Companies Law governing the compensation of external directors (the "Compensation Regulations"). The Compensation Regulations set minimum and maximum amounts of cash compensation (an annual fee and participation fees), depending on the amount of the Company's shareholders' equity, or alternatively cash and/or equity compensation may be paid at a certain ratio to the compensation paid to other directors who are not controlling shareholders or employed thereby and who are not employed by the Company (collectively, "Other Directors"), referred to as 'relative cash compensation'.

Effective as of January 9, 2021, the compensation of our external directors and all other non-executive directors that are entitled to compensation for their service in such capacity, was reduced to the fixed annual and per meeting compensation amounts payable to expert directors under the Compensation Regulations, replacing the "relative compensation" model that was previously paid to our directors. According to the determination of our Compensation Committee and Board of Directors, such compensation according to the Compensation Regulations) applies to all of our directors, as may serve from time to time, excluding directors who are office holders (within the meaning of the Companies Law) of Israel Corp. The Compensation of such directors who are office holders of Israel Corp. for their service as such (excluding our Executive Chairman of the Board, Mr. Yoav Doppelt who has a separate compensation arrangement, as detailed below), is included in the annual management fees paid to Israel Corp. pursuant to our agreement with it. Accordingly, the management fees that were paid to Israel Corp. during 2021, effective as of January 1, 2021, following the approval of the shareholders on January 5, 2021, included, among other things, all compensation components, for the services of Company directors who are officer holders of Israel Corp., excluding Mr. Doppelt.

Notwithstanding the above, it was agreed by the Company and Israel Corp., that subject to the approval of the revised terms of our Executive Chairman of the Board, Mr. Yoav Doppelt, at the Annual General Meeting of our shareholders, expected to take place on March 30, 2022, the Management Agreement will be terminated effective as of July 1, 2022, following which directors who are office holders of Israel Corp. (other than Mr. Yoav Doppelt) shall begin to be paid the Director Cash Compensation. Mr. Sagi Kabla, Israel Corp.'s Chief Financial Officer, has requested that his Director Cash Compensation be either assigned and paid directly to Israel Corp. or paid directly to him, as instructed by Israel Corp.

The Company also covers and/or reimburses its directors for expenses (including travel expenses) incurred in connection with meetings of the Board of Directors and its committees or performing other services for the Company in their capacity as directors, in accordance with the Company's Compensation Policy and the Compensation Regulations. Our Board Members also benefit from directors' and officers' liability insurance and indemnification and exemption arrangements entered into with them. For further information, see "Item 6 - Directors, Senior Management and Employees— C. Board Practices – Insurance and Indemnification".

Executive Chairman of the Board's Compensation: Mr. Doppelt's compensation terms as our Executive Chairman of the Board were approved by HR & Compensation Committee and Board of Directors on April 15, 2019, and by our shareholders at the Extraordinary General Meeting held on May 29, 2019. Mr. Doppelt's compensation terms are in effect for three years from July 1, 2019, the date of his entry into office.

On January 31, 2022, and February 8, 2022, our HR & Compensation Committee and Board of Directors, respectively, approved, subject to the Annual General Meeting of our shareholders (the "Meeting"), expected to take place on March 30, 2022, new compensation terms for Mr. Yoav Doppelt, the Executive Chairman of our Board of Directors, which shall be effective as of the termination of the Management Agreement on July 1, 2022, and subject thereto, and subject both to his reelection and to the approval of our new compensation policy at the Meeting. Following their approval, Mr. Doppelt's new compensation terms shall be in effect for a period of three years. According to the proposed new compensation terms, Mr. Doppelt will be employed by the Company, and will continue to invest a significant portion of his time to the Company. Subject to their approval in the Meeting, the Mr. Doppelt's new compensation terms will include (i) a NIS 1.8 million (approximately $562,500) annual cost of employment, (ii) entitlement to an annual cash bonus with a Target STI, which will essentially also be his maximum STI payout in any given year, of NIS 1.2 million (approximately $375,000), calculated in accordance with the Executive Chairman's STI formula set forth in the New Compensation Policy, as may be amended from time to time, an (iii) termination arrangement which includes a six-month adjustment period and six month advance notice period, during both of which he will continue to be entitled to all of his compensation terms, including STI payouts and continued vesting of his existing LTI plans, as well as additional severance payment by the Company, in addition to the mandatory severance payment, equal to his last monthly salary multiplied by the number of years that he was employed by the Company, serving as its Executive Chairman of the Board (i.e., as of July 1, 2022). In addition, our HR & Compensation Committee and Board of Directors approved on January 31, 2022 and February 6, 2022 and February 8, 2022, respectively, subject to shareholder approval at the Meeting, a three-year long-term incentive award to Mr. Yoav Doppelt, for the years 2022-2024, of non-marketable options, exercisable into Ordinary Shares, with a total value of NIS 9 million (approximately $2.8 million), or NIS 3 million (approximately $937,500) per vesting annum.

Other than the agreement with Mr. Doppelt in his capacity as Executive Chairman of the Board, described above, and the acceleration of equity awards upon termination of director service under certain circumstances, we do not have any written agreements with any current director providing for benefits upon the termination of such director's relationship with us.

Equity (LTI) Grants to Board Members:[1]

Grant for Year	Offerees	Grant Date	Type of Equity[2]	Dates of Organs' Approvals	Grant Value (ILS) per Director	Grant Amount per Director	Expiration Date & Vesting Schedule
2021	Mr. Yoav Doppelt, Executive Chairman of the Board	1.7.2019	Options	HR & Comp. Committee & Board – 15.4.19 Shareholders (Extraordinary GM) – 29.5.19	3 million	2,168,675	Expiration Date: 30.6.2024 **Vesting:** one-half of the Options vesting upon the lapse of 24 months from Grant Date and one-half upon the lapse of 36 months from the Grant Date

(1) The Equity awards are made pursuant to the Company's Equity Compensation Plan (2014), as amended in June 2016.

(2) On January 31, 2022 and February 6, 2022 and February 8, 2022, our HR & Compensation Committee and Board of Directors approved, respectively, subject to shareholder approval at the annual general meeting of our shareholders expected to take place on March 30, 2022 (the "Grant Date"), a three-year long-term incentive award to Mr. Yoav Doppelt, for the years 2022-2024, in the form of options, with a total value of NIS 9 million (approximately $2.8 million), or NIS 3 million (approximately $937,500) per vesting annum. The vesting of the 2022-2024 LTI Grant will be in three equal tranches, with one-third of the Options vesting upon the lapse of 12 months from Grant Date, one-third of the Options vesting upon the lapse of 24 months from Grant Date and one-third upon the lapse of 36 months from the Grant Date. The Options may be exercised, in whole or in part, as of the date of "maturity" of each tranche and until the lapse of five years after the Grant Date.

Senior Management Compensation

The aggregate compensation amount incurred to all of the members of our senior management (Global Executive Committee – GEC) as of December 31, 2021, was approximately $18 million for the year 2021. This amount includes an annual provision for pension or other retirement benefits for our senior management of approximately $1 million.

The following table and accompanying notes describe the compensation incurred for the year 2021 with respect to the five highest earning senior officers of ICL for such period.

	Details of the Recipient		Payments for services				
Name	Position	Scope of position	Base Salary	Compensation(1)	Bonus (STI) (2)	Equity based compensation (LTI)(3)	Total
	US$ thousands						
Raviv Zoller(4)	President & Chief Executive Officer	100%	759	1,103	1,045	1,118	3,266
Kobi Altman(5)	Former Chief Financial Officer	100%	440	604	709	545	1,858
Ofer Lifshitz(6)	Former President of Phosphate Solutions Division	100%	381	536	639	371	1,546
Anat Tal-Ktalav(7)	President of Industrial Products Division	100%	310	441	386	371	1,198
Elad Aharonson(8)	President, Innovative Agro Solutions Division	100%	319	768	285	83	1,136

(1) The salary items (compensation) column set out in the above table includes all of the following components: base salary, customary social benefits, customary social and related provisions, Company car and reimbursement of telephone expenses. The compensation is in accordance with the Company's Compensation Policy.

(2) The short-term incentives (STI/annual bonuses) to officer holders for 2021, including the top-five earners in 2021, were approved by our HR & Compensation Committee and Board of Directors on January 31 and February 8, 2022, respectively.

(3) The expense for share-based payment compensation is calculated according to IFRS and is recognized in the Company's statement of income over the vesting period of each portion. The amounts reported in this column represent the expense recorded in the Company's financial statements for the year ended December 31, 2021 with respect to equity-based compensation granted to the senior officer. For details regarding the Company's equity compensation plans, see Note 19 to our Audited Financial Statements.

(4) <u>Mr. Zoller's terms of employment, as approved by our authorized organs, include:</u> (a) annual base salary of NIS 2.4 million (approximately $750,000), indexed to the Israeli Consumer Price Index (CPI). Mr. Zoller's annual base salary as of December 31, 2021 remained NIS 2.4 million (approximately $750,000). Mr. Zoller's monthly base salary, as of December 31, 2021, was approximately NIS 202,800 (approximately $63,500); (b) annual cash bonus in accordance with ICL's bonus plan and Compensation Policy. Mr. Zoller's Target Bonus as per his employment agreement is NIS 2.5 million (approximately $781,000), with the maximum annual bonus that can amount to NIS 3.75 million (approximately $1.17 million). For details regarding Mr. Zoller's annual bonus in 2021, see the Annual Bonus Component section below; (c) an annual LTI (equity) grant of NIS 4.8 million (approximately $1.5 million), or any other amount per vesting annum, as determined and approved by the Company's authorized organs, including by the Company's shareholders. On January 31, 2022 and February 6, 2022 and February 8, 2022, our HR & Compensation Committee and Board of Directors approved, respectively, subject to shareholder approval at the annual general meeting of our shareholders expected to take place on March 30, 2022 (the "Grant Date"), a three-year long-term incentive award to Mr. Zoller, for the years 2022-2024, in the form of options, with a total value of NIS 16.56 million (approximately $5.18 million), or NIS 5.5 million (approximately $1.84 million) per vesting annum. The vesting of the 2022-2024 LTI Grant will be in three equal tranches, with one-third of the Options vesting upon the lapse of 12 months from Grant Date, one-third of the Options vesting upon the lapse of 24 months from Grant Date and one-third upon the lapse of 36 months from the Grant Date. The Options may be exercised, in whole or in part, as of the date of "maturity" of each tranche and until the lapse of five years after the Grant Date. For details regarding Mr. Zoller's equity compensation grants, see Note 19 to our Audited Financial Statements; (d) Mr. Zoller is entitled to an advance notice period of 12 months in case of termination by the Company (not for cause) and is required to give the Company 6 months advance notice in case he resigns. During such advance notice period Mr. Zoller may be required to continue working for ICL, and therefore Mr. Zoller would continue to be entitled to all of his compensation terms, including vesting of his LTI awards, but excluding an annual bonus in respect of the advanced notice period and excluding an equity grant, to the extent granted during such advance notice period; (e) in addition, in case of termination of office, Mr. Zoller will be entitled to an additional severances equal to his last his last base salary multiplied by the number of years that he served as ICL's President & CEO; (f) Mr. Zoller is entitled to all other cash and non-cash benefits payable to our senior executives pursuant to our policies in effect from time to time, including but not limited to, pension, study fund, disability insurance, Company car, gross up, etc., as well as the exemption, insurance and indemnification arrangements applying to the Company's office holders.

(5) Mr. Kobi Altman served as ICL's Chief Financial Officer (CFO) as of April 1, 2015, until December 31, 2021, following his retirement announcement from October 11, 2021 (the "Notice Date"). Mr. Altman's employment agreement provided that: (a) Mr. Altman's base salary will be updated twice a year according to the rise in the Consumer Price Index in the months that passed since the previous update. Accordingly, Mr. Altman's monthly base salary, as of December 31, 2021, was approximately NIS 119,271 (approximately $37,270); (b) the employment agreement is for an unlimited period and may be terminated by either party at any time by advance written notice; and (c) Mr. Altman is entitled to all benefits customary in the Company, such as regular provisions for pension and severance, disability fund, Company car. Mr. Altman's termination terms, which are in compliance with the Company's compensation policy and in accordance with Mr. Altman's employment agreement, were approved by our HR & Compensation Committee and our Board of Directors on November 1, 2021, and November 3, 2021, respectively, and include a six-month advance notice period which commenced on the Notice Date, during which Mr. Altman continues to be eligible for all of his employment terms, including vesting of his equity grants. Following utilization of accrued unused vacation days, Mr. Altman's expected employment termination date will be April 20, 2022. In addition, our HR & Compensation Committee and Board of Directors approved on January 31, 2022 and February 8, 2022, respectively, a special bonus to Mr. Altman for 2021 in the amount of approximately NIS 715,600 (approximately $230,000), equivalent to six base salaries, due to his extraordinary achievements in the 2022 budget planning and approval process, successful transformation of the finance organization and successful hand over of the CFO role to his successor, Mr. Aviram Lahav. For details regarding Mr. Altman's annual bonus in 2021, see the Annual Bonus Component section below. The equity-based compensation (LTI) amount in the above table reflects the expense that was recognized by the Company for Mr. Altman's LTI in the Company's 2021 Financial Statements.

(6) Mr. Lifshitz served as President of the Phosphate Solution Division since August 2018 and has announced his wish to retire on November 18, 2021 (the "Notice Date"). Mr. Lifshitz's employment agreement provided that: (a) Mr. Lifshitz's base salary may be updated twice a year according to the rise in the Consumer Price Index in the months that passed since the previous update. Accordingly, Mr. Lifshitz's monthly base salary, as of December 31, 2021, was approximately NIS 103,382 (approximately $32,300); (b) the employment agreement is for an unlimited period and may be terminated by either party at any time by advance written notice; (c) Mr. Lifshitz is entitled to an advance notice period of 3 months; and (d) Mr. Lifshitz is entitled to all benefits customary in the Company, such as regular provisions for pension and severance, disability fund, Company car. Mr. Lifshitz' termination terms were approved by our HR & Compensation Committee and our Board of Directors on January 31, 2021, and February 8, 2022, respectively. As part of his termination arrangement, our HR & Compensation Committee and Board of Directors, approved to extend Mr. Lifshitz' advance notice period by 3 months (to a total of 6 months), to align his terms with the terms of the other executive management members. Accordingly, following additional utilization of accrued unused vacation days, Mr. Lifshitz' expected end of employment date will be on July 19, 2022. During this entire period, Mr. Lifshitz continues to be eligible for all of his employment terms, including vesting of his equity grants. In addition, our HR & Compensation Committee and Board of Directors approved a grant of a special bonus to Mr. Lifshitz for 2021 in the amount of approximately NIS 620,300 (approximately $194,000), which is equivalent to 6 base salaries, for achieving all-times record results in the PS division in 2021, and remarkable handover to his successor. For details regarding Mr. Lifshitz' annual bonus in 2021, see the Annual Bonus Component section below. The equity-based compensation (LTI) amount in the above table reflects the expense that was recognized by the Company for Mr. Lifshitz' LTI in the Company's 2021 Financial Statements.

(7) Mrs. Tal-Ktalav's employment agreement provides that: (a) Mrs. Tal-Ktalav's base salary may be updated twice a year according to the rise in the Consumer Price Index in the months that passed since the previous update. Mrs. Tal-Ktalav monthly base salary, as of December 31, 2021, was approximately NIS 84,194 (approximately $26,300); (b) the employment agreement is for an unlimited period and may be terminated by either party at any time by advance written notice; (c) Mrs. Tal-Ktalav is entitled to an advance notice period of 6 months; and (d) Mrs. Tal-Ktalav is entitled to all benefits customary in the Company, such as regular provisions for pension and severance, disability fund, Company car and gross up. For details regarding Mrs. Tal-Ktalav's annual bonus in 2021, see the Annual Bonus Component section below. The equity-based compensation (LTI) amount in the above table reflects the expense that was recognized by the Company for Mrs. Tal-Ktalav's LTI in the Company's 2021 Financial Statements.

(8) Mr. Aharonson's employment agreement provides that: (a) Mr. Aharonson´s base salary may be updated twice a year according to the rise in the Israeli Consumer Price Index in the months that passed since the previous update. Mr. Aharonson´s monthly base salary, as of December 31, 2021, was approximately NIS 115,000 (approximately $36,000); (ii) the employment agreement is for an unlimited period and may be terminated by either party at any time by advance written notice; (iii) Mr. Aharonson is entitled to an advance notice period of six months; (iv) Mr. Aharonson is entitled to a six month adjustment period if his employment is involuntary terminated during the first two years of his employment, and (v) Mr. Aharonson is entitled to all benefits customary in the Company, such as regular provisions for pension and severance, disability fund, Company car and gross up . For details regarding Mr. Aharonson's annual bonus in 2021, see the Annual Bonus Component section below. The equity-based compensation (LTI) amount in the above table reflects the expense that was recognized by the Company for Mr. Aharonson's LTI in the Company's 2021 Financial Statements.

The Annual Bonus Component

The Company's current Compensation Policy sets a formula for the calculation of the annual bonus to our CEO and Chairman of the Board. With respect to our other officer holders, the Company's Compensation Policy provides that the annual bonuses may be calculated by measurable financial metrics and/or measurable non-financial metrics, as pre-determined by our HR & Compensation Committee and Board of Directors, and/or a qualitative evaluation.

On January 31, 2022, February 6, 2022 and February 8, 2022, our HR & Compensation Committee and Board of Directors, respectively, approved the annual bonuses to our office holders for 2021, including the top-five earners in 2021 among ICL's senior officers, in accordance with the Company's Compensation Policy.

CEO STI Formula: according to the Compensation Policy, the Target short term incentive plan ("STI") for the CEO represents the conceptual payout amount for 100% performance level (i.e, achieving weighted 100% of all targets) in a given year. The Target STI for the CEO shall not exceed 120% of the CEO' annual base salary. 80% of the CEO's STI target will be measured against performance level of annual measurable financial and measurable non-financial goals set forth by the HR & Compensation Committee and the Board of Directors at the beginning of each fiscal year, as detailed in the Compensation Policy. Out of the 80% STI target, at least 60% of STI target will be measured against financial goals that will be included in the annual budget. The other 20% (or less) of STI target will be measured against other measurable non-financial goals. The achievement level of each goal, whether measurable financial goals or measurable non-financial goals, will be measured independently of other goals, according to the rating scale set forth in the Compensation Policy, and then translated to payout factors. If either ICL adjusted operating income and/or adjusted net income actual performance will not meet the threshold performance level (60% of budget), there will be no payout for the 80% of STI that is measured against measurable financial and measurable non-financial goals.

The remaining 20% of the CEO's STI target will be measured based on a qualitative evaluation by the HR & compensation committee and the Board of Directors after receiving a recommendation of the Executive Chairman of the Board. The maximum payout for this component cannot exceed the higher of 3 three base monthly salaries or 25% of total actual STI payout.

The maximum STI payout for the CEO pursuant to the Compensation Policy cannot exceed, for any given year, the lower of 130% of the CEO's target STI for such year or $1.5 million. Mr. Zoller's actual target STI, as determined in his employment agreement is NIS 2.5 million (approximately $781,000).

Raviv Zoller's STI for 2021: Mr. Zoller's annual STI for 2021 was calculated in accordance with the CEO STI formula described above. Mr. Zoller's STI payout for 2021 was NIS 3.25 million (approximately $1 million) and reflects a combined performance of 130% with respect to all of his formula components.

Kobi Altman's STI for 2021: Mr. Altman's STI payout for 2021 was NIS 1.49 million (approximately $468,000) and reflects a combined performance of 104.1% with respect to all of his formula components. This payout was determined based on ICL's adjusted net income and operating Income against budget (30% weight), other measurable financial and non-financials goals against budget (40% weight) and a qualitative evaluation of Mr. Altman's performance during 2021 (30% weight).

Ofer Lifshitz' STI for 2021: Mr. Lifshitz' STI payout for 2021 was NIS 1.36 million (approximately $427,000) and reflects a combined performance of 110.1%. This payout was determined based on ICL's adjusted net income and operating income against budget (30% weight), other measurable financial and non-financials goals against budget (40% weight) and a qualitative evaluation of Mr. Lifshitz' performance during 2021 (30% weight).

Mrs. Tal-Ktalav's STI for 2021: Mrs. Tal-Ktalav's STI payout for 2021 was NIS 1.19 million (approximately $375,000) and reflects a combined performance of 118.7%. This payout was determined based on ICL's adjusted net income and operating income against budget (30% weight), Other measurable financial and non-financials goals against budget (40% weight) and a qualitative evaluation of Mrs. Tal-Ktalav's performance during 2021 (30% weight).

Mr. Aharonson's STI for 2021: Mr. Aharonson's STI payout for 2021, for the respective portion of the year he had worked for the Company, was NIS 0.89 million (approximately $285,000) and reflects a combined performance of 114.1%. This payout was determined based on ICL's adjusted net income and operating income against budget (30% weight), Other measurable financial and non-financials goals against budget (40% weight) and a qualitative evaluation of Mr. Aharonson's performance during 2020 (30% weight).

C. BOARD PRACTICES

Board of Directors

According to our Articles of Association, we must have no less than seven and no more than twenty directors on our Board of Directors (including our external directors). Our directors (other than our external directors) are typically elected by our shareholders at our annual general meeting of shareholders. Our Board of Directors is also authorized to appoint directors to fill vacancies or for any other reason. Each of our directors, other than our external directors, serves from the date of election or appointment until our next annual meeting of shareholders. According to our Articles of Association, the majority of our Board of Directors must be both citizens and residents of Israel. The approval of at least a majority of the voting rights represented at a shareholders' meeting and voting on the matter is generally required to remove any of our directors from office (other than external directors as detailed below).

As of the date of this Annual Report, our Board of Directors consists of eleven directors. In the event of equal votes of our Board of Directors, our Chairman of the Board has the right to cast the deciding vote.

Dr. Miriam Haran and Ms. Dafna Gruber serve as "external directors" according to the Companies Law. Messrs. Lior Reitblatt and Gadi Lesin and Ms. Tzipi Ozer Armon qualify as independent directors, as defined in the Companies Law. Board members Mses. Tzipi Ozer Armon, Miriam Haran and Dafna Gruber, as well as Messrs., Reem Aminoach, Lior Reitblatt and Gadi Lesin qualify as independent directors under the rules applicable to U.S. companies listed on the NYSE. Board members Messrs. Yoav Doppelt, Aviad Kaufman, Sagi Kabla, Avisar Paz and Ovadia Eli are not considered independent directors by virtue of the positions they hold, or previously held, with our controlling shareholder's group. We do not have service agreements with our current directors, excluding our Executive Chairman of the Board, Mr. Yoav Doppelt.

Board Composition

The Company's Board of Directors has adopted an outline for institutionalizing and improving the structure and composition of the Board of Directors, reflecting, among other things, the Company's ambition to maintain a diverse composition of its board of directors, which represents diverse backgrounds, expanding skillsets and experience, and encompasses a wide range of special expertise and, such as high-level managerial experience in a complex organization; strong global experience; skills and experience in dealing with complex issues; experience with strategy setting; experience in managing global businesses, working with emerging markets and business development experience in high-volume businesses; experience in corporate governance, risk management and regulation, and gender diversity. The aforementioned outline also includes guiding principles for the appointment of external directors in the Company. In addition, the Company strives that its board of directors will be comprised of directors which have following characteristics: industry experts; corporate governance expertise; environmental, biodiversity and climate expertise; logistics and operational expertise; safety expertise, etc. Accordingly, the Company strives to integrate within its board, directors with expertise in such areas, whether with new appointments or upon replacement of a directors' vacant position.

Board Effectiveness Review

In 2020-2021, our board of directors underwent an evaluation of the business effectiveness of the board's work, which was conducted by one of the big four global accounting firms, pursuant to which the external consultants pointed out opportunities for improvement in relation to the best global practice in the field. The process included a review of the background materials and minutes of the board's discussions, interviews with a variety of company directors and officers, anonymous questionnaires to the board members regarding work practices, etc. The effectiveness assessment was done in accordance with a global methodology, and in relation to best practices and international corporate governance standards. According to such methodology the results of the assessment indicated a very high maturity level of the board of directors. The board of directors analyzed the findings of the assessment and the opportunities for improvement and created, with the assistance of the external consultants, and in collaboration with the Company and corporate secretariat, a mitigation plan for improvement of the effectiveness. Most of the items were already implemented or are in working progress.

Following the external process for evaluating the effectiveness as described above, the board decided to adopt a tool that will allow it to independently self-assess its effectiveness over time. The tool was designed together with the abovementioned external firm and combines both business focus and comparison with leading global practices, while managing resources efficiently to achieve actual results. In February 2022 the board of directors launched the periodical review.

New Directors On-boarding & Directors' Trainings

The Company has a tailored and robust onboarding program for new directors, aimed to familiarize the new directors with key topics, ranging from the board's structure, governance and responsibilities, the Company's organizational structure, the Company's strategic objectives and key performance indicators (KPIs), the Company's business environment and market overview, financial reporting, legal proceedings, etc. The program is formalized and tailored to take into account the unique backgrounds, experiences and expected committee responsibilities of each new director. The program includes an educational effort of the Company's public disclosures, including website, regulatory filings and governance documents investor presentations, annual and long-term budget materials, etc. In addition, we schedule meetings for the new directors with other directors, key executives and business leaders to gain business insights about the Company, and the culture of the board and how it operates. Additional onboarding activities (such as site visits) are calendared throughout the year to foster an ongoing onboarding program.

The board operates according to annual and long-term plans, which include, among other things, trainings on various issues (such as climate change, sustainability, governance, compliance, HR & people trends, etc.), in addition to educational sessions on the business environment, our products, competition view, etc.

External Directors

As a public Israeli company, we are required by the Companies Law to have at least two external directors who meet certain independence criteria to ensure that they are not related to the Company or to our controlling shareholder. The definition of an "external director" or "independent director" under the Companies Law and the definition of an "independent director" under the NYSE rules are very similar, and thus, we would generally expect a director who qualifies as one to also qualify as the other. However, since the definitions provided in Israeli law and U.S. law are not identical, it is possible for a director to qualify as one but not necessarily as the other.

An external director is required to have either financial and accounting expertise or professional qualifications, as defined in the relevant regulations promulgated under the Companies Law, and at least one of the external directors is required to have financial and accounting expertise. Our external directors, Ms. Dafna Gruber and Dr. Miriam Haran, have financial and accounting expertise as defined in the Regulations. An external director is entitled to reimbursement of expenses and compensation as provided in the Compensation Regulations promulgated under the Companies Law but is otherwise prohibited from receiving any other compensation from us, directly or indirectly, during his or her term of office and for two years thereafter.

Under the Companies Law, external directors must be elected at a shareholders' meeting by a simple majority of the votes cast, provided that either of the following conditions is met: (i) such majority includes a majority of the votes cast by non-controlling shareholders and shareholders who do not have a personal interest in the election (excluding a personal interest that did not result from the shareholder's relationship with the controlling shareholder), excluding abstentions, or (ii) the votes cast by non-controlling shareholders and shareholders who do not have a personal interest in the election opposing the election (excluding a personal interest that did not result from the shareholder's relationship with the controlling shareholder) did not exceed 2% of our aggregate voting rights. Generally, external directors may serve for up to three terms of three years each, and as a company whose shares are traded on the NYSE, our Audit and Accounting Committee and Board of Directors may nominate external directors for additional three-year terms under certain circumstances for election by the shareholders by the same majority required for election of an external director as described above. Even if an external director is not nominated by our Board of Directors for reelection for a second or third term, an external director may be nominated for reelection for up to two additional three year terms, by (i) one or more shareholders holding at least 1% of our voting rights (provided the external director is not an "affiliated or competing shareholder", or a relative of such a shareholder, at the time of the appointment, and is not "affiliated" with such a shareholder at the time of the appointment or within the two years preceding the date of appointment, as such terms are defined in the Companies Law). In such circumstances, the reelection of the external director requires the approval of our shareholders by a majority of the votes cast by non-controlling shareholders and shareholders who do not have a personal interest in the election (excluding a personal interest that did not result from the shareholder's relationship with the controlling shareholder and excluding abstentions) and the votes cast by such shareholders approving the reelection must exceed 2% of our aggregate voting rights; and (ii) the external director him or herself, in which case the election by the shareholders is by the same majority required for the initial election of an external director, as described above. The term of office of an external director may be terminated prior to expiration only by a shareholder vote, by the same threshold required for election, or by a court, but in each case only if the external director ceases to meet the statutory qualifications for election or if the external director breaches his duty of trust to us.

Under the Companies Law, each committee of the Board of Directors that exercises power of the Board of Directors must include at least one external director and all external directors must be members of the Company's Audit Committee and Compensation Committee.

As of the date of this Annual Report, we have two external directors: Dr. Miriam Haran, whose first three-year term commenced on July 14, 2021, and Ms. Dafna Gruber, whose first three-year term commenced on January 27, 2022.

Financial Experts

Our Board of Directors has resolved that at least three of its members must have financial and accounting expertise, as this term is defined in regulations promulgated under the Companies Law. Our Board of Directors has further determined, based on qualification statements delivered to the Company, that nine out of our eleven serving directors meet the said expertise requirements (For further details see "Item 6 - Directors, Senior Management and Employees — A. Directors and Officers".

In addition, our Board of Directors has determined that all members of our Audit and Accounting Committee are financially literate for purposes of meeting the NYSE rules are qualified to serve as "Audit Committee Financial Experts" as defined by SEC rules.

Alternate Directors

Our Articles of Association, consistent with Israeli law, provide that any director may appoint another person who is not a director or serving as an alternate director (or, in the case of an alternate director for a member of a committee of the Board of Directors, another director, provided the alternate director does not serve as a member of such committee) to serve as his alternate director, subject to the approval of the Board of Directors. A person who is not qualified to be appointed as an independent director, pursuant to the Companies Law, may not be appointed as an alternate director of an independent director qualified as such under the Companies Law. The term of an alternate director can be terminated at any time by the appointing director or the Board of Directors and automatically terminates upon the termination of the term of the appointing director. An alternate director has the same rights and responsibilities as a director, except for the right to appoint an alternate director. No alternate director was appointed during the reported period.

Our Board Committees

Our Board of Directors has established the following committees, which operate in accordance with written charters or procedures that set forth, among other things, such committee's structure, manner of operations, qualification and membership requirements, responsibilities and authorities, etc.

Audit and Accounting Committee

Under the Companies Law, the Board of Directors of a public company must establish an Audit Committee. The Audit Committee must consist of at least three directors who meet certain independence criteria and must include all of the Company's external directors. The Chairman of the Audit Committee is required to be an external director. The responsibilities of an Audit Committee under the Companies Law include identifying and addressing flaws in the business management of the Company, reviewing and approving interested party transactions, establishing whistleblower procedures, overseeing the Company's internal audit system and the performance of its internal auditor, and assessing the scope of the work and recommending the fees of the Company's independent accounting firm. In addition, the Audit Committee is required to review and determine whether certain actions and transactions with a controlling shareholder or with a company officer are "material" or "extraordinary" and whether they are negligible according to the approval procedures required under the Companies Law and Company procedures.

In accordance with U.S. law and the NYSE requirements, our Audit and Accounting Committee is also responsible for the appointment, compensation and oversight of the work of our independent auditors. In accordance with such laws and rules and the Companies Law and regulations promulgated thereunder, the Audit and Accounting Committee is also responsible for assisting our Board of Directors in monitoring our financial statements, the effectiveness of our internal controls and our compliance with legal and regulatory requirements.

As of the date of this Annual Report, our Audit and Accounting Committee consists of four directors, composed of our two external directors: Dr. Miriam Haran (Chairman until May 2022), Ms. Dafna Gruber (will replace Dr. Haran as Chairman as of May 2022), and two independent director: Mr. Lior Reitblatt and Mr. Gadi Lesin. In addition to meeting the requirements of Israeli law, our Audit and Accounting Committee also complies with the requirements applicable to U.S. companies that are listed on the NYSE and with SEC rules. All members of our Audit and Accounting Committee are also independent directors as such term is defined in SEC rules and the NYSE listing requirements. Our Board of Directors has determined that all the members of the Audit and Accounting Committee are financially literate as provided in the NYSE rules and that Dr. Haran, Ms. Gruber and Messrs. Reitblatt and Lesin qualify as "audit committee financial experts" as defined by SEC rules.

Human Resources and Compensation Committee

Under the Companies Law, the Board of Directors of a public company must establish a Compensation Committee. The Compensation Committee must consist of at least three directors who meet certain independence criteria and include all of the Company's external directors, who are required to constitute a majority of its members. The Chairman of the Compensation Committee must be an external director. The members of the Compensation Committee are remunerated for their service in accordance with the Compensation Regulations governing the compensation of external directors. The responsibilities of a Compensation Committee under the Companies Law include: recommending to the Board of Directors a policy governing the compensation of company officers and directors based on specified criteria, recommending to the Board of Directors, from time to time, updates to such compensation policy and reviewing its implementation; deciding whether to approve transactions with respect to the terms of office and employment of officers and directors which require approval by the compensation committee under the Companies Law, including approving, under certain circumstances, an exemption from shareholder approval of the terms of a candidate for chief executive officer who meets certain non-affiliation criteria, in accordance with the provisions of the Companies Law.

Our HR & Compensation Committee also oversees the Company's bonus and equity plans, evaluation of top management and employees, succession planning and so forth.

Our HR & Compensation Committee consists of three directors, composed of our two external directors: Dr. Miriam Haran (Chairman), Ms. Dafna Gruber, and one independent director, Mr. Lior Reitblatt. All members of our HR & Compensation Committee are also independent directors as such term is defined in the NYSE listing requirements and SEC rules.

Safety, Environment, Climate, Diversity, Inclusion and Public Affairs Committee

Our Safety, Environment Climate, Diversity, Inclusion and Public Affairs Committee is not a statutory committee, and is designed to assist our Board of Directors in fulfilling its responsibilities with respect to oversight of our safety, environment, and climate related risks and opportunities policies and programs, our community outreach programs and public relations and advocacy and diversity and inclusion aspects in the Company. This Committee is not authorized to exercise any power of our Board of Directors and has advisory authority only. The committee consists of five directors: Dr. Miriam Haran (Chairman), an environmental expert, whom is also the responsible director for diversity and inclusion issues on behalf of the Board of Directors, Mr. Reem Aminoach, Mr. Ovadia Eli, Mr. Sagi Kabla and Mr. Gadi Lesin.

Operations Committee

Our Operations Committee is not a statutory committee and is designed to assist our Board of Directors in fulfilling its responsibilities with respect to business operations and strategy implementation, including reviewing M&A transactions and research and development strategy. Our Operations Committee is not authorized to exercise any power of our Board of Directors and has advisory authority only. The committee consists of seven directors: Mr. Yoav Doppelt (Chairman), Mr. Avisar Paz, Mr. Sagi Kabla, Mr. Ovadia Eli, Mr. Reem Aminoach, Mr. Lior Reitblatt and Mr. Gadi Lesin.

Financing Committee

Our Financing Committee is not a statutory committee, and its purpose is to assist our Board of Directors in fulfilling its responsibilities with respect to our financing and equity management and operations, including loans, equity offerings, hedging, debt and other financing vehicles. Our Financing Committee is not authorized to exercise any power of our Board of Directors and has advisory authority only. The Financing Committee consists of four directors: Mr. Sagi Kabla (Chairman), Mr. Avisar Paz, Mr. Aviad Kaufman and Mr. Lior Reitblatt.

Internal Auditor

Under the Companies Law, the Board of Directors of a public company is required to appoint an Internal Auditor pursuant to the recommendation of the Audit Committee. The role of the Internal Auditor is to examine, among other things, whether the Company’s actions comply with applicable law, Company procedures and proper business procedures. Under the Companies Law, the Internal Auditor may not be an interested party (as defined in the Companies Law), a director or an officer of the Company, or a relative of any of the foregoing, nor may the Internal Auditor be the Company’s independent auditor or a representative thereof.

As of the time of this Annual Report, our Internal Auditor is Mr. Amir Meshulam, a certified public accountant in Israel, holds an LLB from the College of Management and is a member of the Israel Bar. His education, skills and experience were among the Board of Directors’ considerations in approving the appointment. Mr. Meshulam has served in this position since August 2018. He is a Company employee, and reports to the Executive Chairman of the Board of Directors.

Our Internal Auditor oversees the work of various internal auditors acting on his behalf throughout the organization.

He acts in accordance with the defined Internal Audit Charter and obligated to comply with IIA Standards. He holds periodical meetings with the Audit Committee, without management present, as often as deemed necessary, and at least once a year. In addition, the Internal Auditor holds monthly meetings with our Executive Chairman of the Board and with the Chairman of the Audit Committee.

The internal audit's annual and multi-year work plans are risk-based plans. They have been designed based on a global risk assessment, and were examined against industry standards and benchmark. The plans are reviewed and approved by the Audit Committee and the Board of Directors. In addition, a high-level risk assessment is carried out annually and the audit plan is reassessed and approved.

Insurance and indemnification

The Articles of Association of the Company and its Israeli subsidiaries include provisions that permit exemption, indemnification and insurance of the liability of officers, all in accordance with the provisions of the Companies Law.

The Company, with the approval of HR & Compensation Committee, the Board of Directors and the General Meeting of the shareholders, granted its officers a letter of exemption and indemnification, and also maintains an insurance policy covering directors' and officers' liability. The directors' and officers' liability insurance and the exemption and indemnity undertaking do not apply to those cases specified in Section 263 of the Companies Law. The exemption relates to damage caused and/or will be caused, by those officers as a result of a breach of the duty of care to the Company. Regarding directors who are office holders of Israel Corp., who may serve from time to time, on January 5, 2021, the General Meeting of the shareholders approved to extend the period for exemption and indemnification entered into with such office holders, for an additional 9 years, commencing November 30, 2020, provided that the exemption shall not apply to liabilities arising in connection with a transaction or resolution in which a controlling shareholder or an office holder, including an office holder who is other than the office holder party to the agreement, has a personal interest. The amount of the indemnification payable by the Company under the letter of indemnification, in addition to amounts received from an insurance company, if any, for all of the officers on a cumulative basis, for one or more of the events detailed therein, is limited to $300 million. The insurance is renewed annually.

D&O Framework Transaction

On January 30, 2020, the Company's shareholders approved a three-year framework transaction which enables the Company to purchase, from time to time, directors' and officers' liability insurance policies for a two tier coverage of directors' and officers' liability, including a joint tier with Israel Corp., beginning February 1, 2020 (the "Framework Transaction"). The insurance policies under the Framework Transaction include a joint primary tier with Israel Corp. with a joint liability cap of up to $20 million, and a separate tier covering the Company alone, with a liability cap of up to $330 million, with a total liability limit of up to $350 million for both tiers. Our directors and officers are beneficiaries of both tiers. Pursuant to the Framework Transaction, the cost of the annual premium shall not exceed a cap of $10 million for both tiers. The division of the premium amount between the Company and Israel Corp. in the joint tier are 80% to be paid by the Company and 20% by the Israel Corp, and the HR & Compensation Committee and the Board of Directors have the authority to change, from time to time, the premium allocation in respect of the joint tier between the companies, according to the recommendation of the insurers and/or brokers, and provided that such changes will not exceed 25% over the entire transaction period. Deviation from these limits shall require shareholder approval. In accordance with the terms of the Framework Transaction and the Company's Compensation Policy, the Company's directors' and officers' liability insurance policy for 2021, was approved by the Company's authorized organs, effective as of March 2021. The 2021 directors' and officers' liability insurance policy includes a liability limit of US$116 million for both tiers (comprised of a limit of $40 million, with an additional coverage Side A (directors and officers only) limit of $76 million). The Company is acting to renew its directors' and officers' liability insurance policy for 2022, effective as of March 2022, with similar terms to the terms of the 2021 directors' and officers' liability insurance policy and subject to the terms of the framework transaction.

Other Information

We have not engaged in any arrangements with directors providing for benefits upon termination of employment, with the following exceptions: (1) Mr. Yoav Doppelt's current termination arrangements include continued vesting of LTI grants for a period of 12 months following termination of employment. Notwithstanding the foregoing, subject to the approval by our shareholders at the Annual General Meeting expected to take place on March 30, 2022, of Mr. Doppelt's amended terms of compensation, as well as the Company's new compensation policy, in the event of termination of Mr. Doppelt's term of office as Executive Chairman of the Board, he will be entitled to a six-month adjustment period and six month advance notice period, during both of which he will continue to be entitled to all of his compensation terms, including STI payouts and continued vesting of his existing LTI plans. In addition, Mr. Doppelt will be entitled to an additional severance payment by the Company, in addition to the mandatory severance payment, equal to his last monthly salary multiplied by the number of years that he was employed by the Company, serving as its Executive Chairman of the Board (i.e., as of July 1, 2022); (2) In accordance with the Equity Plan, the board members' vesting of Restricted Shares would fully accelerate if the holder thereof ceases to serve as a director of the Company, unless he ceased to hold office due to those certain circumstances regarding early termination of office or imposition of enforcement measures, as set forth in section 231-232a and 233(2) of the Companies Law.

Number of meetings and average attendance rate of the meetings of ICL Board of Directors and its permanent committees

	Number of meetings in reported year	Average Attendance
Board of Directors	18	94%
Audit & Accounting Committee	10	97%
HR & Compensation Committee	7	100%
Financing Committee	3	80%
Operations Committee	2	83%
Safety, Environment, Climate, Diversity, Inclusion and Public Affairs Committee	3	100%

D. EMPLOYEES

As of December 31, 2021, our workforce includes 13,233 employees.

Breakdown of Employees by Segments

	2021	2020	2019
Phosphate Solutions	4,608	4,601	4,867
Potash	2,498	2,491	2,541
Industrial Product	1,595	1,654	948
Innovative Ag Solutions	2,406	994	1,651
Global functions and headquarters	1,162	1,092	1,083
Sub Total	12,269	10,832	11,090
Temporary employees	964	912	1,027
Total employees	13,233	11,744	12,117

Geographic Breakdown of Employees

	2021	2020	2019
Israel	4,462	4,401	4,507
China	1,977	2,048	2,064
Spain	872	868	892
USA	772	716	720
Germany	670	697	858
UK	676	670	658
Netherlands	578	584	584
Brazil	1,644	259	262
France	122	117	119
All other	496	426	523
Sub Total	12,269	10,786	11,187
Temporary employees	964	912	1,027
Total employees	13,233	11,698	12,214

As of December 31, 2021, the Company's workforce comprised of 13,233 employees, compared to 11,744 employees as of December 31, 2020 – an increase of 1,489 employees. This increase is mainly due to the acquisitions of Fertiláqua and ADS.

Employment Agreements, Collective Bargaining Agreements and Temporary Employees

Our employees in Israel are employed under collective or personal employment agreements. The collective bargaining agreements are negotiated and renewed from time to time. By law, if a new collective bargaining agreement is not signed, the terms of the original agreement are extended for an unlimited period, unless one party gives notice to the other of its cancellation. As of the date of publication of this Annual Report, no notice of cancellation had been given for any of the collective bargaining agreements currently in effect at ICL.

The following subsidiaries in Israel have collective bargaining agreements in force up to the to the date indicated next to them: Dead Sea Works ("DSW") (September 2022), Mifalei Tovala (December 2022), TAMI (December 2022), Dead Sea Magnesium (December 2023), Fertilizers and chemicals (December 2023) and Bromine Compounds (March 2025).

During 2021, the labor agreements of both Rotem Amfert and Periclas expired, and the parties are in negotiations on the renewal of the agreements.

Senior employees in Israel serving in special positions and members of management are employed under personal agreements. These agreements are not limited in time and may be terminated with advance notice of a few months.

A small number of employees at ICL's sites in Israel are employed through employment agencies for short terms. In addition, we have contracted in Israel with subcontractors for various outsourcing services such as security, packaging, maintenance projects, catering, cleaning, and other services. In accordance with a decision by ICL's Board of Directors in 2004, contractors who employ workers at ICL's plants in Israel are required to provide their employees who permanently work for ICL holiday gifts and other benefits such as uniforms and meals.

Employees of ICL's subsidiaries outside of Israel are employed according to the employment terms prevailing in the countries in which they are employed. Significant number of the overseas employees, primarily in China, Germany, the Netherlands, the United Kingdom, Spain, and the United States, are employed under collective agreements and/or arrangements.

Under Chinese labor law, it is a mandatory requirement for employers to enter personal labor contracts with their employees. As such, the permanent staff of YPH are employed under respective personal labor contracts. However, under PRC law, employees have the right to establish a labor union to represent their interests and protect their legal rights. YPH has a labor union. The labor union may represent employees in negotiating with their employer for collective agreements regarding remuneration, working hours, work safety, etc. Such collective agreements are mainly used for providing a benchmark for certain working conditions.

ICL companies in Brazil were recently integrated into one organizational structure. ICL employees in Brazil are covered by a collective bargaining agreement with the Labor Council that negotiates annual increases collectively between all the companies. Local ICL agreements exist for each site covering working conditions and benefits. The staff responsible for sales varies according to the company between employees and independent contractors, based on business needs.

Promoting Diversity, Inclusion & Belonging (DIB)

At ICL diversity means understanding, accepting, and valuing differences between people including those of different races, nationalities, religions, gender, ages, disabilities, sexual orientations, and ethnicities, and those with differences in education, personalities, experiences, and knowledge bases.

Inclusion means embracing colleagues who look, act and, importantly, think differently.

We view belonging as a human need, genetically wired in each one of us.

With all our differences, becoming stronger together

As part of our Employer of Choice journey, we have committed to becoming a more inclusive and attentive organization.

One of the key milestones in this important journey is to commit to **ICL's Diversity and Inclusion (D&I) policy**, first formulated in 2020, that will strengthen ICL's direction and provide a measurement for this area.
As part of this process we appointed a **Global ICL D&I officer**. The new role includes responsibility for supporting the Company by developing a D&I culture and improving ICL's D&I measures. We also launched a dedicated and interactive online intranet, (MyCampus), to inform and educate employees on diversity, inclusion and belonging issues.

Initiating Global Membership Catalyst

Catalyst is a global non-profit organization working with some of the world's leading CEOs and companies to help build workplaces that are appropriate for women. With ICL's membership, each of our employees have access to world-class resources that support individual career growth, inclusive leadership skill building, and organizational change efforts at www.catalyst.org.

Educational offerings

During each of our employees' journey, they will learn to understand their biases and how to change their way of thinking to act in an inclusive way.

To achieve this goal, we offer virtual sessions on **Unconscious Bias**, **Understanding Privilege** and **Cultural Awareness,** in addition to short knowledge bursts (e-learning) on "**Leading Your Team in an Inclusive Manner**" or "**Running More Inclusive Meetings**".

Global DIB@ICL ambassadors

40 of our employees around the world have enrolled to become 'Diversity, Inclusion and Belonging Ambassadors'. ICL's ambassadors amplify initiatives developed for the organization.

DIB@ICL Statistics and Trends

Each quarter detailed statistics and trends are produced to help ICL focus on those areas that can contribute the most when addressed.

Talent Development and Learning

Shifts in the world of work and increasing worker expectations are driving organizations to approach talent, development and learning in a more integrated way. Supported by the outcome of the Employer of Choice, as well as by a global survey to measure employee engagement and enablement, we introduced several initiatives during 2021 in learning and development.

ICL's effective leadership is in the core of our business and implemented in all our development offerings. With the **ICL Leadership Model**, we seek to embrace the key qualities and capabilities of an ICL leader, demonstrating and cultivating "**Care, Dare, Grow, and Winning Spirit"** – wherever they are and whatever they do. The model is designed in the shape of ICL's logo to reflect the fact that our leadership model is at the heart of who we are as a company.

From MyCampus@ICL to WeGrow@ICL

Although we maintain the broadly accepted and popular "MyCampus@ICL" platform for learning offerings (primarily for our global events calendar overview and depth information for processes like performance management and ICLeaders), in 2021 we introduced the next generation of learning at ICL. "WeGrow@ICL" is open source, its curated content is powered by AI and based on an up-to-date skills profile that provides real-time insights about workforce skills, beyond their role (role-based skills, personal skills, and strategic, company-wide skills). With WeGrow@ICL we are not only enabling our employees to take their development into their own hands, but we also enable them to upskill, reskill and redefine their roles to better align with their future needs.

Bloomberg's 2022 Gender-Equality Index (GEI)

We strive to promote equality at all ICL's facilities worldwide and committed to ongoing transparency and developing a diverse and inclusive workforce.

We're pleased to be one of the 418 companies included in Bloomberg's 2022 Gender-Equality Index and provide our investors and other stakeholder a greater disclosure around our investments in gender-related practices and policies.

E. SHARE OWNERSHIP

Share-based payments to employees

For information regarding the share-based payments to the Company's employees in the form of non-marketable options and restricted shares of the Company, and for information regarding under the amended 2014 Equity Compensation Plan and the grants in prior years made under the said Plan, see Note 19 to our Audited Financial Statements.

For information with respect to share ownership of members of our Management and Supervisory Boards and our senior management see "Item 7 - Major Shareholders and Related (and Interested) Party Transactions".

Item 7 – MAJOR SHAREHOLDERS AND RELATED (AND INTERESTED) PARTY TRANSACTIONS

A. MAJOR SHAREHOLDERS

The following table presents, as of February 21, 2022 (unless otherwise noted below), the beneficial ownership of our ordinary shares by each person who is known by us to be the beneficial owner of 5% or more of our outstanding ordinary shares and each of our directors and executive officers. The data presented is based on information provided to us by the holders or disclosed in public regulatory filings.

The number of ordinary shares beneficially owned by each entity, person, executive officer or director is determined in accordance with the rules of the SEC and the information is not necessarily indicative of beneficial ownership for any other purpose. Under such rules, beneficial ownership includes any shares over which the individual has sole or shared voting power or investment power as well as any shares that the individual has the right to acquire within 60 days through the exercise of any option, warrant or other right. Except as otherwise indicated, and subject to applicable community property laws, the persons named in the table have sole voting and investment power with respect to all common shares held by that person.

Unless otherwise indicated below, the address for each beneficial owner is c/o ICL Group Ltd., Millennium Tower, 23 Aranha Street, P.O. Box 20245 Tel Aviv, 6120201, Israel.

Shareholders	Ordinary Shares Beneficially Owned(1) Number	%	Special State Share Number	%
Israel Corporation Ltd.(2)	587,178,758	45.62%**	-	-
State of Israel(3)	-	-	1	100%
Migdal Insurance & Financial Holdings Ltd. (4)	78,034,267	6.06%	-	-
Harel Insurance Investments & Financial Services Ltd. (5)	67,348,503	5.23%	-	-
Yoav Doppelt	15,381	*	-	-
Avisar Paz	16,926	*	-	-
Aviad Kaufman	-	*	-	-
Sagi Kabla	-	*	-	-
Ovadia Eli(6)	86,380	*	-	-
Lior Reitblatt(7)	53,629	*	-	-
Reem Aminoach(8)	53,629	*	-	-
Tzipi Ozer Armon(9)	16,220	*	-	-
Gadi Lesin	-	*	-	-
Miriam Haran	53,289	*	-	-
Dafna Gruber	-	*	-	-
Raviv Zoller	-	*	-	-
Aviram Lahav	-	*	-	-
Lilach Geva Harel(10)	422,535	*	-	-
Ilana Fahima(11)	422,535	*	-	-
Eli Amon(12)	344,454	*	-	-
Nitzan Moshe	-	*	-	-
Anantha Desikan(13)	379,644	*	-	-
Noam Goldstein(14)	561,972	*	-	-
Anat Tal-Ktalav(15)	721,387	*	-	-
Amir Meshulam(16)	147,888	*	-	-
Miri Mishor(17)	189,825	*	-	-
Chris Millington	-	*	-	-
Elad Aharonson	-	*	-	-
Meir Mergi	33,356	*	-	-

* Less than 1%

** For further information, please see section (2) below.

(1) The percentages shown are based on 1,287,150,942 ordinary shares issued and outstanding as of February 22, 2022 (after excluding shares held by us or our subsidiaries). In accordance with SEC rules, beneficial ownership includes voting or investment power with respect to securities and includes the shares issuable pursuant to options that are exercisable within 60 days of the date of February 22, 2022. Shares issuable pursuant to options are deemed outstanding for computing the percentage of the person holding such options but are not considered outstanding for computing the percentage of any other person.

(2) Israel Corp. is a public company listed for trading on the Tel Aviv Stock Exchange (TASE). Based on the information provided by Israel Corp., Millenium Investments Elad Ltd. ("Millenium") and Mr. Idan Ofer are considered as controlling shareholders jointly of Israel Corp., for purposes of the Israeli Securities Law (each of Millenium and Mr. Idan Ofer hold shares in Israel Corp. directly, and Mr. Idan Ofer serves as a director of Millenium and has an indirect interest in it as the beneficiary of the discretionary trust that has indirect control of Millenium, as stated below). Millenium holds approximately 44.44% of the share capital in Israel Corp., which holds as of December 31, 2021 approximately 45.62% of the voting rights and approximately 44.76% of the issued share capital, of the Company.

To the best of Israel Corp.'s knowledge, Millenium is held by Mashat (Investments) Ltd. ("Mashat") and by XT Investments Ltd. ("XT Investments"), with 84.73% and 15.27% holding rates in the issued share capital, respectively. Mashat is wholly owned by Ansonia Holdings Singapore B.V. ("Ansonia"). Ansonia is a wholly owned subsidiary of Jelany Corporation N.V., which is wholly owned by Court Investments Ltd. ("Court"). Court is wholly owned by a discretionary trust, in which Mr. Idan Ofer is the beneficiary. XT Investments is wholly owned by XT Holdings Ltd. ("XT Holdings"). To the best of Israel Corp.'s knowledge, ordinary shares of XT Holdings are held in equal shares by Orona Investments Ltd. (which is indirectly controlled by Mr. Ehud Angel) and by Lynav Holdings Ltd. ("Lynav"), which is controlled by a discretionary trust in which Mr. Idan Ofer is the beneficiary. Mr. Ehud Angel holds, among other things, a special share that grants him, inter alia, under certain limitations and for certain issues, an additional vote on the Board of Directors of XT Holdings. Lynav also holds directly 1.25% of the issued share capital of Israel Corp. In addition, Kirby Enterprises Inc., which is to the best of Israel Corp.'s knowledge, indirectly held by the same trust that holds Mashat, in which, as stated, Mr. Idan Ofer is the beneficiary, holds approximately 0.74% of the issued share capital of Israel Corp.. Furthermore, Mr. Idan Ofer holds directly approximately 3.85% of the issued share capital of Israel Corp.

Even though Israel Corp. holds less than 50% of the Company's ordinary shares, it still has decisive influence at the General Meetings of the Company's shareholders and, effectively, it has the power to appoint directors and to exert significant influence with respect to the composition of the Company's Board of Directors

As of December 31, 2021, 184 million ordinary shares have been pledged by Israel Corporation to secure certain liabilities, almost entirely comprised of margin loans with an aggregate outstanding principal amount of $314 million.

(3) For a description of the different voting rights held by the holder of the Special State Share, see "Item 10 - Additional Information— B. Memorandum, Articles of Association and Special State Share — The Special State Share."

(4) Based solely upon and qualified in its entirety with reference to a Schedule 13G filed by Migdal Insurance & Financial Holdings Ltd. ("Migdal") with the SEC on February 2, 2022. According to the Schedule 13G, of the 78,034,267 Ordinary Shares reported as beneficially owned by Migdal (i) 78,034,267 Ordinary Shares are held for members of the public through, among others, provident funds, mutual funds, pension funds and insurance policies, which are managed by direct and indirect subsidiaries of Migdal, each of which subsidiaries operates under independent management and makes independent voting and investment decisions, (ii) 5,574,849 Ordinary Shares are held by companies for the management of funds for joint investments in trusteeship, each of which operates under independent management and makes independent voting and investment decisions, and (iii) 0 are beneficially held for their own account (Nostro account).

(5) Based solely upon and qualified in its entirety with reference to Amendment No.1 to Schedule 13G filed by Harel Insurance Investments & Financial Services Ltd. ("Harel"), with the SEC on January 31, 2022. According to the Schedule 13G, of the 67,348,503 Ordinary Shares reported as beneficially owned by Harel (i) 63,307,104 Ordinary Shares are held for members of the public through, among others, provident funds and/or mutual funds and/or pension funds and/or index-linked securities and/or insurance policies, which are managed by subsidiaries of the Reporting Person, each of which subsidiaries operates under independent management and makes independent voting and investment decisions, (ii) 1,682,923 Ordinary Shares are held by third-party client accounts managed by a subsidiary of Harel as portfolio managers, which subsidiary operates under independent management and makes independent investment decisions and has no voting power in the securities held in such client accounts, and (iii) 2,358,476 Ordinary Shares are beneficially held for their own account (Nostro account).

(6) Includes 77,917 ordinary shares and 8,463 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(7) Includes 45,166 ordinary shares and 8,463 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(8) Includes 55,018 ordinary shares and 289,436 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(9) Includes 8,110 ordinary shares and 8,110 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(10) Includes 422,535 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(11) Includes 422,535 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(12) Includes 55,018 ordinary shares and 289,436 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(13) Includes 379,644 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(14) Includes 561,972 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(15) Includes 87,310 ordinary shares and 634,077 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(16) Includes 147,888 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

(17) Includes 41,937 ordinary shares and 147,888 ordinary shares subject to options that are currently exercisable or will be exercisable within 60 days of the date of the table.

CoB LTI: For information regarding the equity-based incentive grant to our Executive Chairman of the Board, Mr. Yoav Doppelt, for 2019-2021, in the form of options, approved by the General Meeting of shareholders on May 29, 2019, see Note 19 to our Audited Financial Statements. For details regarding the new LTI grant for 2022-2024 in the form of options to Mr. Doppelt that was approved by our HR & Compensation Committee and Board of Directors on January 31, 2022 and February 6, 2022, and on February 8, 2022, respectively, subject to the approval of our shareholders at the annual general meeting expected to take place on March 30, 2022 (the "Meeting"), see Note 19 to our Audited Financial Statements and "Item 6 - Directors, Senior Management and Employees— B. Compensation"

CEO LTI: For information regarding the equity-based incentive grant to our Chief Executive Officer, Mr. Raviv Zoller, for 2019-2021, in the form of options, approved by the shareholders on June 27, 2019, see Note 19 to our Audited Financial Statements. For details regarding the new LTI grant for 2022-2024 in the form of options to Mr. Doppelt that was approved by our HR & Compensation Committee and Board of Directors on January 31, 2022 and February 6, 2022, and on February 8, 2022, respectively, subject to the approval of our shareholders at the Meeting, see Note 19 to our Audited Financial Statements and "Item 6 - Directors, Senior Management and Employees— B. Compensation".

Executive Officers LTI: For information regarding the equity-based grant in the form of options, granted in April 2019 to our executive office holders for the years 2019-2021, see Note 16 to our Audited Financial Statements. For details regarding the new LTI grant for 2022-2024 in the form of options to our executive officers, that was approved by our HR & Compensation Committee and Board of Directors on January 31, 2022 and February 6, 2022, and on February 8, 2022, respectively, see Note 19 to our Audited Financial Statements.

B. RELATED (AND INTERESTED) PARTY TRANSACTIONS

Approval of Related (and Interested) Party Transactions

Approval of Related (and Interested) Party Transactions

Under the Companies Law, an interested party transaction may be approved only if it is for the benefit of the company. A transaction that is not an extraordinary transaction in which a director or officer has a personal interest requires the approval of the Board of Directors, unless the Articles of Association of the company provide otherwise. Our Articles of Association provide that such a transaction, if it does not pertain to a director's or officer's compensation terms, may be approved by any of our Board of Directors, our Audit and Accounting Committee, a disinterested director or officer or a person authorized for this purpose by our Board of Directors. If the transaction is an extraordinary transaction, it must be approved by the Audit and Accounting Committee and the Board of Directors, and, under certain circumstances, by the shareholders of the Company. An "extraordinary transaction" is a transaction other than in the ordinary course of business, other than on market terms or that is likely to have a material impact on the company's profitability, assets or liabilities.

Pursuant to the Companies Law, extraordinary transactions with a controlling shareholder and extraordinary transactions in which a controlling shareholder has a personal interest, require the approval of the Audit Committee, or the Compensation Committee if such transaction is in connection with the terms of employment or service with the company, the Board of Directors and the shareholders of the company (unless a relief exists pursuant to the Israeli relief regulations concerning related parties transactions). The shareholder approval must be by a simple majority of all votes cast, provided that (i) such majority includes a simple majority of the votes cast by shareholders having no personal interest in the matter (excluding abstentions) or (ii) the total number of votes of shareholders mentioned in clause (i) above who voted against such transaction does not exceed 2% of the total voting rights in the company

The Companies Law prohibits any director who has a personal interest in an extraordinary transaction from being present at the discussion and voting on such transaction in the Audit Committee or Board of Directors. Notwithstanding, a director who has a personal interest may be present at the meeting and vote on the matter if a majority of the directors or members of the Audit Committee have a personal interest in the approval of such transaction. If a majority of the members of the Board of Directors have a personal interest in the transaction, such transaction also requires shareholder approval.

Approval of Directors and Officer Compensation

Under the Companies Law, we are required to approve, at least once every three years, a compensation policy with respect to the terms of engagement of our directors and officers. Following the recommendation of our HR & Compensation Committee, the compensation policy must be approved by our Board of Directors and our shareholders. The shareholder approval must be by a simple majority of all votes cast, provided that (i) such majority includes a simple majority of the votes cast by non-controlling shareholders and shareholders having no personal interest in the matter (excluding abstentions) or (ii) the total number of votes of shareholders mentioned in clause (i) above who voted against such transaction does not exceed 2% of the total voting rights in the company, which is referred to as the "Special Majority for Compensation." In general, the compensation terms of directors, the Chief Executive Officer and any employee or service provider who is considered a controlling shareholder, as well as a relative of a controlling shareholder, must be approved separately by the HR & Compensation Committee, the Board of Directors and the Shareholders (unless a relief exists pursuant to the Israeli Relief Regulation concerning Related Parties Transactions). Generally, shareholder approval is not required for director compensation payable in cash up to the maximum amount set forth in the Compensation Regulations governing the compensation of external directors. Generally, the compensation terms of officers who report directly to the Chief Executive Officer (who is not a director) require the approval of the HR & Compensation Committee and the Board of Directors, provided that the HR & Compensation Committee may approve an amendment to an existing arrangement of such an officer if it determines that the amendment is not material compared to the existing terms of compensation.

The Company's current Compensation Policy was approved by the general meeting of our shareholders on June 27, 2019 for a period of three years

According to the Companies Law, a compensation policy for a period exceeding three years requires approval by the Board once every three years, based on a recommendation of the Compensation Committee, as well as approval by the general meeting of shareholders by the Special Majority for Compensation.

On January 31, 2022 and February 6, 2022, our HR & Compensation Committee discussed and recommended the Board of Directors to approve, and on February 8, 2022, our Board of Directors approved, subject to shareholder approval at the annual general meeting of shareholders expected to take place on March 30, 2022, a new compensation policy for the Company (the "Meeting"). If approved by the shareholders at the Meeting, the New Compensation Policy shall be in effect as of the date of the Meeting, for a period of three consecutive years.

Related (and Interested) Party Transactions

Registration Rights Agreement

We entered into a registration rights agreement with Israel Corp. on September 12, 2014. We obtained shareholder approval of our entry into this agreement on May 8, 2014. This agreement provides for customary demand, piggyback and shelf registration rights and provides that we will perform various actions and comply with various requirements to facilitate and promote such registrations, as well as cover certain expenses of Israel Corp. in connection with any such registration.

Controlling Shareholder

As of December 31, 2021, Israel Corporation holds approximately 44.76% of our outstanding ordinary shares and approximately 45.62% of the voting rights of our shareholders.

Israel Corp. exercises control over our operations and business strategy and has sufficient voting power to control many matters requiring approval by our Shareholders, including:

- The composition of our Board of Directors (other than external directors, as described under "Item 6 - Directors, Senior Management and Employees— C. Board Practices— External Directors");
- Mergers or other business combinations;
- Certain future issuances of ordinary shares or other securities; and
- Amendments to our Articles of Association, excluding provisions of the Articles of Association that were determined by the Special State Share.

However, Israel Corp. does not exercise control with respect to our compensation policy and interested party transactions, since these must be approved by a majority of our non-related shareholders.

Joint Insurance

For information regarding the Company's engagement in a directors’ and officers’ liability insurance policy, including with respect to the joint primary tier with Israel Corp., see "Item 6 – Directors, Senior Management and Employees – C. Board Practices – Insurance and Indemnification."

Management Fees to Controlling Shareholder

We pay our parent company, Israel Corp., annual management fees for management services, which include service of board members and ongoing general consulting services, such as professional, financial, strategic, legal and managerial advice. The parties may agree to expand the management services to additional areas.

On November 9, 2020, November 11, 2020, and January 5, 2021, our Audit and Accounting Committee, Board of Directors and shareholders, respectively, approved the renewal of the management services agreement effective as of January 1, 2021, for an additional term of three years, expiring on December 31, 2023. According to the renewed management services agreement, the annual management fee to be paid to Israel Corp. for each calendar year shall continue to be $1 million plus VAT, payable on a monthly basis. Such amount includes the overall value of the cash and equity compensation for the service of our directors who are office-holders of Israel Corp. (except for the separate compensation arrangement between the Company and our Executive Chairman of the Board, Mr. Yoav Doppelt, as approved by our shareholders in May 2019, and as may be amended by shareholder approval from time to time). The Audit & Accounting Committee will continue to annually examine the reasonableness of the management fees paid in the previous year against the management services actually provided by Israel Corp. to the Company in the same year. Nevertheless, the Company and Israel Corp. have agreed, subject to the approval by the shareholders at the annual general meeting of our shareholders expected to take place on March 30, 2022, of the amended compensation terms of Mr. Yoav Doppelt, the Executive Chairman of our Board of Directors, to terminate the Management Agreement effective as of July 1, 2022, following which directors who are office holders of Israel Corp. (other than Mr. Yoav Doppelt), namely Mr. Aviad Kaufman and Mr. Sagi Kabla, shall begin to be paid the Director Cash Compensation.

Relationships with Other Companies

Gas Purchase Agreement: For details regarding the gas purchase agreement with Energean PLC and the continuous delays in supply of natural gas pursuant to the agreement following their force majeure announcement, as well as the Bridge Agreement with Tamar Field in Israel, see Note 18 to our Audited Financial Statements and “Item 3 - Key Information— D. Risk Factors - Our operations could be adversely affected by price increases or shortages with respect to water, energy and our principal raw materials".

Other Immaterial Transactions in the Ordinary Course of Business: The Company further engages, from time to time, in its ordinary course of business, in various transactions with related parties, such as purchase of marine transportations services, sale of products, purchase of raw materials for its operations, receipt of banking services, etc. We do not deem these transactions as material for the Company, they are not viewed as unusual in their nature or conditions and they are all classified as "ordinary" transactions under Israeli law and approved according to the Company's relevant procedures and according to any and all applicable laws.

The table below sets forth certain income statement information with respect to balances of our related party transactions.

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Sales	7	3	4
Cost of sales	6	3	8
Selling, transport and marketing expenses	13	7	10
Financing expenses (income), net	(2)	(1)	(1)
General and administrative expenses	1	1	1
Management fees to the parent company	1	1	1

The table below sets forth certain balance sheet information with respect to balances of our related party transactions

	As of December 31	
	2021	2020
	$ millions	$ millions
Other current assets	40	35
Other current liabilities	4	2

For further information regarding our related party transactions, see Note 23 to our Audited Financial Statements.

Option Plans

For a description of the Option Plans see "Item 6 - Directors, Senior Management and Employees—E. Share Ownership".

C. INTERESTS OF EXPERTS AND COUNSEL

Not Applicable.

Item 8 – FINANCIAL INFORMATION

A. CONSOLIDATED STATEMENTS AND OTHER FINANCIAL INFORMATION

The fixed operating costs for the years ended December 31, 2021, 2020 and 2019 amounted to approximately $2,465 million, $2,349 million and $2,316 million, respectively. The variable operating costs for the years ended December 31, 2021, 2020 and 2019 amounted to approximately $3,279 million, $2,492 million and $2,199 million, respectively.

See "Item 18 - Financial Statements".

Business Concentration Law

On December 11, 2013, the Law for Encouragement of Competition and Reduction of Business Concentration, 5774-2013 (the "Business Concentration Law"), was enacted, which includes, among other things, provisions requiring regulators authorized to grant rights in areas defined as essential infrastructure in Israel, to take into account considerations for encouraging industry-wide competition and reducing business concentration in the overall economy prior to granting rights in public assets to private entities defined as high-concentration entities. The Business Concentration Law sets forth a list of "rights", including authorization, license, concession or permit and a contract, and also includes a list of matters defined as an essential infrastructure, including areas in which we are engaged, such as quarrying, mining, water, etc. The list of high-concentration entities was published in accordance with the criteria provided in the Business Concentration Law, and ICL and its main subsidiaries in Israel are included therein, as aforesaid. In our estimation, inclusion of the Company and its main subsidiaries in Israel in the list of high-concentration entities is not expected to have a significant adverse effect on us and our financial results. However, in light of the frequent changes in the regulatory environment in Israel and the existing uncertainty regarding the manner of granting rights in natural resources in a manner other than that provided in current legal provisions, among other things in relation to the manner of granting a concession for minerals extraction from the Dead Sea in 2030, as well as in relation to the granting of phosphate mining licenses, under the provisions of the Israel Mining Ordinance, it is possible that our estimation will prove to be inaccurate.

Price Monitoring

The prices of fertilizer-grade phosphoric acid for local Israeli customers are regulated under the Supervision of Prices for Commodities and Services Law 1996. The quantity of these products sold in Israel by the Phosphate Solutions segment is not material to ICL.

In the United States and Brazil, the main markets in which ICL Magnesium sells its products, imports of magnesium and magnesium alloys from China are subject to anti-dumping duties.

ICL and some of its subsidiaries have been declared a monopoly in Israel in the following areas: potash, phosphoric acid, sulphuric acid, ammonia, chemical fertilizers, phosphate fertilizers, phosphates, bromine and bromine compounds. Due to their having been declared monopolies, ICL and its subsidiaries are subject to limitations set forth in Chapter 4 of the Economic Competition Law, 1988 (formerly, Restrictive Business Practices Law, 1988), most significantly its prohibition on monopolies against abusing their positions as monopolies. In 2021 and 2020 approximately 4% and 5%, respectively of our revenue derived from Israeli sales and, therefore, in our estimation, and without derogating from the legal implications of the above-mentioned declaration, on the whole, the said declaration does not have a material impact on us. We also have an internal antitrust compliance program in place.

Legal Proceedings

Tax Proceedings

For information regarding our tax proceedings, see Note 15D to our Audited Financial Statements.

Derivative Actions

1. On January 10, 2018, an application for certification of a derivative action was filed by a shareholder of Oil Refineries Ltd. ("Bazan") with the Tel Aviv-Yafo District Court, against former and current board members of Bazan, OPC Energy Ltd. OPC Rotem Ltd., OPC Hadera Ltd. and the Company, (hereinafter, jointly: the "Additional Companies"), and against Israel Corporation Ltd., Mr. Idan Ofer and Mr. Ehud Angel (the "Application").

   The Application pertains to gas purchase transactions of the Company, Bazan and OPC, including the intercompany aspects thereof, which include a 2012 transaction involving Bazan for the purchase of natural gas from the Tamar gas field (the "Tamar Transaction"), as well as a transaction for the purchase of natural gas from Energean Israel Limited (the "Energean Transaction"). The Company's engagement in the Energean Transaction was approved at a General Meeting of our shareholders on February 22, 2018.

   The applicant argues that Bazan should have certified the Tamar Transaction as a "Controlling Shareholder" transaction and that the Company and OPC enjoyed Bazan's economic advantages in the Energean Transaction and thus must compensate it. On August 7, 2018, all the defendants filed their responses with the court. On April 15, 2019, the applicant's response was filed. A Preliminary hearing was convened on September 15, 2019. The Evidentiary hearings convened on July 5, 2020, November 25, 2020, June 13, 2021, June 21, 2021, July 7, 2021 and December 9, 2021.

   Subsequently, the applicant will submit its closing arguments until March 15, 2022 and the Company will submit its closing arguments until June 1, 2022. The applicant will respond to the Company's closing arguments until July 1, 2022.

   Since the derivative motion was filed on behalf of Bazan, and the applicant didn't include any specific amount of damages allegedly caused by the Company, it is challenging to provide an estimate with regard to the action's chances and risks. However, we believe that as long as the factual and circumstantial settings that were provided to us by your company are correct and will be proved in court, the Company has solid defense arguments that can potentially dismiss the derivative motion.

Other Claims

1. According to the announcement issued by the Company on May 10, 2017, ICL Europe Coöperatief U.A. ("ICL Europe"), a subsidiary of the Company, filed a Notice of Arbitration against the Federal Democratic Republic of Ethiopia ("Ethiopia") under the Agreement of Encouragement and Reciprocal Protection of Investments between Ethiopia and the Kingdom of the Netherlands ("the Ethiopia- Netherlands BIT"). A three-member arbitration tribunal ("Tribunal") was constituted under the Arbitration Rules of the United Nations Commission on International Trade Law ("UNCITRAL Rules") to hear the case, which is being administered by the Permanent Court of Arbitration located in The Hague, the Netherlands. Following ICL Europe's filing of Notice of Arbitration on May 10, 2017 and Ethiopia's response thereto on June 12, 2017, ICL Europe submitted to the Tribunal on June 19, 2018, its Statement of Claim seeking compensation in the amount of $181 million plus interest for damage its claims as a result of Ethiopia's coercive, arbitrary, discriminatory and unlawful conduct, culminating in the imposition without legal basis of a purported tax on ICL Europe's indirectly owned Ethiopian company, Allana Potash Afar Plc, and Ethiopia's violation of multiple provisions of the Ethiopia- Netherlands BIT, including the requirements to accord fair and equitable treatment to ICL Europe's investment, to provide full protection and security to ICL Europe's investment and not to expropriate unlawfully ICL Europe's investment. Ethiopia submitted to the Tribunal on October 19, 2018, its Statement of Defense and Objections to Jurisdiction. Among other things, Ethiopia argues that ICL Europe failed to make its investment in compliance with Ethiopian law and that the Tribunal lacks jurisdiction under the Ethiopia-Netherlands BIT as a result, that the challenged tax was lawful and does not provide a basis for presenting a claim under the Ethiopia- Netherlands BIT and that ICL terminated its investment for reasons unrelated to any of the alleged unlawful acts and omissions of Ethiopia. On August 12, 2019, ICL submitted its Reply in support of its claims against Ethiopia and in response to which Ethiopia submitted on November 25, 2019 its Rejoinder. Due to the emergence of the COVID-19 pandemic the Tribunal decided on June 19, 2020 that the hearing would proceed in two phases, in August and December 2020, with the first phase to proceed by videoconference and with the examination of Ethiopia's fact witnesses deferred to the second phase of the hearing. On August 13, 2020, the first phase was completed and on December 8, 2020, the second phase was completed (also by videoconference). On July 9, 2021, the arbitration tribunal rendered its award. Despite indications that Ethiopia's tax assessment was flawed, the tribunal interpreted the BIT as significantly limiting the BIT's protections in relation to disputes regarding taxation. Among other things, this had the significant effect of precluding ICL Europe's claims that Ethiopia violated the requirement to accord fair and equitable treatment to ICL Europe's investments in Ethiopia. Consequently, the tribunal rejected ICL Europe's claims and ordered ICL Europe to pay an amount of approximately $2.5 million as reimbursement of arbitration costs in accordance with the applicable arbitration rules. Since 2017, Allana Afar is not included in ICL's consolidated financial statements. This award does not have a material impact on the Company's Financial Statements.

2. The Inter-Ministry Directors General Committee recommendations on the Haifa Bay: In connection with our subsidiary, Fertilizers & Chemicals (F&C), on April 26, 2021, the Inter-Ministry Directors General Committee published its recommendations on the Haifa Bay, which aim to promote and develop the Haifa Bay area and realize its potential by rezoning of the Bay and determining land designations that will enable the development of the area for the welfare of its residents and end all petrochemical industry and the fertilizers plants within a decade. The Committee recommended the establishment of a government team with the aim of negotiating with companies operating in the Haifa Bay, including F&C, in order to reach renewed agreements regarding the possibility of changing their operations in Haifa Bay, as part of the aforesaid land rezoning, by way of mutual collaboration and by trying to achieve the purpose of the engagement with them, and if possible, in a way that is as compatible as possible with the needs of the employees and the interests of the companies.

   In February 2022, the Company received a draft government decisions proposal regarding the advancement of a strategy for the development and promotion of Haifa Bay in Israel (hereinafter – the draft).

In accordance with the draft, it was suggested to decided, among other things, on the establishment of an inter-ministerial team to negotiate the outline for ceasing the industry's activities in Haifa Bay with the relevant companies, including ICL and to impose on the Commissioner for Budgets to offer sources of funding for the entire project. In connection with the negotiations with ICL, it was proposed that the team deliberate with the Company on relocating the industrial activity to another site, as much as possible by 2025.

In light of the preliminary stage of the recommendations and since this is still a draft decision proposal, the Company is unable to assess the consequences and feasibility of the aforesaid

For information regarding significant claims and legal proceeding, which are pending against the Group, see Note 18 to our Audited Financial Statements.

Dividend policy

On February 12, 2020, our Board of Directors resolved to extend the Company's existing dividend policy until further notice, such that our dividend distribution rate shall continue to constitute up to 50% of the Company's adjusted annual net profit. According to the extended policy, dividends will be distributed at a payout ratio of up to 50% of annual adjusted net income, as expected at the date of the decision regarding the distribution, and subject to applicable law. In addition, dividends will be paid inasmuch as declared by our Board of Directors and may be discontinued at any time. Such changes could include either a reduction in the amount of the targeted dividend, or modification of the calculation formula.

All decisions respecting dividend distribution are made by our Board of Directors, which considers a variety of factors, including our profits, ability to pay our debt and obligations, investment plans, financial state and other factors, as applicable. The distribution of a dividend is not assured, and our Board of Directors may decide, at its sole discretion, at any time and for any reason, not to distribute a dividend, to reduce the rate thereof, to distribute a special dividend, to change the dividend distribution policy or to adopt a share buy-back plan.

Distributable profits as of December 31, 2021 amounted to $4,061 million. The terms of certain of our existing liabilities require us to maintain a minimum level of the Company's equity, which could restrict our ability to pay dividends in the future. See Note 13D to our Audited Financial Statements for further information regarding covenants in our loan agreements and their impact on our ability to pay dividends. In addition, the distribution of dividends is limited by Israeli law, which permits the distribution of dividends only out of distributable profits and only if there is no reasonable concern that such distribution will prevent us from meeting our existing and future obligations when they become due. Generally, dividends paid by an Israeli company are subject to an Israeli withholding tax. For a discussion of certain tax considerations affecting dividend payments, see "Item 10 - Additional Information— E. Taxation".

B. SIGNIFICANT CHANGES

To the best of our knowledge, no significant changes have occurred since the date of our consolidated financial statements, other than as disclosed in this Annual Report.

Item 9 – THE OFFER AND LISTING

A. OFFER AND LISTING DETAILS

Not applicable.

B. PLAN OF DISTRIBUTION

Not applicable.

C. MARKETS

Our ordinary shares are listed on the NYSE and on the TASE under the symbol "ICL."

D. SELLING SHAREHOLDERS

Not applicable.

E. DILUTION

Not applicable.

F. EXPENSES OF THE ISSUE

Not applicable.

Item 10 – ADDITIONAL INFORMATION

A. SHARE CAPITAL

As of December 31, 2021, our authorized share capital consisted of 1,484,999,999 ordinary shares, par value NIS 1 per share, of which 1,311,740,778 ordinary shares were issued and outstanding (including shares held by us or our subsidiaries), and 1 Special State Share, par value NIS 1 per share, issued and outstanding. All of our outstanding shares have been lawfully issued and are fully paid. As of December 31, 2021, 24,589,836 ordinary shares were held by us or our subsidiaries. Shares acquired by our subsidiaries prior to February 2000 have both economic rights and voting rights. However, in accordance with Israeli law, ordinary shares issued to our subsidiaries or purchased by our subsidiaries after February 2000 have economic rights but not voting rights. Shares held by us have no economic rights or voting rights. Therefore, out of the ordinary shares held by us or our subsidiaries as of December 31, 2021, 24,589,836 have no voting rights.

As of December 31, 2021, an additional amount of approximately 12 million ordinary shares were issuable upon the exercise of outstanding options granted to our officers and employees at a weighted average exercise price of approximately NIS 16.87 (about $5.42) per share. The weighted average exercise price of the outstanding vested options is approximately NIS 14.29 (about $4.59) per share. For further information about the issuance of options and restricted shares to officers and senior employees and their exercise in 2020-2021, see Note 19 to our Audited Financial Statements.

In 2021, approximately 16 million options under our equity compensation plans were exercised into approximately 5 million ordinary shares. In 2020, approximately 1 million options under our equity compensation plants were exercised into approximately 0.1 million ordinary shares. In 2019, approximately 1 million options under our equity compensation plants were exercised into approximately 0.2 million ordinary shares.

B. MEMORANDUM, ARTICLES OF ASSOCIATION AND SPECIAL STATE SHARE

Our shareholders adopted the Articles of Association attached as Exhibit 3.2 to our registration statement on Form F-1 (File no. 333-198711) filed with the SEC on September 12, 2014.

We incorporate by reference into this Annual Report the description of our Amended and Restated Articles of Association, which became effective upon the closing of our initial public offering in the Unites States and listing on the NYSE, contained in Exhibit 2.1 of this Annual Report. Such description sets forth a summary of certain provisions of our Articles of Association as currently in effect.

<u>The Special State Share</u>

The State of Israel holds a nontransferable Special State Share in ICL in order to preserve the State's vital interests. Any change in the provisions of our Articles of Association relating to the rights attached to the Special State Share requires approval from the State of Israel. The Special State Share grants its holder the rights described below.

The sale or transfer of material assets of the Company or the grant of any other rights in such assets, not in the ordinary course of our business, whether in one transaction or in a series of transactions, shall be invalid, without the consent of the holder of the Special State Share, who may oppose such a transfer of a material asset only if, in its opinion, such transfer is likely to harm one of the "vital interests of the State" as such term is defined in the Article of Association and described below. Restrictions are also imposed on voluntary liquidation, mergers and reorganizations, excluding certain exceptions enumerated in our Articles of Association.

In addition, without the consent of the holder of the Special State Share, any acquisition or holding of 14% or more of our outstanding share capital is not valid. In addition, any acquisition or holding of 25% or more of our outstanding share capital (including an increase of holdings to 25%) is not valid without the consent of the holder of the Special State Share, even if in the past the consent of the holder of the Special State Share had been obtained for ownership of less than 25%. Our Articles of Association set forth procedures required to be followed by a person who intends to acquire shares in an amount that would require the approval of the holder of the Special State Shares. A pledge over shares is treated like an acquisition of shares. As a condition to voting at any shareholder meeting, each interested party in the Company, including a holder of 5% or more of our outstanding shares, is required to certify in writing that the voting power derived from the holding of shares does not require the approval of the holder of the Special State Share or that such approval has been obtained.

In addition to the above, the consent of the holder of the Special State Share is required for the ownership of any shares that grant their holder the right, ability or practical potential to appoint, directly or indirectly, 50% or more of our directors, and such appointments will not be valid as long as such consent has not been obtained.

The holder of the Special State Share has the right to receive information from us, as provided in our Articles of Association. Our Articles of Association also provide that the holder of the Special State Share will use this information only to exercise its rights under the Articles of Association for purposes of protecting the State's vital interests.

Our Articles of Association also impose a periodic reporting obligation on us for the benefit of the holder of the Special State Share, regarding all asset-related transactions approved by our Board of Directors during the three months prior to the date of the report, any changes in share capital ownership and any voting agreements among the Company's shareholders signed during that period.

The following are the "State's vital interests" as defined in our Articles of Association for purposes of the Special State Share:

- To preserve the character of the Company and its subsidiaries, ICL Dead Sea, ICL Rotem, Dead Sea Bromine Company, Bromine Compounds and Tami, as Israeli companies whose centers of business and management are in Israel. In our estimation, this condition is met.

- To monitor the control over minerals and natural resources, for purposes of their efficient development and utilization, including maximum utilization in Israel of the results of investments, research and development.

- To prevent acquisition of a position of influence in the Company or the foregoing Israeli subsidiaries by hostile entities or entities likely to harm the foreign and security interests of the State of Israel.

- To prevent acquisition of a position of influence in the Company or the foregoing Israeli subsidiaries or management of such companies, whereby such acquisition or management may create a situation of significant conflicts of interest likely to harm any of the vital interests enumerated above.

Furthermore, our headquarters and the ongoing management and control over our business activities must be in Israel. The majority of the members of our Board of Directors must be citizens and residents of Israel. In general, meetings of our Board of Directors are to take place in Israel.

Other than the rights enumerated above, the Special State Share does not grant the holder any voting or equity rights.

The State of Israel also holds a Special State Share in the following ICL subsidiaries: ICL Dead Sea, Dead Sea Bromine Company, ICL Rotem, Bromine Compounds, Tami and Dead Sea Magnesium. The rights granted by these shares according to the Articles of Association of these subsidiaries are substantially similar to the rights enumerated above. The full provisions governing the rights of the Special State Share appear in our Articles of Association and in the Articles of Association of the said subsidiaries and are available for the public's review. We report to the State of Israel on an ongoing basis in accordance with the provisions of our Articles of Association.

During the second half of 2018, an inter-ministry team was established, headed by the Ministry of Finance, whose purpose is, among other things, to regulate the authority and supervision in respect of the Special State of Israel Share, as well as reduce the regulatory burden. In 2019, the work of this team was suspended until further notice due to the dissolution of the Knesset and the lack of permanent government. As of the date of this report, the Company is unable to estimate when or whether the team will recommence and what are the implications of this process over the Company, if any. An additional array of regulatory provisions may increase the uncertainty in managing our operations relating to natural resources in Israel and may have a material adverse effect on our business, our financial condition and results of operations.

C. MATERIAL CONTRACTS

Except as otherwise disclosed in this Annual Report, we are not currently, and have not been in the last two years, party to any material contract, other than contracts entered into in the ordinary course of business.

D. EXCHANGE CONTROLS

There are currently no Israeli currency control restrictions on the remittance of dividends, interest or other payments with respect to our ordinary shares to non-residents of Israel or on the proceeds from the sale of the shares, except for shareholders who are subjects of countries that are, or have been, in a state of war with Israel.

E. TAXATION

Israeli Tax Considerations

Taxation of companies in Israel

For information regarding the taxation of companies in Israel, including issues regarding the income tax rates, tax benefits under the Israeli Law for the Encouragement of Capital Investments, the Law for the Encouragement of Industry (Taxation) and the Law for Taxation of Profits from Natural Resources, see Note 15 to our Audited Financial Statements.

Taxation of Investors

The following are material Israeli income tax consequences to investors who acquire and dispose of our ordinary shares. That which is stated below does not purport to be a comprehensive description of all the tax considerations that may be relevant to a particular person's decision to acquire and/or dispose of our ordinary shares.

Capital Gains Tax

Israeli law generally imposes a capital gains tax on the sale of capital assets by residents of Israel, as defined for Israeli tax purposes, and on the sale of capital assets located in Israel, including shares of Israeli companies, by non-residents of Israel, unless a specific exemption is available or unless a tax treaty between Israel and the shareholder's country of residence provides otherwise. The law distinguishes between real gain and inflationary surplus. The inflationary surplus is a portion of the total capital gain that is equivalent to the increase of the relevant asset's purchase price which is attributable to the increase in the Israeli Consumer Price Index or a foreign currency exchange rate between the date of purchase and the date of sale. The real gain is the excess of the total capital gain over the inflationary surplus.

Israeli Residents

Generally, as of January 1, 2012, the tax rate applicable to capital gains derived from a sale of shares, whether listed on a stock market or not, is the regular corporate tax rate in Israel applicable for Israeli companies (23% since 2018) and 25% for Israeli individuals, unless such individual shareholder is considered a "significant shareholder" at any time during the 12-month period preceding such sale, in which case the tax rate is 30%. A "significant shareholder" is defined as one who holds, directly or indirectly, including together with others, at least 10% of any means of control in the company. However, different tax rates will apply to dealers in securities. Israeli companies are subject to the corporate tax rate on capital gains derived from the sale of listed shares.

As of January 1, 2017, individual (foreign or Israeli) taxpayers having taxable income above NIS 647,640 (for 2021) in a certain tax year will be subject to an additional tax payment at the rate of 3% on the portion of their taxable income for such tax year that is in excess of such threshold. For this purpose, taxable income includes inter alia taxable capital gains from the sale of our shares and taxable income from dividend distributions.

Non-Israeli Residents

Under the domestic tax law, non-Israeli residents are generally exempt from Israeli capital gains tax on any gains derived from the sale of shares of Israeli companies publicly traded on a recognized stock exchange outside Israel, provided such shareholders did not acquire their shares prior to the company's initial public offering and the gains did not derive from a permanent establishment of such shareholders in Israel. However, shareholders that are non-Israeli corporations will not be entitled to such exemption if Israeli residents hold an interest of more than 25% in such non-Israeli corporation or are the beneficiaries or are entitled to 25% or more of the revenues or profits of such non-Israeli corporation, whether directly or indirectly.

In certain instances where our shareholders may be liable to Israeli tax on the sale of their ordinary shares, the payment of the consideration may be subject to the withholding of Israeli tax at the source.

In addition, pursuant to the Convention between the US Government of the United States of America and the Israeli government with respect to taxes on income, as amended, or the U.S.US Israel Tax Treaty, the sale, exchange or disposition of ordinary shares by a person who qualifies as a resident of the United States within the meaning of the U.S.US Israel Tax Treaty and who is entitled to claim the benefits afforded to such person by the U.S.US Israel Tax Treaty generally will not be subject to the Israeli capital gains tax unless such person holds, directly or indirectly, shares representing 10% or more of our voting power during any part of the 12 month period preceding such sale, exchange or disposition, subject to particular conditions, or the capital gains from such sale, exchange or disposition can be allocated to a permanent establishment in Israel or is considered to be derived from or sale of Israeli real property interests for purposes of the U.S. Israel Tax Treaty. If a US.S. investor is not exempt from Israeli taxes under the U.S. Israel Tax Treaty, such U.S. investor may be subject to Israeli tax, to the extent applicable as described above; however, under the U.S. Israel Tax Treaty, such person may be permitted to claim a credit for such taxes against the U.S. federal income tax imposed with respect to such sale, exchange or disposition, subject to the limitations in the U.S. laws applicable to foreign tax credits. The U.S. Israel Tax Treaty does not relate to U.S. state or local taxes.

Taxation of Dividend Distributions

Israeli Residents

Israeli resident individuals are generally subject to Israeli income tax on the receipt of dividends paid on our ordinary shares, other than bonus shares (share dividends). The tax rate applicable to such dividends is 25% or 30% for a shareholder that is considered a significant shareholder at any time during the 12-month period preceding such distribution. Dividends paid from income derived from Approved Enterprises or Benefited Enterprises are subject to withholding at the rate of 15%. Dividends paid from income derived from Preferred Enterprises are subject to withholding at the rate of 20%.

Israeli resident companies are generally exempt from tax on the receipt of dividends paid on our ordinary shares (excluding dividends paid from income derived from Approved or Benefited Enterprises).

As of January 1, 2017, individuals (both foreign or Israeli) taxpayers having taxable income of above NIS 647,640 NIS (for 2021) in a certain tax year will be subject to an additional tax payment at the rate 3% on the portion of their taxable income for such tax year that is in excess such threshold.

Non-Israeli Residents

Non-residents of Israel are subject to income tax on income accrued or derived from sources in Israel, including dividends paid by Israeli companies. On distributions of dividends other than stock dividends, income tax (generally collected by means of withholding) will generally apply at the rate of 25%, or 30% for a shareholder that is considered a significant shareholder (as defined above) at any time during the 12-month period preceding such distribution, unless a different rate is provided in a treaty between Israel and the shareholder's country of residence. Dividends paid from income derived from Approved or Benefited Enterprises are subject to withholding at the rate of 15%, or 4% for Benefited Enterprises in the Ireland Track. Dividends paid from income derived from Preferred Enterprises will be subject to withholding at the rate of 20%.

Under the U.S. Israel Tax Treaty, the maximum tax on dividends paid to a holder of ordinary shares who qualifies as a resident of the United States within the meaning of the U.S. Israel Tax Treaty is 25%. The treaty provides for reduced tax rates on dividends if (a) the shareholder is a USU.S. corporation holding at least 10% of our issued voting power during the part of the tax year that precedes the date of payment of the dividend and held such minimal percentage during the whole of its prior tax year, and (b) not more than 25% of the Israeli company's gross income consists of interest or dividends, other than dividends or interest received from subsidiary corporations or corporations 50% or more of the outstanding voting shares of which is owned by the Israeli company. The reduced treaty rate, if applicable, is 15% in the case of dividends paid from income derived from Approved, Benefited or Preferred Enterprise or 12.5% otherwise.

Material U.S. Federal Income Tax Considerations for U.S. Holders

The following are material U.S. federal income tax consequences to the U.S. Holders described below of owning and disposing of our ordinary shares, but it does not purport to be a comprehensive description of all the tax considerations that may be relevant to a particular person's decision to hold the ordinary shares. This discussion applies only to a U.S. Holder that holds the ordinary shares as capital assets for U.S. federal income tax purposes. In addition, it does not describe all of the tax consequences that may be relevant in light of a U.S. Holder's particular circumstances, including alternative minimum tax consequences, any aspect of the provisions of the Internal Revenue Code of 1986, as amended (the "Code") commonly known as the Medicare tax and tax consequences applicable to U.S. Holders subject to special rules, such as:

- certain financial institutions;
- dealers or traders in securities that use a mark-to-market method of tax accounting;
- persons holding ordinary shares as part of a "straddle" or integrated transaction or persons entering into a constructive sale with respect to the ordinary shares;
- persons whose functional currency for U.S. federal income tax purposes is not the U.S. dollar;
- entities classified as partnerships for U.S. federal income tax purposes;
- tax exempt entities, "individual retirement accounts" or "Roth IRAs":
- Persons who acquired our ordinary shares pursuant to the exercise of an employee stock option or otherwise as compensation;

- persons that own or are deemed to own 10% or more of our stock by vote or value; or
- persons holding our ordinary shares in connection with a trade or business conducted outside of the United States.

If an entity that is classified as a partnership for U.S. federal income tax purposes owns ordinary shares, the U.S. federal income tax treatment of a partner will generally depend on the status of the partner and the activities of the partnership. Partnerships owning ordinary shares and partners in such partnerships should consult their tax advisers as to the particular U.S. federal tax consequences of owning and disposing of the ordinary shares.

This discussion is based on the Code, administrative pronouncements, judicial decisions, the U.S.-Israel Tax Treaty (the "Treaty") and final and proposed Treasury regulations, changes to any of which subsequent to the date of this Annual Report may affect the tax consequences described herein.

For purposes of this discussion, a "U.S. Holder" is a person who, for U.S. federal income tax purposes, is a beneficial owner of ordinary shares and is:

- a citizen or individual resident of the United States;
- a corporation, or other entity taxable as a corporation, created or organized in or under the laws of the United States, any state therein or the District of Columbia; or
- an estate or trust the income of which is subject to U.S. federal income taxation regardless of its source.

U.S. Holders should consult their tax advisers concerning the U.S. federal, state local tax and non-U.S. consequences of owning and disposing of our ordinary shares in their particular circumstances.

This discussion assumes that we are not, and will not become, a passive foreign investment company, as described below.

Taxation of Distributions

Distributions paid on our ordinary shares, other than certain pro rata distributions of ordinary shares, will be treated as dividends to the extent paid out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles). Because we do not calculate our earnings and profits under U.S. federal income tax principles, it is expected that distributions generally will be reported to U.S. Holders as dividends. Subject to applicable limitations, dividends paid to certain non-corporate U.S. Holders may be taxable at the favorable tax rates applicable to "qualified dividend income". Non-corporate U.S. Holders should consult their tax advisers regarding the availability of these favorable rates on dividends in their particular circumstances. Dividends will not be eligible for the dividends received deduction generally available to U.S. corporations under the Code. Dividends will generally be included in a U.S. Holder's income on the date of receipt. Dividend income will include any amounts withheld by us in respect of Israeli taxes, and will be treated as foreign source income for foreign tax credit purposes. If any dividend is paid in NIS, the amount of dividend income will be the dividend's U.S. dollar amount calculated by reference to the exchange rate in effect on the date of receipt, regardless of whether the payment is in fact converted into U.S. dollars. If the dividend is converted into U.S. dollars on the date of receipt, a U.S. Holder should not be required to recognize foreign currency gain or loss in respect of the dividend income. A U.S. Holder may have foreign currency gain or loss if the dividend is converted into U.S. dollars after the date of receipt. Such gain or loss would generally be treated as U.S.-source ordinary income or loss.

Subject to applicable limitations, some of which vary depending upon the U.S. Holder's circumstances, Israeli taxes withheld from dividends on our ordinary shares will be creditable against the U.S. Holder's U.S. federal income tax liability. The rules governing foreign tax credits are complex, and U.S. Holders should consult their tax advisers regarding the creditability of foreign taxes in their particular circumstances. In lieu of claiming a foreign tax credit, U.S. Holders may, at their election, deduct foreign taxes, including Israeli taxes, in computing their taxable income, subject to applicable limitations. An election to deduct foreign taxes instead of claiming foreign tax credits applies to all foreign taxes paid or accrued in the taxable year.

Sale or Other Taxable Disposition of Ordinary Shares

For U.S. federal income tax purposes, gain or loss realized on the sale or other taxable disposition of our ordinary shares will be capital gain or loss, and will be long term capital gain or loss if the U.S. Holder held the ordinary shares for more than one year. The amount of the gain or loss will equal the difference between the U.S. Holder's tax basis in the ordinary shares disposed of and the amount realized on the disposition, in each case as determined in U.S. dollars. This gain or loss will generally be U.S. source gain or loss for foreign tax credit purposes. The deductibility of capital losses is subject to limitations.

Passive Foreign Investment Company Rules

In general, a non-U.S. corporation will be a "passive foreign investment company" (a "PFIC") for any taxable year if (i) 75% or more of its gross income consists of passive income or (ii) 50% or more of the average value of its assets (generally determined on a quarterly basis) consists of assets that produce, or are held for the production of, passive income. For purposes of the above calculations, a non-U.S. corporation that directly or indirectly owns at least 25% by value of the shares of another corporation is treated as if it held its proportionate share of the assets of the other corporation and received directly its proportionate share of the income of the other corporation. Passive income generally includes dividends, interest, rents, royalties and gains from transactions in commodities (other than certain active business gains from the sales of commodities).

Based on the manner in which we operate our business, we believe that we were not a PFIC for 2021. However, because PFIC status depends on the composition and character of a company's income and assets and the value of its assets from time to time, there can be no assurance that we will not be a PFIC for any taxable year.

If we were a PFIC for any taxable year during which a U.S. Holder held ordinary shares, gain recognized by a U.S. Holder on a sale or other disposition (including certain pledges) of the ordinary shares would be allocated ratably over the U.S. Holder's holding period for the ordinary shares. The amounts allocated to the taxable year of the sale or other disposition and to any year before we became a PFIC would be taxed as ordinary income. The amount allocated to each other taxable year would be subject to tax at the highest rate in effect for individuals or corporations, as appropriate, for that taxable year, and an interest charge would be imposed on the resulting tax liability for each such taxable year. Further, to the extent that distributions received by the U.S. Holder in any taxable year in respect of ordinary shares exceed 125% of the average of the annual distributions received by a U.S. Holder during the preceding three years or the U.S. Holder's holding period, whichever is shorter, those excess distributions would be subject to taxation in the same manner. Certain elections may be available that would result in alternative treatments (such as mark-to-market treatment) of the ordinary shares in the case that we were a PFIC for any taxable year.

If we were a PFIC for any taxable year during which a U.S. Holder owned ordinary shares, the U.S. Holder generally will be required to file annual reports on Internal Revenue Service Form 8621. In addition, the favorable tax rates described above with respect to dividends paid to certain non-corporate U.S. Holders would not apply if we were a PFIC for the taxable year of distribution or the preceding taxable year.

Information Reporting and Backup Withholding

Payments of dividends and sales proceeds that are made within the United States or through certain U.S. related financial intermediaries generally are subject to information reporting, and may be subject to backup withholding, unless (i) the U.S. Holder is a corporation or other exempt recipient or (ii) in the case of backup withholding, the U.S. Holder provides a correct taxpayer identification number and certifies that it is not subject to backup withholding. Backup withholding is not an additional tax.

The amount of any backup withholding from a payment to a U.S. Holder will be allowed as a credit against the U.S. Holder's U.S. federal income tax liability and may entitle it to a refund, provided that the required information is timely furnished to the Internal Revenue Service.

Certain U.S. Holders who are individuals (or certain specified entities) may be required to report information relating to their ownership of securities of non-U.S. issuers, such as our ordinary shares, unless the securities are held in accounts at financial institutions (in which case the accounts may be reportable if maintained by non-U.S. financial institutions). U.S. Holders should consult their tax advisers regarding their reporting obligations with respect to the ordinary shares.

F. DIVIDENDS AND PAYING AGENTS

Not applicable.

G. STATEMENT BY EXPERTS

Not applicable.

H. DOCUMENTS ON DISPLAY

In light of the listing of our ordinary shares for trade on the New York Stock Exchange (NYSE) within the framework of an initial public offering executed in 2014, we are subject to the informational requirements of the US Securities Exchange Act of 1934. Accordingly, we are required to file or furnish reports and other information with the SEC pursuant to the requirements applying to foreign issuers, including annual reports on Form 20-F and reports on Form 6-K. The SEC maintains a website that contains reports and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

I. SUBSIDIARY INFORMATION

The Company and its subsidiaries do not maintain any direct or indirect connection with Iran or with enemy nations (as defined in the Israel Trade with the Enemy Ordinance - 1939).

Item 11 – QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Risk Management

In the ordinary course of our business activities, we are exposed to various market risks that are not in our control, including fluctuations in the prices of certain of our products and inputs, currency exchange rates, interest rates, energy prices and marine shipping prices, that may have an adverse effect on the value of our financial assets and liabilities, future cash flows and profit. As a result of these market risks, we could suffer a loss due to adverse changes such as the prices of our products or our inputs, foreign exchange rates, interest rates, energy prices or marine shipping prices.

As relates to financial assets and financial liabilities in currencies that are not the functional currency of our subsidiaries, our policy is to try and minimize this exposure as much as possible using various hedging instruments. We do not hedge against some severance pay liabilities, lease liabilities (IFRS 16) or tax balances as they are long-term exposures. In addition, we do not use hedging instruments to hedge the prices of our products. As far as hedging against projected income and expenses in currencies that are not in the functional currency of our subsidiaries, price changes of energy products, marine shipping costs and interest rates, our policy is to hedge part of the exposure, as described below.

We regularly monitor the extent of our exposure for the various risks described below and we execute hedging activities according to our hedging policy with reference to the actual developments and expectations in the various markets.

We use financial instruments and derivatives for hedging purposes only. These hedging instruments reduce our exposure as described above. Most of these transactions do not meet the hedging conditions provided in IFRS, and therefore they are measured at fair value, and changes in the fair value are charged immediately to earnings. The counterparties for our derivatives transactions are banks or financial institutes. We believe the credit risk in respect thereof is small.

For further information about our hedging activities, see Note 21 to our Audited Financial Statements.

Exchange Rate Risk

The US dollar is the principal currency of the business environment in which most of our subsidiaries operate. Most of our activities — sales, purchase of materials, selling, marketing expenses and financing expenses, as well as the purchase of property, plant and equipment — are executed in US dollars, and, as a result, we use the US dollar as our functional currency for measurement and reporting of the Company and most of our subsidiaries.

We have several consolidated subsidiaries whose functional currencies are their local currency —mainly the euro, the British pound, the Brazilian real, the Israeli shekel and the Chinese yuan.

Set forth below is a description of our principal exposures in respect of changes in currency exchange rates.

Transactions by our subsidiaries in currencies that are not their functional currency expose us to changes in the exchange rates of those currencies compared with the functional currencies of those companies. Measurement of this type of our exposure is based on the surplus of net income or expenses in each currency that is not the functional currency of that company.

Part of the costs of our inputs in Israel are denominated and paid in NIS. Thus, we are exposed to a strengthening of the NIS exchange rate against the US dollar (NIS revaluation). This exposure is similar in substance to the exposure described above for transactions in foreign currencies but is much larger than the other currency exposures.

The results for tax purposes for the Company and its subsidiaries operating in Israel are measured in NIS. As a result, we are exposed to the rate of the change in the US dollar exchange rate and the measurement base for tax purposes (the NIS) in respect of these companies.

Our subsidiaries have severance pay liabilities that are denominated in the local currency, and in Israel they are sometimes also affected by rises in the CPI. Our subsidiaries in Israel have reserves to cover part of these liabilities. The reserves are denominated in NIS and affected by the performance of the funds in which the sums are invested. As a result, we are exposed to changes in the exchange rates of the US dollar against various local currencies in respect of net liabilities for severance pay. For further information regarding our hedging policy, see "Item 11 – Quantitative and Qualitative Disclosures about Market Risk– Risk Management".

Our subsidiaries have financial assets and liabilities that are denominated in or linked to currencies other than their functional currencies. A surplus of assets over liabilities denominated in currencies that are not the functional currency creates exposure for us in respect of exchange rate fluctuations.

For investment in subsidiaries whose functional currency is not the US dollar, the end of period balance sheet accounts of these subsidiary companies are translated into US dollars based on the exchange rate of the US dollar to the reporting currency of these subsidiaries at the end of the relevant period. The beginning of period balance sheet balances, as well as capital changes during the period, are translated into US dollars at the exchange rate at the beginning of the period or on the date of the change in capital, respectively. The differences arising from the effect of the change in the exchange rate between the US dollar and the currency in which the subsidiary companies report create exposure. The effects of this exposure are charged directly to equity.

We examine periodically the extent of the hedging transactions implemented to hedge each of the exposures described above and decide on the required scope of hedging within the hedging policy framework. We use various financial instruments for our hedging activity, including derivatives.

Explanations of the main changes between the periods

Exchange rate:

As of December 31, 2021, the net positive fair value of the derivative instruments with respect to exchange rates was about $141 million, compared to a positive fair value of $97 million as of December 31, 2020. As a result, in 2021, income of about $44 million was recorded with respect to these transactions.

Energy:

As of December 31, 2021, there are no derivative instruments with respect to energy costs compared to a negative fair value of $0.5 million as of December 31, 2020. As a result, in 2021, the Company recorded income in the amount of $0.5 million with respect to these transactions.

Dry bulk marine shipping:

As of December 31, 2021, the positive fair value of the derivative instruments with respect to dry bulk marine shipping was $1.6 while as of December 31, 2020 there were no derivative instruments. As a result, in 2021, income of about $1.6 million was recorded with respect to these transactions.

The tables below set forth the sensitivity of our derivative instruments and certain balance sheet items to 5% and 10% increases and decreases in the exchange rates as of December 31, 2021.

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
USD/NIS	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(0.3)	(0.1)	3.1	0.2	0.3
Trade receivables	(7.5)	(3.9)	82.0	4.3	9.1
Receivables and debit balances	(1.7)	(0.9)	18.7	1.0	2.1
Trade payables	37.2	19.5	(409.7)	(21.6)	(45.5)
Other payables	1.6	0.8	(17.8)	(0.9)	(2.0)
Long-term loans	17.3	9.1	(60.3)	(10.0)	(21.1)
Fixed rate debentures	57.8	30.3	(635.8)	(33.5)	(70.6)
Options	(39.7)	(18.1)	13.5	25.1	54.9
Forward	(47.5)	(24.7)	1.5	27.7	58.4
Swap	(69.3)	(36.3)	118.8	40.2	84.8
Total	**(52.1)**	**(24.3)**	**(886.0)**	**32.5**	**70.4**

EUR/USD	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(2.1)	(1.1)	22.8	1.2	2.5
Short term deposits and loans	0.0	0.0	0.2	0.0	0.0
Trade receivables	(23.7)	(12.4)	260.3	13.7	28.9
Receivables and debit balances	(2.0)	(1.1)	22.2	1.2	2.5
Long-term deposits and loans	(0.3)	(0.2)	3.6	0.2	0.4
Trade payables	19.7	10.3	(216.3)	(11.4)	(24.0)
Other payables	6.6	3.5	(72.6)	(3.8)	(8.1)
Long-term loans from banks	28.2	14.8	(310.6)	(16.3)	(34.5)
Options	5.6	2.7	1.7	(2.4)	(5.0)
Forward	22.1	11.0	4.3	(11.0)	(22.1)
Total	**54.1**	**27.5**	**(284.4)**	**(28.6)**	**(59.4)**

GBP/USD	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(0.5)	(0.2)	5.2	0.3	0.6
Trade receivables	(3.7)	(2.0)	41.2	2.2	4.6
Receivables and debit balances	(0.1)	0.0	0.8	0.0	0.1
Trade payables	2.6	1.4	(28.5)	(1.5)	(3.2)
Other payables	0.3	0.2	(3.8)	(0.2)	(0.4)
Options	(1.2)	(0.7)	(0.1)	0.5	1.1
Forward	(1.6)	(0.8)	(0.3)	0.8	1.6
Total	**(4.2)**	**(2.1)**	**14.5**	**2.1**	**4.4**

BRL/USD	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(6.9)	(3.6)	76.3	4.0	8.5
Trade receivables	(20.2)	(10.6)	221.8	11.7	24.6
Trade payables	9.4	4.9	(103.3)	(5.4)	(11.5)
Long-term deposits and loans	(0.6)	(0.3)	6.2	0.3	0.7
Other payables	0.9	0.5	(10.3)	(0.5)	(1.1)
Long-term loans from banks	0.2	0.1	(2.3)	(0.1)	(0.3)
Forward	3.4	1.8	(0.9)	(2.0)	(4.2)
Total	**(13.8)**	**(7.2)**	**188.4**	**8.0**	**16.7**

CNY/USD	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(23.9)	(12.5)	262.8	13.8	29.2
Short term investments and deposits	(0.3)	(0.2)	3.2	0.2	0.4
Trade receivables	(8.2)	(4.3)	90.7	4.8	10.1
Trade payables	8.3	4.3	(90.9)	(4.8)	(10.1)
Other payables	1.4	0.7	(15.0)	(0.8)	(1.7)
Long-term loans (CNY)	3.2	1.7	(34.8)	(1.8)	(3.9)
Forward	(4.2)	(2.2)	0.7	2.5	5.2
Total	**(23.7)**	**(12.5)**	**216.7**	**13.9**	**29.2**

The tables below set forth the sensitivity of our derivative instruments and certain balance sheet items to 5% and 10% increases and decreases in the exchange rates as of December 31, 2020.

USD/NIS	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(0.2)	(0.1)	2.2	0.1	0.2
Trade receivables	(5.3)	(2.8)	58.0	3.1	6.4
Receivables and debit balances	(0.6)	(0.3)	6.7	0.4	0.7
Credit from banks and others	3.3	1.7	(35.8)	(1.9)	(4.0)
Trade payables	29.6	15.5	(325.8)	(17.1)	(36.2)
Other payables	1.5	0.8	(17.0)	(0.9)	(1.9)
Long-term loans	12.4	6.5	(135.9)	(7.2)	(15.1)
Fixed rate debentures	67.9	35.6	(747.4)	(39.3)	(83.0)
Options	(26.1)	(13.6)	11.2	19.2	43.9
Forward	(39.0)	(20.4)	8.1	22.6	47.7
Swap	(81.7)	(43.0)	115.2	47.8	101.0
Total	**(38.2)**	**(20.1)**	**(1,060.5)**	**26.8**	**59.7**

EUR/USD	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(1.2)	(0.6)	12.8	0.7	1.4
Short term deposits and loans	(0.5)	(0.2)	5.0	0.3	0.6
Trade receivables	(20.7)	(10.8)	227.4	12.0	25.3
Receivables and debit balances	(3.7)	(1.9)	40.6	2.1	4.5
Long-term deposits and loans	(0.2)	(0.1)	2.5	0.1	0.3
Credit from banks and others	6.4	3.3	(70.0)	(3.7)	(7.8)
Trade payables	14.9	7.8	(163.5)	(8.6)	(18.2)
Other payables	6.2	3.2	(68.0)	(3.6)	(7.6)
Long-term loans from banks	3.3	1.7	(35.9)	(1.9)	(4.0)
Options	3.8	2.1	(1.5)	(2.8)	(6.1)
Forward	13.6	7.1	(0.1)	(7.9)	(16.6)
Swap	33.4	17.5	(41.1)	(19.4)	(40.9)
Total	**55.3**	**29.1**	**(91.8)**	**(32.7)**	**(69.1)**

GBP/USD	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(0.5)	(0.2)	5.0	0.3	0.6
Trade receivables	(3.2)	(1.7)	35.1	1.8	3.9
Credit from banks and others	7.7	4.0	(84.7)	(4.5)	(9.4)
Trade payables	2.0	1.0	(21.5)	(1.1)	(2.4)
Other payables	0.3	0.2	(3.6)	(0.2)	(0.4)
Long-term loans	2.0	1.1	(22.3)	(1.2)	(2.5)
Swap	(6.2)	(3.3)	5.0	3.6	7.6
Options	(0.8)	(0.4)	0.4	0.5	1.1
Forward	(2.5)	(1.3)	0.3	1.4	3.0
Total	**(1.2)**	**(0.6)**	**(86.3)**	**0.6**	**1.5**

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
BRL/USD	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(0.6)	(0.3)	6.4	0.3	0.7
Trade receivables	(1.9)	(1.0)	21.4	1.1	2.4
Trade payables	1.0	0.5	(11.0)	(0.6)	(1.2)
Long-term deposits and loans	(0.3)	(0.2)	3.6	0.2	0.4
Other payables	0.0	0.0	(0.1)	0.0	0.0
Long-term loans from banks	0.8	0.4	(8.9)	(0.5)	(1.0)
Options	(0.2)	(0.2)	0.2	0.2	0.2
Forward	0.1	0.0	0.0	(0.1)	(0.1)
Total	**(1.1)**	**(0.8)**	**11.6**	**0.6**	**1.4**

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
CNY/USD	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Cash and cash equivalents	(5.5)	(2.9)	60.2	3.2	6.7
Short term investments and deposits	(0.3)	(0.2)	3.7	0.2	0.4
Trade receivables	(4.6)	(2.4)	51.1	2.7	5.7
Investments at fair value through other comprehensive income	(12.3)	(6.5)	135.7	7.1	15.1
Trade payables	6.0	3.2	(66.3)	(3.5)	(7.4)
Other payables	2.4	1.2	(26.0)	(1.4)	(2.9)
Credit from banks and others	5.6	2.9	(61.9)	(3.3)	(6.9)
Long-term loans (CNY)	5.4	2.8	(59.8)	(3.1)	(6.6)
Forward	2.1	1.1	(0.2)	(1.2)	(2.6)
Total	**(1.2)**	**(0.8)**	**36.5**	**0.7**	**1.5**

Interest Rate Risk

We have loans bearing variable interest that expose our finance expenses and cash flow to changes in interest rates. With respect to our fixed-interest loans, there is exposure to changes in the fair value of the loans due to changes in the market interest rate.

We use some hedging transactions to hedge some of the above exposure. The hedging is implemented by using a fixed interest range and by hedging variable interest.

The table below sets forth the sensitivity of certain financial instruments to 0.5% and 1% increases and decreases in the USD interest rate as of December 31, 2021.

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 1%	Increase of 0.5%		Decrease of 0.5%	Decrease of 1%
Fixed-USD interest debentures	98.5	50.9	(1,302.1)	(54.4)	(112.6)
Swap transactions	4.2	2.1	(6.5)	(2.2)	(4.3)
NIS/USD swap	28.8	14.8	118.8	(15.6)	(31.9)
Total	**131.5**	**67.8**	**(1,189.8)**	**(72.2)**	**(148.8)**

The table below sets forth the sensitivity of certain financial instruments to 0.5% and 1% increases and decreases in the USD interest rate as of December 31, 2020.

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 1%	Increase of 0.5%		Decrease of 0.5%	Decrease of 1%
Fixed-USD interest debentures	108.0	55.8	(1,419.1)	(59.8)	(124.0)
Swap transactions	5.9	3.0	(13.1)	(3.0)	(6.1)
NIS/USD swap	36.6	18.8	115.2	(19.5)	(39.5)
GBP/USD swap	0.2	0.1	5.0	(0.1)	(0.2)
EUR/USD swap	(0.9)	(0.5)	(41.1)	0.5	1.0
Total	**149.8**	**77.2**	**(1,353.1)**	**(81.9)**	**(168.8)**

The table below sets forth the sensitivity of certain financial instruments to 0.5% and 1% increases and decreases in the NIS interest rate as of December 31, 2021.

Sensitivity to changes in the shekel interest rate	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 1%	Increase of 0.5%		Decrease of 0.5%	Decrease of 1%
Fixed-interest long-term loan	0.2	0.1	(60.3)	(0.1)	(0.1)
Fixed rate debentures	26.6	13.6	(635.8)	(14.4)	(29.5)
NIS/USD swap	(35.1)	(18.1)	118.8	19.2	39.4
Total	**(8.3)**	**(4.4)**	**(577.3)**	**4.7**	**9.8**

The table below sets forth the sensitivity of certain financial instruments to 0.5% and 1% increases and decreases in the NIS interest rate as of December 31, 2020.

Sensitivity to changes in the shekel interest rate	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 1%	Increase of 0.5%		Decrease of 0.5%	Decrease of 1%
Fixed-interest long-term loan	1.9	0.9	(135.9)	(1.0)	(1.9)
Fixed rate debentures	31.6	16.2	(747.4)	(17.1)	(35.1)
NIS/USD swap	(42.4)	(22.1)	115.2	23.8	49.0
Total	**(8.9)**	**(5.0)**	**(768.1)**	**5.7**	**12.0**

Energy Price Risk

We use energy as part of operating our mines, facilities and logistics channels. We execute some hedging transactions to hedge a portion of this exposure.

As of December 31, 2021, there were no hedging transaction related to energy.

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Energy hedges	-	-	0.0	-	-

The table below sets forth the sensitivity of instruments hedging energy price risks to 5% and 10% increases and decreases in energy prices as of December 31, 2020.

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Energy hedges	-	-	(0.5)	-	-

Marine Shipping Price Risk

We ship substantial amounts of goods worldwide using marine shipments. We execute some hedging transactions to reduce a portion of our exposure to marine bulk shipping prices.

The table below sets forth the sensitivity of instruments hedging marine shipping price risk to 5% and 10% increases and decreases in marine shipping prices as of December 31, 2021.

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Marine shipping hedges	0.8	0.4	1.6	(0.4)	(0.8)

As of December 31, 2020, there were no hedging transaction for marine shipping.

	Increase (decrease) in fair value		Fair value	Increase (decrease) in fair value	
	$ millions	$ millions	$ millions	$ millions	$ millions
Type of instrument	Increase of 10%	Increase of 5%		Decrease of 5%	Decrease of 10%
Marine shipping hedges	-	-	-	-	-

Item 12 – DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES

Not Applicable.

Item 13 – DEFAULTS, DIVIDEND ARRANGEMENTS AND DELINQUENCIES

Not Applicable.

Item 14 – MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS

Not Applicable.

Item 15 – CONTROLS AND PROCEDURES

A. DISCLOSURE CONTROLS AND PROCEDURES

ICL's Chief Executive Officer and Chief Financial Officer, after evaluating the effectiveness of ICL's disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e)) as of the end of the period covered by this annual report, have concluded that, as of such date, ICL's disclosure controls and procedures were effective to ensure that the information required in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms, and such information is accumulated and communicated to its management, including its chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

B. MANAGEMENT'S ANNUAL REPORT ON INTERNAL CONTROLS OVER FINANCIAL REPORTING

ICL's management is responsible for establishing and maintaining adequate internal control over financial reporting. ICL's internal control over financial reporting system was designed by, or under the supervision of, the Chief Executive Officer and Chief Financial Officer, and effected by our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of its consolidated financial statements, for external purposes, in accordance with generally accepted accounting principles. These include those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of our assets;

- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements, in accordance with generally accepted accounting principles, and that receipts and expenditures are being made only in accordance with authorization of our management and directors; and

- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, effective control over financial reporting cannot, and does not, provide absolute assurance of achieving our control objectives. Also, projections of, and any evaluation of effectiveness of the internal controls in future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management, including our Chief Executive Officer and our Chief Financial Officer, assessed the effectiveness of ICL's internal control over financial reporting as of December 31, 2021. In making this assessment, our management used the criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission of 2013 (COSO). Based on such assessment, our management has concluded that, as of December 31, 2021, ICL's internal control over financial reporting is effective based on those criteria.

C. Attestation Report of the Registered Public Accounting Firm

Somekh Chaikin, member firm of KPMG International, an independent registered public accounting firm, has audited and reported on the effectiveness of ICL's internal controls over financial reporting as of December 31, 2021. See Somekh Chaikin's attestation report on page F-2 of this annual report.

D. Changes in internal control over financial reporting

There has been no identified change in our internal control over financial reporting in connection with the evaluation required by Rules 13a-15 or 15d-15 that occurred during the period covered by this annual report that has materially affected, or is likely to materially affect, our internal control over financial reporting.

Item 16A – AUDIT AND ACCOUNTING COMMITTEE FINANCIAL EXPERT

Our Board of Directors has determined, based on qualification statements delivered to the Company, that Board members, Dr. Miriam Haran, Ms. Dafna Gruber and Messrs. Lior Reitblatt and Gadi Lesin shall serve as financial experts of the Audit and Accounting Committee, as that term is defined in Item 16A(b) of Form 20-F, and that all members of the Audit and Accounting Committee, Dr. Miriam Haran, Ms. Dafna Gruber and Messrs. Lior Reitblatt and Gadi Lesin, are financially literate and are independent directors for the purposes Rule of 10A-3 of the Exchange Act and of NYSE trade listing requirements.

Item 16B – CODE OF ETHICS

Our Board of Directors has adopted a Code of Conduct that applies to our Board of Directors, senior management and employees, including our Chief Executive Officer, Chief Financial Officer, Controller and any other persons who perform similar functions for us. Our Code of Ethics is available, on our website, www.icl-group.com. We intend to disclose future amendments to our code of ethics, or any waivers of such code, on our website or in public filings. The reference to our website is intended to be an inactive textual reference and the information on, or accessible through, our website is not intended to be part of this Annual Report.

Item 16C – PRINCIPAL ACCOUNTANT FEES AND SERVICES

Somekh Chaikin, Tel Aviv, Israel (PCAOB ID 1057), a member of KPMG International, has served as our independent registered public accounting firm for 2021 and 2020. Following are KPMG International's fees for professional services in each of the respective fiscal years:

	2021	2020
	US$ thousands	US$ thousands
Audit fees(1)	4,645	4,739
Audit-related fees(2)	148	146
Tax fees(3)	1,303	1,643
Total	6,096	6,528

(1) Audit fees are the aggregate fees billed or expected to be billed for the audit of our annual financial statements. This category also includes services that are generally provided by the independent accountant, such as consents and review of documents filed with the SEC.

(2) Audit-related Fees are the aggregate fees billed for assurance and related services rendered during the years ended December 31, 2021 and 2020, that are reasonably related to the performance of the audit and are not reported under audit fees. These fees include mainly audits of financial statements of a carve-out entity in anticipation of a divestiture and accounting consultation on proposed transactions.

(3) Tax fees are the aggregate fees billed for professional services rendered during the years ended December 31, 2021 and 2020, rendered for tax compliance, tax advice, and tax planning, assistance with tax audits and appeals.

Audit Committee's pre-approval policies and procedures

All services provided by our independent auditors are approved in advance by either the Audit and Accounting Committee or members thereof, to whom authority has been delegated, in accordance with the Audit and Accounting Committee's pre-approval procedure respecting such services.

Item 16D – EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES

Not Applicable.

Item 16E – PURCHASE OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Not Applicable.

Item 16F –CHANGE IN REGISTRANT’S CERTIFYING ACCOUNTANT

Not Applicable.

Item 16G – CORPORATE GOVERNANCE

Corporate Governance Practices

We are incorporated in Israel and therefore subject to various corporate governance provisions under the Companies Law and the regulations promulgated thereunder, relating to such matters as external directors, the audit committee, the compensation committee and the internal auditor. These are in addition to the requirements of the NYSE and relevant provisions of US securities laws that apply to foreign companies listed for trading in the US.

As a foreign private issuer whose shares are listed on the NYSE, we have the option to follow certain corporate governance practices that apply in the country of incorporation of the foreign company, Israel, rather than those of the NYSE, except to the extent that such laws would be contrary to US securities laws and provided that we disclose the practices that we are not following and describe the home country practices which we elected to follow instead. We intend to rely on this “foreign private issuer exemption” with respect to the following NYSE requirements:

- Majority Independent Board. Under Section 303A.01 of the NYSE Listed Company Manual (the “LCM”), a US domestic listed company, other than a controlled company, must have a majority of independent directors. Six of our ten directors are not considered independent directors under Israeli law whether due to their relationship with the Company, our controlling shareholder or the length of their tenure on our Board of Directors.

- Nominating/Corporate Governance Committee. Under Section 303A.04 of the LCM, a US domestic listed company, other than a controlled company, must have a nominating/corporate governance committee composed entirely of independent directors. Our controlling shareholder, Israel Corporation, has significant control over the appointment of our directors (other than external directors).

- Equity Compensation Plans. Under Section 303A.08 of the LCM, shareholders must be given the opportunity to vote on all equity-compensation plans and material revisions thereto, with certain limited exemptions as described therein. We follow the requirements of the Companies Law, under which approval of equity compensation plans and material revisions thereto is within the authority of our HR & Compensation Committee and the Board of Directors. However, under the Companies Law, any compensation to directors, the Chief Executive Officer or a controlling shareholder or another person in which a controlling shareholder has a personal interest, including equity compensation plans, generally requires the approval of the compensation committee, the Board of Directors and the shareholders, in that order. Under the Companies Law, the compensation of directors and officers is generally required to comply with a shareholder-approved compensation policy, which is required, among other things, to include a monetary cap on the value of equity compensation that may be granted to any director or officer.

- **Shareholder Approval of Securities Issuances**. Under Section 312.03 of the LCM, shareholder approval is a prerequisite to (a) issuing ordinary shares, or securities convertible into or exercisable for ordinary shares, to a related party, a subsidiary, affiliate or other closely related person of a related party or any company or entity in which a related party has a substantial interest, if the number of ordinary shares to be issued exceeds either 1% of the number of ordinary shares or 1% of the voting power outstanding before the issuance, and (b) issuing ordinary shares, or securities convertible into or exercisable for ordinary shares, if the ordinary share has, or will have upon issuance, voting power equal to or in excess of 20% of the voting power outstanding before the issuance or the number of ordinary shares to be issued is equal to or in excess of 20% of the number of ordinary shares before the issuance, in each case subject to certain exceptions. We seek shareholder approval for all corporate actions requiring such approval under the requirements of the Companies Law, which are different from the requirements for seeking shareholder approval under Section 312.03 of the LCM. Under the Companies Law, shareholder approval is a prerequisite to any extraordinary transaction with a controlling shareholder or in which a controlling shareholder has a personal interest. Under the Companies Law, shareholder approval is also a prerequisite to a private placement of securities if it will cause a person to become a controlling shareholder or in case all of the following conditions are met:

- The securities issued amount to 20% or more of the Company's outstanding voting rights before the issuance;

- Some or all of the consideration is other than cash or listed securities or the transaction is not on market terms; and

- The transaction will increase the relative holdings of a 5% shareholder or will cause any person to become, as a result of the issuance, a 5% shareholder.

Except as stated above, we intend to comply with virtually all the rules applicable to U.S. companies listed on the NYSE. We may decide in the future to use additional and/or other foreign private issuer exemptions with respect to some or all of the other NYSE listing requirements. Following governance practices of our home country, Israel, as opposed to the requirements that would otherwise apply to a company listed on the NYSE, may provide less protection than is accorded to investors under NYSE listing requirements applicable to domestic issuers. For further information, see "Item 3 - Key Information— D. Risk Factors— As a foreign private issuer, we are permitted to follow certain home country corporate governance practices instead of applicable SEC and NYSE requirements, which may result in less protection than is afforded to investors under rules applicable to domestic issuers".

Item 16H – MINE SAFETY DISCLOSURE

Not applicable.

Item 16I – DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

Item 17 – FINANCIAL STATEMENTS

See "Item 18 - Financial Statements".

Item 18 – FINANCIAL STATEMENTS

See page F-1.

Item 19 – EXHIBITS

We have filed certain exhibits to our Form 20-F filed with the SEC, which are available for perusal at: www.sec.gov.

1.1	Memorandum of Association of ICL Group Ltd. (unofficial translation from original Hebrew) (Incorporated by reference to Exhibit 99.2 to our report on Form 6-K filed with the Securities and Exchange Commission on May 7, 2020).
1.2	Articles of Association of ICL Group Ltd. (unofficial translation from original Hebrew) (Incorporated by reference to Exhibit 99.3 to our report on Form 6-K filed with the Securities and Exchange Commission on May 7, 2020).
2.1	Description of securities registered under Section 12 of the Exchange Act (Incorporated by reference to Exhibit 2.1 to our annual report on Form 20-F (file no. 001-13742) for the year ended December 31, 2019, filed with the Securities and Exchange Commission on March 5, 2020).
4.1	Dead Sea Concession Law, 1961 (and the Deed of Concession, dated as of May 31, 1961, between the State of Israel and Dead Sea Works, Ltd. set out as a schedule thereto) (unofficial translation from original Hebrew) (Incorporated by reference to Exhibit 10.1 to our registration statement on Form F-1 (file no. 333-198711), as amended) filed with the Securities and Exchange Commission on September 12, 2014).
4.2	Amended Equity Compensation Plan (2014), dated June 2016 (unofficial translation from original Hebrew) (Incorporated by reference to Exhibit 4.4 our annual report on Form 20-F (file no. 001-13742) for the year ended December 31, 2016, filed with the Securities and Exchange Commission on March 16, 2017).
4.3	Compensation Policy for Directors and Officers, as adopted in May 2019 and approved by shareholders in June 2019. (Incorporated by reference to Exhibit 4.3 our annual report on Form 20-F (file no. 001-13742) for the year ended December 31, 2019, filed with the Securities and Exchange Commission on March 5, 2020)
4.4	Agreement between the Israeli Ministry of Finance and Dead Sea Works Ltd. dated as of July 8, 2012 relating to salt harvesting at the Dead Sea (Incorporated by reference to Exhibit 10.6 to our registration statement on Form F-1 (file no. 333- 198711), as amended) filed with the Securities and Exchange Commission on September 12, 2014).
4.5	Registration Rights Agreement, dated September 12, 2014 by and among Israel Chemicals Ltd. and Israel Corporation Ltd. (Incorporated by reference to Exhibit 10.8 to our registration statement on Form F-1 (file no. 333- 198711), as amended) filed with the Securities and Exchange Commission on September 12, 2014).
4.6	Revolving Credit Facility Agreement, dated March 23, 2015, by and among certain financial institutions, ICL Finance B.V., and Israel Chemicals Ltd. (Incorporated by reference to Exhibit 4.7 to our annual report on Form 20-F (file no. 001-13742) for the year ended December 31, 2015, filed with the Securities and Exchange Commission on March 16, 2016).
4.7	Purchase and Sale Agreement dated as of December 6, 2017 by and among Amsterdam Fertilizers B.V. BK Giulini, GmbH, ICL Germany Food and Chemical Specialties GmbH, ICL Iberia Limited, SCA, Israel Chemicals Ltd., and SK Invictus Holdings, L.P. (Incorporated by reference to Exhibit 4.7 to our annual report on Form 20-F (file no. 001-13742) for the year ended December 31, 2017, filed with the Securities and Exchange Commission on March 7, 2018).
4.8	Amendment No. 1, dated October 29, 2018 to the Revolving Credit Facility Agreement, dated March 23, 2015, by and among certain financial institutions, ICL Finance B.V., and Israel Chemicals Ltd. (Incorporated by reference to Exhibit 4.8 to our annual report on Form 20-F (file no. 001-13742) for the year ended December 31, 2018, filed with the Securities and Exchange Commission on February 27, 2019).
8.1	List of subsidiaries of ICL Group Ltd.
12.1	Certification by Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
12.2	Certification by Principal Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
13.1	Certification by Principal Executive Officer and Principal Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
15.1	Consent of Somekh Chaikin, a member of KPMG International, independent registered public accounting firm.
15.2	Technical Report Summary by Wardell Armstrong International Ltd., effective December 31, 2021.
15.3	Consent of Wardell Armstrong International Ltd. with respect to the Technical Report Summary.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.INS	XBRL Instance Document

SIGNATURE

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

ICL Group Ltd.
By: /s/ Aviram Lahav
Name: Aviram Lahav
Title: Chief Financial Officer

ICL Group Ltd.
By: /s/ Aya Landman
Name: Aya Landman
Title: VP, Company Secretary & Global Compliance

Date: February 23, 2022

Consolidated Financial Statements

As of December 31, 2021

ICL

Consolidated Financial Statements as of December 31, 2021

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders
ICL Group LTD

Opinions on the Consolidated Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial position of ICL Group Ltd. and subsidiaries (the "Company") as of December 31, 2021 and 2020, and the related consolidated statements of income, comprehensive income, changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Useful lives of the long-lived assets associated with Dead Sea Works Ltd. concession

As discussed in Note 18b (1) to the consolidated financial statements, the concession of Dead Sea Works Ltd. (DSW) will end on March 31, 2030. The consolidated financial statements were prepared based on the Company's assumption that it is more likely than not that DSW will continue to operate its long-lived assets for their remaining useful lives, which extend beyond the term of the current concession period, by obtaining the renewed concession or by operating the assets for an alternative holder.

We identified the evaluation of the useful lives of the long-lived assets associated with DSW's concession (hereinafter – the relevant assets) as a critical audit matter. Specifically, challenging auditor judgment was required to evaluate the Company's determination that the useful lives of the relevant assets exceed the current concession period due to uncertainty relating to concession renewal and to effects from potential changes of the concession holder. Changes in the estimated useful lives of the relevant assets could have a significant effect on the depreciation expenses of these assets.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of an internal control related to the determination of useful lives of the long-lived assets associated with the with Dead Sea Works Ltd. concession. We evaluated the Company's estimate regarding the useful lives of the relevant assets by examining its analysis of potential alternatives of operating the assets for an alternative concession holder, as well as considering relevant publicly available information, such as, the Concession Law and the report released by the Israeli Ministry of Finance regarding the actions that the government may take towards the end of the concession period.

Uncertain tax treatment under the Law for Taxation of Profit from Natural Resources

As discussed in Note 15E to the consolidated financial statements, the Law for Taxation of Profits from Natural Resources in Israel (the Law) became effective in 2016. Under the law, the Company has taken a position regarding the value assigned to certain property, plant and equipment for tax purposes at the date the law became effective. Specifically, that the value of certain property, plant and equipment for tax purposes can be determined based on its fair value as determined by an independent appraiser using a replacement cost method and not based on its historical depreciated cost. The Company believes that it is more likely than not that its position will be accepted.

We identified the evaluation of uncertain tax treatment under the Law as a critical audit matter. Due to the lack of tax regulations, circulars, or court cases, complex auditor judgment was required in evaluating the Company's position that the value of certain property, plant and equipment for tax purposes can be determined, at the date the law became effective, based on its fair value as determined by an independent appraiser using a replacement cost method and not based on its historical depreciated cost.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of an internal control related to the interpretation of the new tax law and the Company's application in the tax provision estimation process. We read letters received directly from the Company's external legal counsel that evaluated the Company's interpretation of the Law. In addition, we involved tax professionals with specialized skills and knowledge who assisted in evaluating the Company's interpretation of the Law and its potential impact on the tax provision.

(signed) Somekh Chaikin
Member Firm of KPMG International
We have served as the Company's auditor since 2006.
Tel Aviv, Israel
February 22, 2022

Consolidated Statements of Financial Position as of December 31

	Note	2021 $ millions	2020 $ millions
Current assets			
Cash and cash equivalents		473	214
Short-term investments and deposits		91	100
Trade receivables		1,418	883
Inventories	6	1,570	1,250
Investments at fair value through other comprehensive income		-	53
Prepaid expenses and other receivables	7	357	341
Total current assets		3,909	2,841
Non-current assets			
Investments at fair value through other comprehensive income		-	83
Deferred tax assets	15	147	127
Property, plant and equipment	10	5,754	5,550
Intangible assets	11	867	670
Other non-current assets	9,16	403	393
Total non-current assets		7,171	6,823
Total assets		11,080	9,664
Current liabilities			
Short-term debt	13	577	679
Trade payables		1,064	740
Provisions	17	59	54
Other payables	14	912	704
Total current liabilities		2,612	2,177
Non-current liabilities			
Long-term debt and debentures	13	2,436	2,053
Deferred tax liabilities	15	384	326
Long-term employee liabilities	16	564	655
Long-term provisions and accruals	17	278	267
Other		70	98
Total non-current liabilities		3,732	3,399
Total liabilities		6,344	5,576
Equity			
Total shareholders' equity	19	4,527	3,930
Non-controlling interests		209	158
Total equity		4,736	4,088
Total liabilities and equity		11,080	9,664

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Income for the Year Ended December 31

	Note	2021	2020	2019
		$ millions	$ millions	$ millions
Sales	20	6,955	5,043	5,271
Cost of sales	20	4,344	3,553	3,454
Gross profit		2,611	1,490	1,817
Selling, transport and marketing expenses	20	1,067	766	767
General and administrative expenses	20	276	232	254
Research and development expenses	20	64	54	50
Other expenses	20	57	256	30
Other income	20	(63)	(20)	(40)
Operating income		1,210	202	756
Finance expenses		216	219	220
Finance income		(94)	(61)	(91)
Finance expenses, net	20	122	158	129
Share in earnings of equity-accounted investees		4	5	1
Income before taxes on income		1,092	49	628
Taxes on income	15	260	25	147
Net income		832	24	481
Net income attributable to the non-controlling interests		49	13	6
Net income attributable to the shareholders of the Company		783	11	475
Earnings per share attributable to the shareholders of the Company:	22			
Basic earnings per share (in dollars)		0.61	0.01	0.37
Diluted earnings per share (in dollars)		0.60	0.01	0.37
Weighted-average number of ordinary shares outstanding:	22			
Basic (in thousands)		1,282,807	1,280,026	1,278,950
Diluted (in thousands)		1,287,051	1,280,273	1,282,056

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Comprehensive Income for the Year Ended December 31

	2021	2020	2019
	$ millions	$ millions	$ millions
Net income	832	24	481
Components of other comprehensive income that will be reclassified subsequently to net income			
Foreign currency translation differences	(105)	118	(20)
Change in fair value of cash flow hedges transferred to the statement of income	(15)	(54)	(38)
Effective portion of the change in fair value of cash flow hedges	13	53	42
Tax relating to items that will be reclassified subsequently to net income	–	–	(1)
	(107)	117	(17)
Components of other comprehensive income that will not be reclassified to net income			
Net changes of investments at fair value through other comprehensive income	155	18	10
Gains (losses) from defined benefit plans	85	(15)	(75)
Tax relating to items that will not be reclassified to net income	(44)	(6)	10
	196	(3)	(55)
Total comprehensive income	921	138	409
Comprehensive income attributable to the non-controlling interests	54	23	4
Comprehensive income attributable to the shareholders of the Company	867	115	405

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Changes in Equity

	Attributable to the shareholders of the Company							Non-controlling interests	Total equity
	Share capital	Share premium	Cumulative translation adjustment	Capital reserves	Treasury shares, at cost	Retained earnings	Total shareholders' equity		
	$ millions								
For the year ended December 31, 2021									
Balance as of January 1, 2021	546	204	(334)	22	(260)	3,752	3,930	158	4,088
Share-based compensation	2	20	–	(16)	–	–	6	–	6
Dividends	–	–	–	–	–	(276)	(276)	(3)	(279)
Comprehensive income	–	–	(110)	132	–	845	867	54	921
Balance as of December 31, 2021	548	224	(444)	138	(260)	4,321	4,527	209	4,736

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Changes in Equity (cont'd)

	Attributable to the shareholders of the Company							Non-controlling interests	Total equity
	Share capital	Share premium	Cumulative translation adjustment	Capital reserves	Treasury shares, at cost	Retained earnings	Total shareholders' equity		
	$ millions								
For the year ended December 31, 2020									
Balance as of January 1, 2020	546	198	(442)	3	(260)	3,880	3,925	136	4,061
Share-based compensation	-	6	-	2	-	-	8	-	8
Dividends	-	-	-	-	-	(118)	(118)	(1)	(119)
Comprehensive income	-	-	108	17	-	(10)	115	23	138
Balance as of December 31, 2020	546	204	(334)	22	(260)	3,752	3,930	158	4,088

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Changes in Equity (cont'd)

	Attributable to the shareholders of the Company							Non-controlling interests	Total equity
	Share capital	Share premium	Cumulative translation adjustment	Capital reserves	Treasury shares, at cost	Retained earnings	Total shareholders' equity		
	$ millions								
For the year ended December 31, 2019									
Balance as of January 1, 2019	546	193	(424)	(17)	(260)	3,743	3,781	134	3,915
Share-based compensation	-	5	-	7	-	-	12	-	12
Dividends	-	-	-	-	-	(273)	(273)	(2)	(275)
Comprehensive income	-	-	(18)	13	-	410	405	4	409
Balance as of December 31, 2019	546	198	(442)	3	(260)	3,880	3,925	136	4,061

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows for the Year Ended December 31

	2021	2020	2019
	$ millions	$ millions	$ millions
Cash flows from operating activities			
Net income	832	24	481
Adjustments for:			
Depreciation and amortization	490	489	443
(Reversal of) Impairment of fixed assets	(6)	90	(10)
Exchange rate, interest and derivative, net	99	88	109
Tax expenses	260	25	147
Change in provisions	(4)	113	(21)
Other	(21)	5	(1)
	818	810	667
Change in inventories	(267)	54	(72)
Change in trade receivables	(426)	(89)	199
Change in trade payables	274	84	(58)
Change in other receivables	9	5	5
Change in other payables	107	54	4
Net change in operating assets and liabilities	(303)	108	78
Interest paid, net	(89)	(107)	(114)
Income taxes paid, net of refund	(193)	(31)	(120)
Net cash provided by operating activities	1,065	804	992
Cash flows from investing activities			
Proceeds (payments) from deposits, net	355	34	(2)
Business combinations	(365)	(27)	–
Purchases of property, plant and equipment and intangible assets	(611)	(626)	(576)
Proceeds from divestiture of businesses net of transaction expenses	31	26	–
Other	11	10	53
Net cash used in investing activities	(579)	(583)	(525)
Cash flows from financing activities			
Dividends paid to the Company's shareholders	(276)	(118)	(273)
Receipt of long-term debt	1,230	1,175	657
Repayments of long-term debt	(1,120)	(1,133)	(689)
Repayments of short-term debt, net	(58)	(52)	(183)
Receipts (payments) from transactions in derivatives	(17)	24	–
Other	(3)	(1)	(2)
Net cash used in financing activities	(244)	(105)	(490)
Net change in cash and cash equivalents	242	116	(23)
Cash and cash equivalents as of the beginning of the year	214	95	121
Net effect of currency translation on cash and cash equivalents	17	3	(3)
Cash and cash equivalents as of the end of the year	473	214	95

The accompanying notes are an integral part of these consolidated financial statements.

Note 1 - General

A. The reporting entity

ICL Group Ltd. (hereinafter - the Company), is a company domiciled and incorporated in Israel. The Company's shares are traded on both the Tel-Aviv Stock Exchange (TASE) and the New York Stock Exchange (NYSE) under the ticker: ICL. The address of the Company's registered headquarters is 23 Aranha St., Tel-Aviv, Israel. The Company is a subsidiary of Israel Corporation Ltd., a public company traded on the TASE under the ticker: ILCO:TA. The Company together with its subsidiaries, associated companies and joint ventures (hereinafter - the Group or ICL), is a leading specialty minerals group that operates a unique, integrated business model. The Company competitively extracts certain minerals as raw materials and utilizes processing and product formulation technologies to add value to customers in two main end-markets: agriculture and Industrial (including food additives). ICL's products are used mainly in the areas of agriculture, electronics, food, fuel and gas exploration, water purification and desalination, detergents, cosmetics, pharmaceuticals, and automotive.

The State of Israel holds a Special State Share in ICL and in some of its subsidiaries, entitling the State the right to safeguard the State of Israel vital interests. For additional information, see Note 19 - Equity.

B. Impact of the COVID-19 spread

The COVID-19 pandemic continues to create business and economic uncertainty and volatility in the global markets. Many countries around the world are experiencing further outbreaks of the pandemic, following which governments are once again imposing various restrictions. At the same time, there is a recovery trend in the volume of economic activity around the world that leads on one hand, to significant demand for certain products and services and on the other hand, disruptions to worldwide supply chain routes and some raw materials. The Company continues to take measures to ensure the health and safety of its employees, suppliers, other business partners and the communities in which it operates in order to ensure, among others, the operation level, the proper functioning of its facilities around the world and to minimize the pandemic's potential impact on its business. Manufacturing continues at the Company's sites around the world without interruptions. However, there is still a difficulty in assessing the future impacts of the pandemic on the Company's operations, inter alia, in light of the uncertainty of its duration, the extent of its intensity and effects on global supply chains and global markets, and additional countermeasures that may be taken by governments and central banks.

Note 1 – General (cont'd)

C. Definitions

1. Subsidiary – a company over which the Company has control and the financial statements of which are fully consolidated with the Company's statements as part of the consolidated financial statements.

2. Investee company – Subsidiaries, including a partnership or joint venture, which is accounted for using the equity method.

3. Related party – As in IAS 24 (2009), “Related Party Disclosures”.

Note 2 – Basis of Preparation of the Financial Statements

A. Statement of compliance with International Financial Reporting Standards

The consolidated financial statements were prepared by ICL in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Boards (IASB).

The consolidated financial statements were authorized for issuance by the Company’s Board of Directors on February 22, 2022.

B. Functional and presentation currency

The consolidated financial statements are presented in United States Dollars (“US Dollars”; $), which is the functional currency of the Company and have been rounded to the nearest million, except when otherwise indicated. Items included in the consolidated financial statements of the Company are measured using the currency of the primary economic environment in which the individual entity operates (“the functional currency”).

C. Basis of measurement

The consolidated financial statements were prepared using the depreciated historical cost basis except for the following assets and liabilities: Financial instruments measured at fair value through profit or loss, financial instruments measured at fair value through other comprehensive income, Investments in associates, deferred tax assets and liabilities, assets and liabilities in respect of employee benefits. For further information regarding the measurement of assets and liabilities, see Note 3.

Note 2 - Basis of Preparation of the Financial Statements (cont'd)

D. Operating cycle

The Company's regular operating cycle is up to one year. As a result, the current assets and the current liabilities include items for which the realization is intended and anticipated to take place within one year.

E. Classifications

The Company made a number of insignificant adjustments to the classification of comparative figures in order to adjust them to the manner of classification in the current financial statements. The said classifications have no effect on the total profit (loss).

F. Use of estimates and judgment

The preparation of financial statements in conformity with IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

The evaluation of accounting estimates used in the preparation of ICL's Financial Statements requires the Company's management to make assumptions regarding interpretations of laws which apply to the Company, circumstances and events involving considerable uncertainty. The Company's management prepares the estimates based on past experience, various facts, external circumstances, and reasonable assumptions relating to the pertinent circumstances of each estimate. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

Note 2 - Basis of Preparation of the Financial Statements (cont'd)

F. Use of estimates and judgment (cont'd)

Information about assumptions made by ICL with respect to the future and other reasons for uncertainty with respect to estimates that have a significant risk of resulting in a material adjustment to carrying amounts of assets and liabilities in future financial years are included in the following table:

Estimate	Principal assumptions	Possible effects	Reference
Concessions, permits and business licenses	Forecast of obtaining renewed concessions, permits and business licenses which constitute the basis for the Company's continued operations and the Company's expectations regarding the holding of the operating assets by it and / or by a subsidiary until the end of their useful lives	Impact on the value of the operation, depreciation periods and residual values of related assets.	See Note 18 - Concessions.
Recoverable amount of a cash generating unit, among other things, containing goodwill	Expected cash-flow forecasts including estimates of mineral reserves, discount rate, market risk and the forecasted growth rate.	Change in impairment valuation.	See Note 12 - impairment testing.
Uncertain tax positions	The extent of the certainty that ICL's tax positions will be accepted and the risk of it incurring any additional tax and interest expenses. This is based on an analysis of several matters, including interpretations of tax laws and the Company's past experience.	Recognition of additional income tax expenses.	See Note 15 - taxes on income.
Probability assessment of contingent and environmental liabilities including cost of waste removal/ restoration	Whether it is more likely than not that an outflow of economic resources will be required in respect of potential liabilities under the environmental protection laws and legal claims pending against ICL and the estimation of their amounts. The waste removal/ restoration obligations depend on the reliability of the estimates of future removal costs and interpretation of regulations.	A change in the Company's estimated provisions for a claim and/or environmental liability, including waste removal and restoration.	See Note 18 - contingent liabilities.

Note 3 - Significant Accounting Policies

The accounting policies in accordance with IFRS are consistently applied by ICL companies for all the periods presented in these consolidated financial statements.

A. Basis for Consolidation

1. Business combinations

ICL implements the acquisition method to all business combinations. The acquisition date is the date on which the acquirer obtains control over the acquiree. Control exists when ICL is exposed or has rights to variable returns from its involvement with the acquiree and it could affect those returns through its power over the acquiree. Substantive rights held by ICL and others are considered when assessing control.

ICL recognizes goodwill on an acquisition according to the fair value of the consideration transferred including any amounts recognized in respect of non-controlling interest in the acquiree as well as the fair value at the acquisition date of any pre-existing equity right of ICL in the acquiree, less the net amount of the identifiable assets acquired, and the liabilities assumed.

Costs associated with the acquisition that were incurred by ICL in a business combination such as advisory, legal, valuation and other professional or consulting fees, other than those associated with an issue of debt or equity instruments connected to the business combination, are expensed in the period the services are received.

2. Subsidiaries

Subsidiaries are entities controlled by ICL. The financial statements of the subsidiaries are included in the consolidated financial statements from the date control commenced until the date control ceases to exist. The financial statements of subsidiaries have been changed when necessary to align them with ICL's accounting policies.

3. Non-controlling interests

Non-controlling interests comprise of the subsidiary's equity that cannot be attributed, directly or indirectly, to the parent company. Profit or loss and any part of other comprehensive income are allocated to the owners of the Company and the non-controlling interests, even if the result is a negative balance of non-controlling interests.

Measurement on the date of the business combination - Non-controlling interests that are instruments that give rise to a present ownership interest and entitle the holder to a share of net assets in the event of liquidation, are measured at the date of the business combination at either fair value, or at their proportionate interest in the identifiable assets and liabilities of the acquiree, on a transaction-by-transaction basis.

Transactions with non-controlling interests, while retaining control - are accounted for as equity transactions. Any difference between the consideration paid or received and the change in non-controlling interests is included in the share of the owners of the company directly in a separate category in equity.

Note 3 - Significant Accounting Policies (cont'd)

A. Basis for Consolidation (cont'd)

4. Loss of control

Upon the loss of control, ICL derecognizes the assets and liabilities of the subsidiary, any non-controlling interests and the other components of equity related to the subsidiary. If ICL retains any interest in the previous subsidiary, then such interest is measured at fair value at the date that control is lost. The difference between the sum of the proceeds and fair value of the retained interest, and the derecognized balances is recognized in profit or loss as other income or other expenses. The amounts recognized in capital reserves through other comprehensive income with respect to the same subsidiary are reclassified to profit or loss or to retained earnings.

5. Transactions eliminated in consolidation

Intra-group balances, transactions, unrealized income and expenses and gains and losses arising from intra-group transactions, are eliminated in preparing the consolidated financial statements.

6. Investment in associated companies and joint ventures

Joint ventures are joint arrangements in which ICL has rights to the net assets of the arrangement. Associates and joint ventures are accounted for using the equity method (equity accounted investees) and are recognized initially at cost.

B. Foreign Currency

1. Transactions in foreign currency

Transactions in foreign currency are translated to the functional currency based on the exchange rate in effect on the dates of the transactions. Monetary assets and liabilities denominated in foreign currency on the report date are translated into the functional currency based on the exchange rate in effect on that date.

Non-monetary items denominated in foreign currency measured at historical cost are translated using the exchange rate at the date of the transaction.

2. Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments from acquisition, are translated to USD at exchange rates at the reporting date. The income and expenses of foreign operations are translated to USD at exchange rates at the dates of the transactions. Foreign currency differences are recognized in other comprehensive income and are presented in equity in the foreign currency translation reserve (hereinafter -Translation Reserve).

When the foreign operation is a non-wholly owned subsidiary of the Company, then the relevant proportionate share of the foreign operation translation difference is allocated to the non-controlling interests. When a foreign operation is disposed of, the cumulative amount in the Translation Reserve is reclassified to profit or loss as a part of the capital gain or loss on disposal.

Note 3 - Significant Accounting Policies (cont'd)

B. Foreign Currency (cont'd)

3. Foreign operations (cont'd)

Generally, foreign currency differences from a monetary item receivable from or payable to a foreign operation, including foreign operations that are subsidiaries, are recognized in profit or loss in the consolidated financial statements. Foreign exchange gains or losses arising from a monetary item receivable from or payable to a foreign operation, the settlement of which is neither planned nor likely in the foreseeable future, are considered to form part of a net investment in a foreign operation and are recognized in other comprehensive income and are presented within equity in the Translation Reserve.

C. Financial Instruments

1. Non-derivative financial assets (IFRS9)

Initial recognition of financial assets:

ICL initially recognizes trade receivables and debt instruments issued on the date that they are originated and for all other financial assets at the trade date in which ICL becomes a party to the contractual provisions of the instrument. A financial asset is initially measured at fair value plus direct transaction costs.

Derecognition of financial assets:

Derecognition of financial assets occurs when the contractual rights of ICL to the cash flows from the asset expire, or when ICL transfers the rights to receive the contractual cash flows and substantially all the risks and rewards of ownership of the financial asset. When ICL retains substantially all the said risks and rewards, it continues to recognize the financial asset.

Classification of financial assets into categories and the accounting treatment of each category:

Financial assets are classified at initial recognition to one of the following measurement categories: (1) amortized cost; (2) fair value through other comprehensive income - investments in debt instruments; (3) fair value through other comprehensive income - investments in equity instruments; or (4) fair value through profit or loss. The reclassification of the financial assets in subsequent periods will only occur if ICL's changes its financial debt assets business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated at fair value through profit or loss: (1) It is held within a business model whose objective is to hold assets so as to collect contractual cash flows; and (2) the contractual terms of the financial asset give rise to cash flows representing solely payments of principal and interest on the principal amount outstanding on specified dates. These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.

Note 3 - Significant Accounting Policies (cont'd)

C. Financial Instruments (cont'd)

1. Non-derivative financial assets (IFRS9) (cont'd)

ICL has balances of trade and other receivables and deposits that are held within a business model whose objective is collecting contractual cash flows, which represent solely payments of principal and interest (for the time value and the credit risk). Accordingly, these financial assets are measured at amortized cost.

Financial assets at fair value through profit or loss - are subsequently measured at fair value. Net gains or losses, including any interest income or dividend income, are recognized in profit or loss (other than certain derivatives designated as accounting hedging instruments).

Investments in equity instruments at fair value through other comprehensive income - are subsequently measured at fair value. Dividends are recognized as income in profit or loss, unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in other comprehensive income and are never reclassified to profit or loss.

2. Non-derivative financial liabilities

Non-derivative financial liabilities include bank overdrafts, loans and borrowings from banks and others, marketable debt instruments, lease liabilities, and trade and other payables.

ICL initially recognizes debt securities issued on the date that they originated. All other financial liabilities are recognized initially on the trade date at which ICL becomes a party to the contractual provisions of the instrument. Subsequent to initial recognition these financial liabilities are measured at amortized cost using the effective interest method. Derecognition of the financial liabilities occur when the obligation of ICL, as specified in the agreement, expires or when it is discharged or cancelled.

Change in terms of debt instruments:

A substantial modification of the terms of an existing financial liability or part of it and an exchange of debt instruments having substantially different terms, between an existing borrower and lender is accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability at fair value. In such cases the entire difference between the amortized cost of the original financial liability and the fair value of the new financial liability is recognized in profit or loss as financing income or expense.

Substantially different terms - if the discounted present value of the cash flows according to the new terms and discounted using the original effective interest rate, is different by at least ten percent (10%) from the discounted present value of the remaining cash flows of the original financial liability. In addition to the aforesaid quantitative criterion, ICL examines, inter alia, whether there have also been changes in various economic parameters inherent in the exchanged debt instruments (e.g. linkage).

In a non-substantial modification of terms (or exchange) of debt instruments, the new cash flows are discounted using the original effective interest rate, and the difference between the present value of the new financial liability and the present value of the original financial liability is recognized in profit or loss.

Note 3 - Significant Accounting Policies (cont'd)

C. Financial Instruments (cont'd)

2. Non-derivative financial liabilities (cont'd)

Offset of financial instruments:

Financial assets and liabilities are offset, and the net amount is presented in the statement of financial position when, and only when, ICL currently has a legal right to offset the amounts and intends either to settle on a net basis or to realize the asset and settle the liability simultaneously.

3. Derivative financial instruments

ICL holds derivative financial instruments in order to reduce exposure to foreign currency risks, marine shipping prices, and interest. Derivatives are recognized according to fair value and the changes in value are recorded in the statement of income as financing income or expense, except for derivatives used to hedge cash flows (accounting hedging). The attributable transaction costs are recorded in the statement of income as incurred.

Cash flow hedges

Changes in the fair value of derivatives used to hedge cash flows, in accordance with the effective portion of the hedge, are recorded through other comprehensive income directly in a hedging reserve. With respect to the non-effective part, changes in the fair value are recognized in the statement of income. The amount accumulated in the capital reserve is reclassified and included in the statement of income in the same period as the hedged cash flows affected profit or loss under the same line item in the statement of income as the hedged item. If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated or exercised, then hedge accounting is discontinued. The cumulative gain or loss remains in other comprehensive income and is presented in the hedging reserve in equity until the forecasted transaction occurs or is no longer expected to occur and then is reclassified to the statements of income.

4. CPI-linked assets and liabilities not measured at fair value

The value of index-linked financial assets and liabilities, which are not measured at fair value, is re-measured every period in accordance with the actual increase/ decrease in the CPI.

5. Share capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of ordinary shares and share options are recognized as a deduction from equity, net of any tax effects. Incremental costs directly attributable to an expected issuance of an equity instrument are deducted from the equity upon the initial recognition of the equity instruments or are amortized as financing expenses in the statement of income when the issuance is no longer expected to take place.

Treasury shares - when shares recognized as equity are repurchased by the Group, the amount of the consideration paid, which includes directly attributable costs, net of any tax effects, is recognized as a deduction from equity. When treasury shares are sold or reissued subsequently, the amount received is recognized as an increase in equity, and the resulting surplus on the transaction is carried to share premium, whereas a deficit on the transaction is deducted from retained earnings.

Note 3 - Significant Accounting Policies (cont'd)

D. Property, plant and equipment

1. Recognition and measurement

Property, plant and equipment in the consolidated statements are presented at cost less accumulated depreciation and provision for impairment. The cost includes expenses that can be directly attributed to the acquisition of the asset after deducting the related amounts of government grants. The cost of assets that were self-constructed includes the cost of the materials and direct labor, as well as any additional costs that are directly attributable to bringing the asset to the required position and condition so that it will be able to function as management intended, as well as an estimate of the costs to dismantle, remove and restore, where there is an obligation for such, and capitalized borrowing costs.

Gains and losses on disposal of a property, plant or equipment item are determined by comparing the proceeds from disposal of the carrying amount of the asset and are recognized net in the income statement.

2. Subsequent Costs (after initial recognition)

The cost of replacing part of an item of property, plant and equipment and other subsequent costs is recognized as part of the book value of the item, if it is expected that the future economic benefit inherent therein will flow to ICL and that its cost can be reliably measured. The book value of the part that was replaced is derecognized. Routine maintenance costs are charged to the statement of income as incurred.

3. Depreciation

Depreciation is a systematic allocation of the depreciable amount of an asset over its estimated useful life. The depreciable amount is the cost of the asset, or other amount substituted for cost, less its residual value. Depreciation of an item of property, plant and equipment begins when the asset is available for its intended use, that is, when it has reached the place and condition required in order that it can be used in the manner contemplated for it by Management.

Depreciation is recorded in the statement of income according to the straight-line method over the estimated useful life of each significant component of the property, plant and equipment items, since this most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset. Owned land is not depreciated.

The estimated useful life is as follows:

	In Years
Buildings	15 - 30
Technical equipment and machinery (1)	5 - 33
Dikes and evaporating ponds (2)	20 - 40
Other	3 - 10

(1) Mainly 33 years

(2) Mainly 40 years

Note 3 - Significant Accounting Policies (cont'd)

D. Property, plant and equipment (cont'd)

3. Depreciation (cont'd)

The Company reviews, at least at the end of every reporting year, the estimates regarding the depreciation method, useful lives and the residual value, and adjusts them if appropriate. Over the years, the Company has succeeded to extend the useful lives of part of property, plant and equipment items beyond the original estimated useful life, as a result of investments therein and other current, ongoing maintenance thereof.

E. Intangible Assets

1. Goodwill

Goodwill recorded consequent to the acquisition of subsidiaries is presented at cost less accumulated impairment charges, under intangible assets.

2. Research and development

Expenditures for research activities are expensed as incurred. Development expenditures are recognized as intangible asset only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and ICL has the intention and sufficient resources to complete development and to use or sell the asset.

3. Other intangible assets

Other intangible assets with a defined useful life, are measured according to cost less accumulated amortization and accumulated losses from impairment. Intangible assets with indefinite useful lives are measured according to cost less accumulated losses from impairment.

4. Subsequent costs

Subsequent costs are recognized as an intangible asset only when they increase the future economic benefit inherent in the asset for which they were incurred. All other costs are charged to the statement of income as incurred.

5. Amortization

Amortization is a systematic allocation of the amortizable amount of an intangible asset over its useful life. The amortizable amount is the cost of the asset less its residual value. Amortization is recorded in the statement of income according to the straight-line method from the date the assets are available for use, over the estimated useful economic life of the intangible assets, except for customer relationships and geological surveys, which are amortized according to the rate of consumption of the economic benefits expected from the asset based on cash flow forecasts.

Note 3 – Significant Accounting Policies (cont'd)

E. Intangible Assets (cont'd)

5. Amortization (cont'd)

Goodwill and intangible assets having an indefinite lifespan are not amortized on a systematic basis but, rather, are examined at least once a year for impairment in value. Internally generated intangible assets are not systematically amortized as long as they are not available for use, i.e. they are not yet on site or in working condition for their intended use. Accordingly, these intangible assets, such as development costs, are tested for impairment at least once a year, until such date as they are available for use.

The estimated useful life is as follows:

	In Years
Concessions and mining rights – over the remaining duration of the rights granted	
Trademarks	15 – 20
Technology / patents	7 – 20
Customer relationships	15 – 25
Computer applications	3 – 10

ICL periodically examines the estimated useful life of an intangible asset that is not amortized, at least once a year, in order to determine if events and circumstances continue to support the determination that the intangible asset has an indefinite life.

Deferred expenses in respect of geological surveys are amortized over their useful life based on a geological estimate of the amount of the material that will be produced from the mining site.

The estimates regarding the amortization method and useful life are reviewed, at a minimum, at the end of every reporting year and are adjusted where necessary. ICL assesses the useful life of the customer relationships on an ongoing basis, based on an analysis of all the relevant factors and evidence, considering the experience the Company has with respect to recurring orders and churn rates and considering the future economic benefits expected to flow to the Company from these customer relationships.

F. Inventories

Inventories are measured at the lower of cost or net realizable value. The cost of the inventories includes the costs of purchasing the inventories and bringing them to their present location and condition. In the case of work in process and finished goods, the cost includes the proportionate part of the manufacturing overhead based on normal capacity. Net realizable value is the estimated selling price in the ordinary course of business, after deduction of the estimated cost of completion and the estimated costs required to execute the sale.

The cost of the inventories of raw and auxiliary materials, maintenance materials, finished goods and goods in process, is determined mainly according to the “moving average” method.

Note 3 - Significant Accounting Policies (cont'd)

F. Inventories (cont'd)

If the benefit from stripping costs (costs of removing waste produced as part of a mine's mining activities during its production stage) is attributable to inventories, the Company accounts for these stripping costs as inventories. In a case where the benefit is improved access to the quarry, the Company recognizes the costs as a non-current addition to the asset, provided the criteria presented in IFRIC 20 are met. Inventories which are expected to be sold in a period of more than 12 months from the reporting date are presented as non-current inventories, as part of non-current assets.

G. Capitalization of Borrowing Costs

A qualifying asset is an asset that requires a significant period of time to prepare for its intended use or sale. Specific and non-specific borrowing costs are capitalized to qualifying assets during the period required for their completion and establishment, until the time when they are ready for their intended use. Other borrowing costs are charged to "financing expenses" in the statement of income as incurred.

H. Impairment

1. Non-derivative financial assets

Provision for expected credit losses in respect of a financial asset at amortized cost, including trade receivables, is measured at an amount equal to the full lifetime of expected credit losses. Expected credit losses are a probability-weighted estimate of credit losses. With respect to other debt instruments, provision for expected credit losses is measured at an amount equal to 12-month expected credit losses, unless their credit risk has increased significantly since initial recognition. Provision for such losses in respect of a financial asset at amortized cost, is presented net of the gross book value of the asset.

2. Non-financial assets

In each reporting period, an examination is made with respect to whether there are signs indicating impairment in the value of ICL's non-financial assets, other than inventories and deferred tax assets. If such signs exist, the estimated recoverable amount of the asset is calculated. ICL conducts an annual examination, on the same date, of the recoverable amount of goodwill and intangible assets with indefinite useful lives or those that are not available for use - or more frequently if there are indications of impairment.

Assets that cannot be tested individually are grouped together into the smallest group of assets that generate cash inflows from continuing use that are largely independent of the cash inflows of other assets or groups of assets (the "cash-generating unit").

The recoverable amount of an asset or a cash-generating unit is the higher of its value in use or the net selling price (fair value less cost of disposal). When determining the value in use, ICL discounts the anticipated future cash flows according to an after-tax discount rate that reflects the evaluations of the market's participants regarding the time value of money and the specific risks relating to the asset or to the cash-generating unit, in respect of which the future cash flows expected to derive from the asset or the cash-generating unit were not adjusted.

Note 3 – Significant Accounting Policies (cont'd)

H. Impairment (cont'd)

2. Non-financial assets (cont'd)

Assets of the Company's headquarters and administrative facilities do not produce separate cash flows and they serve more than one cash-generating unit. Such assets are allocated to cash-generating units on a reasonable and consistent basis and are examined for impairment as part of the examination of impairment of the cash-generating units to which they are allocated.

Impairment losses are recognized if the carrying amount of an asset or cash-generating unit exceeds its estimated recoverable amount and are recognized in the statement of income. For operating segments that include goodwill, an impairment loss is recognized when the book value of the operating segment exceeds its recoverable value. Impairment losses in respect of an operating segment are allocated first to reduce the carrying amount of its goodwill and then to reduce the carrying amounts of the other assets of that segment on a proportionate basis.

An impairment loss is allocated between the owners of the Company and the non-controlling interests on the same basis that the profit or loss is allocated.

A loss from impairment in value of goodwill recognized in previous periods is not reversible prospectively. A loss from impairment of other assets recognized in previous periods is examined in future periods to assess whether there are signs indicating that these losses have decreased or no longer exist. A loss from impairment of value is reversed if there is a change in the estimates used to determine the recoverable value, only if the book value of the asset, after reversal of the loss from impairment of value, does not exceed the book value, after deduction of depreciation or amortization, that would have been determined if the loss from impairment of value had not been recognized.

I. Employee Benefits

ICL has several post-employment benefit plans. The plans are funded partly by deposits with insurance companies, financial institutions or funds managed by a trustee. The plans are classified as defined contribution plans and as defined benefit plans.

1. Defined contribution plans

A post-employment benefit plan under which ICL pays fixed contributions into a separate entity and has no legal or constructive obligation to pay further amounts.

ICL’s obligation to deposit in a defined contribution plan is recorded as an expense in the statement of income in the periods in which the employees provided the services.

Retirement benefit plans that are not defined contribution plans:

ICL’s net obligation is calculated for each plan separately, by estimating the future amount of the benefit to which an employee will be entitled as compensation for services in the current and past periods. The benefit is presented at present value after deducting the fair value of the plan's assets. The discount rate for ICL companies operating in countries having a “deep” market for high quality corporate bonds is the yield on such corporate bonds, including Israel.

Note 3 – Significant Accounting Policies (cont'd)

I. Employee Benefits (cont'd)

1. Defined contribution plans (cont'd)

The discount rate for ICL companies operating in countries not having a “deep” market for high quality corporate bonds is in accordance with the yield on government bonds – the currency and redemption date of which are similar to the terms binding ICL. The calculations are performed by a qualified actuary using the projected unit credit method

2. Defined benefit plans

When a net asset is created for ICL, the asset is recognized up to the net present value of the available economic benefits in the form of a refund from the plan or by a reduction in future deposits to the plan. An economic benefit in the form of a refund from the plan or a reduction in future deposits will be considered available when it can be realized in the lifetime of the plan or after settlement of the obligation.

The movement in the net liability in respect of a defined benefit plan that is recognized in every accounting period in the statement of income is comprised of the following: (1) Current service costs – the increase in the present value of the liability deriving from employees’ service in the current period; (2) The net financing income (expense) is calculated by multiplying the net defined benefit liability (asset) by the discount rate used for measuring the defined benefit liability, as determined at the beginning of the annual reporting period; (3) Exchange rate differences; (4) Past service costs and plan reduction – the change in the present value of the liability in the current period as a result of a change in post-employment benefits attributed to prior periods.

The difference, as of the date of the report, between the net liability at the beginning of the year plus the movement in the net liability as detailed above, and the actuarial liability less the fair value of the fund assets at the end of the year, reflects the balance of the actuarial income or expenses recognized in other comprehensive income and is recorded in retained earnings. The current interest costs and return on plan assets are recognized as expenses and interest income in the respective financing category. Costs in respect of past services are recognized immediately and without reference to whether the benefits have vested.

3. Other long-term employee benefits

Some of the Company’s employees are entitled to other long-term benefits that do not relate to a post-retirement benefit plan. Actuarial gains and losses are recorded directly to the statement of income in the period in which they arise.

Note 3 - Significant Accounting Policies (cont'd)

I. Employee Benefits (cont'd)

4. Early Retirement Pay

Early retirement pay is recognized as an expense and as a liability when ICL has clearly undertaken to pay it, without any reasonable chance of cancellation, in respect of termination of employees, before they reach the customary age of retirement according to a formal, detailed plan. The benefits provided to employees upon voluntary retirement are charged when ICL proposes the plan to the employees, it is expected that the proposal will be accepted, and it is possible to reliably estimate the number of employees that will accept the proposal. If benefits are payable more than 12 months after the reporting period, then they are discounted to their present value. The discount rate is the yield at the reporting date on high-quality, index-linked corporate debentures, the denominated currency of which is the payment currency, and that have maturity dates approximating the terms of ICL's obligations.

5. Short-term benefits

Obligations for short-term employee benefits are measured on a non-discounted basis, and the expense is recorded at the time the service is provided or upon the actual absence of the employee when the benefit is not accumulated (such as maternity leave).

A provision for short-term employee benefits in respect of cash bonuses or profit-sharing plans is recognized for the amount expected to be paid, when ICL has a current legal or implied obligation and it is possible to reliably estimate the obligation.

Classification of employee benefits is determined based on ICL's expectation with respect to full utilization of the benefits and not based on the date on which the employee is entitled to utilize the benefit.

6. Share-based compensation

The fair value on the grant date of share-based compensation awards granted to employees is recognized as a salary expense, with a corresponding increase in equity, over the period that the employees become unconditionally entitled to the awards. The amount recognized as an expense in respect of share-based compensation awards that are conditional upon meeting vesting conditions that are service conditions and non-market performance conditions, is adjusted to reflect the number of awards that are expected to vest.

J. Provisions

A provision is recognized when ICL has a present legal or implied obligation, as the result of an event that occurred in the past, that can be reliably estimated, and when it is expected that an outflow of economic benefits will be required in order to settle the obligation. The provisions are made by means of discounting the future cash flows at a pre-tax interest rate reflecting the current market estimates of the time value of money and the risks specific to the liability, without considering the Company's credit risk. ICL reviews its provisions in each reporting period and adjusts if necessary. In order to reflect the length of time that has elapsed, the book value of the provision is adjusted in each period and recognized as financing expenses. In rare cases where it is not possible to estimate the outcome of a potential liability, no provision is recorded in the financial statements.

Note 3 - Significant Accounting Policies (cont'd)

J. Provisions (cont'd)

ICL recognizes a reimbursement asset if, and only if, it is virtually certain that the reimbursement will be received if the Company settles the obligation. The amount recognized in respect of the reimbursement does not exceed the amount of the provision.

(1) Warranty

A provision for warranty is recognized when the products or services, in respect of which the warranty is provided, are sold. The provision is based on historical data and on a weighting of all possible outcomes according to their probability of occurrence.

(2) Provision for environmental costs

ICL recognizes a provision for an existing obligation for prevention of environmental pollution and anticipated provisions for costs relating to environmental restoration stemming from past activities.

Costs for preventing environmental pollution that increase the life expectancy or efficiency of a facility are capitalized to the cost of the property, plant and equipment and are depreciated according to the usual depreciation rates used by ICL.

(3) Restructuring

A provision for restructuring is recognized when ICL has approved a detailed and formal restructuring plan, and the restructuring either has commenced or has been announced publicly. The provision includes direct expenditures caused by the restructuring and necessary for the restructuring, and which are not associated with the continuing activities of ICL.

(4) Site restoration

A provision for reclamation and restoration of ICL's sites is recognized when the Company has a legal obligation which could arise, among others, from environmental regulations.

(5) Legal claims

A provision for legal claims is recognized when ICL has a present legal or constructive obligation as a result of an event that occurred in the past, if it is more likely than not that an outflow of economic resources will be required to settle the obligation and it can be reliably estimated.

K. Revenue Recognition

Identifying a contract

ICL accounts for a contract with a customer only when the following conditions are met: (a) The parties to the contract have approved the contract and they are committed to satisfying the obligations attributable to them; (b) ICL can identify the rights of each party in relation to the goods that will be transferred; (c) ICL can identify the payment terms for the goods that will be transferred; (d) The contract has a commercial substance (i.e. the risk, timing and amount of the entity’s future cash flows are expected to change as a result of the contract); and (e) It is probable that the consideration, to which ICL is entitled to in exchange for the goods transferred to the customer, will be collected.

Note 3 - Significant Accounting Policies (cont'd)

K. Revenue Recognition (cont'd)

Identifying a contract (cont'd)

For the purpose of clause (e) above, ICL takes into consideration its past experience with the customer, the financial stability information over the customer, the status and existence of sufficient collateral and the percentage of advances received.

Identifying performance obligations

ICL is a global specialty minerals and chemicals company engaged in the sale of various goods produced in its different segments of operation. ICL's contracts primarily derived from a single performance obligation to deliver the product specified in the contract. For additional information about the Company's products, see note 5 - Operating Segments.

Determining the transaction price

ICL's transaction price is the amount of the consideration specified in the contract with the customer, which it expects to be entitled in exchange for the goods promised to the customer, other than amounts collected for third parties. The variable considerations at ICL, which are mainly trade discounts, commercial returns and volume rebates, have no material impact on the Company's financial statements.

Satisfaction of performance obligation

Revenue is recognized at the point in time, when the Company transfers control over promised goods to the customer. The transfer of control over goods to a customer generally takes place upon shipment or when accepted by the customer, as provided for in the sales contract.

Payment terms

ICL has various payment terms which are aligned with the acceptable commercial conditions in the relevant markets. ICL's policy is to engage in agreements with payment terms not exceeding one year, and applies the practical expedient to not separate a significant financing component where the difference between the time of receiving payment and the time of transferring the goods to the customer is one year or less.

L. Government grants

Government grants are recognized initially at fair value when there is reasonable assurance that they will be received, and the Group will comply with the conditions associated with the grant. Unconditional government grants are recognized when the Group is entitled to receive them. Grants that compensate the Group for expenses incurred are presented as a deduction from the corresponding expense. Grants that compensate the Group for the cost of an asset are presented as a deduction from the related assets and are recognized in profit or loss on a systematic basis over the useful life of the asset.

Note 3 – Significant Accounting Policies (cont'd)

M. Leases

Determining whether an arrangement contains a lease

On the inception date of the lease, ICL determines whether the arrangement is a lease or contains a lease, while examining if it conveys the right to control the use of an identified asset for a period of time in exchange for consideration. In its assessment of whether an arrangement conveys the right to control the use of an identified asset, ICL assesses whether it has the following two rights throughout the lease term: (a) the right to obtain substantially all the economic benefits from use of the identified asset; and (b) the right to direct the identified asset's use.

For lease contracts that contain non-lease components, such as services or maintenance, that are related to a lease component, ICL elected to account for the contract as a single lease component without separating the components.

Leased assets and lease liabilities:

Contracts that award ICL control over the use of a leased asset for a period of time in exchange for consideration, are accounted for as leases. Upon initial recognition ICL recognizes a liability at the present value of the balance of future lease payments, and concurrently recognizes a right-of-use asset at the same amount of the lease liability, adjusted for any prepaid or accrued lease payments, plus initial direct costs incurred in respect of the lease. Subsequent to initial recognition, the right-of-use asset is accounted for using the cost model and depreciated over the shorter of the lease term or useful life of the asset.

ICL has elected to apply the practical expedient by which short-term leases of up to one year and/or leases in which the underlying asset has a low value, are recognized in profit or loss on a straight-line basis, over the lease term, without recognizing an asset and/or liability in the statement of financial position.

The lease term is the non-cancellable period of the lease plus periods covered by an extension or termination option if it is reasonably certain that the lessee will or will not exercise the option, respectively.

Variable lease payments that depend on an index or a rate, are initially measured using the index or rate existing at the commencement of the lease and are included in the measurement of the lease liability. When the cash flows of future lease payments change as the result of a change in an index or a rate, the balance of the liability is adjusted against the right-of-use asset. Other variable lease payments that are not included in the measurement of the lease liability are recognized in profit or loss in the period in which the event or condition that triggers payment occurs.

After lease commencement, a right-of-use asset is measured on a cost basis less accumulated depreciation and accumulated impairment losses. Depreciation is calculated on a straight-line basis over the useful life or contractual lease period, whichever earlier.

Note 3 - Significant Accounting Policies (cont'd)

M. Leases (cont'd)

Sale and leaseback:

ICL applies the requirements of IFRS 15 to determine whether an asset transfer is accounted for as a sale. If an asset transfer satisfies the requirements of IFRS 15 to be accounted for as a sale, ICL measures the right-of-use asset arising from the leaseback at the proportion of the previous carrying amount that relates to the right of use retained by ICL. Accordingly, ICL only recognizes the amount of gain or loss that relates to the rights transferred.

If the asset transfer does not satisfy the requirements of IFRS 15 to be accounted for as a sale, the transaction is accounted for as a financing transaction. Insofar as ICL is the seller-lessee of the asset, it continues to recognize the transferred asset and recognizes a financial liability in accordance with IFRS 9, at an amount equal to the transferred proceeds.

N. Financing Income and Expenses

Financing income includes income from interest on amounts invested, gains from derivative financial instruments recognized in the statement of income, foreign currency gains, gains on changes in the fair value of financial assets at fair value through profit or loss and financing income recorded in relation to employee benefits. Interest income is recognized as accrued, using the effective interest method.

Financing expenses include interest on loans received, securitization transaction costs, losses from derivative financial instruments, changes due to the passage of time in liabilities in respect of defined benefit plans for employees less interest income deriving from plan assets of a defined benefit plan for employees and losses from exchange rate differences.

Gains and losses from exchange rate differences and derivative financial instruments are reported on a net basis.

In the consolidated statements of cash flows, interest received and interest paid, are presented as part of cash flows from operating activities.

O. Taxes on Income

Taxes on income (including surplus profit levy on natural resources) include current and deferred taxes, that are recognized in profit or loss, unless they relate to a business combination or are recognized directly in equity or in other comprehensive income when they relate to items recognized directly in equity or in other comprehensive income.

Current tax is the expected tax payable (or receivable) on the taxable income for the year, using tax rates enacted or substantively enacted at the reporting date. Current taxes also include taxes in respect of prior years and any tax arising from dividends. Current tax assets and liabilities are offset if there is a legally enforceable right and there is intent to settle current tax liabilities and assets on a net basis.

A provision for uncertain tax positions, including additional tax and interest expenses, is recognized when it is more likely than not that ICL will have to pay the obligation.

Note 3 - Significant Accounting Policies (cont'd)

O. Taxes on Income (cont'd)

Recognition of deferred taxes relates to temporary differences between the book values of the assets and liabilities for purposes of financial reporting and their value for tax purposes. The Company does not recognize deferred taxes for the following temporary differences: initial recognition of goodwill and differences deriving from investments in subsidiaries, if it is not expected that they will reverse in the foreseeable future and if ICL controls the date the provision will reverse, whether via sale or distribution of a dividend. The deferred taxes are measured according to the tax rates expected to apply to the temporary differences at the time they are realized, based on the law that was finally legislated or effectively legislated as of the date of the report. Deferred taxes in respect of intra-company transactions in the consolidated financial statements are recorded according to the tax rate applicable to the buying company.

Deferred tax assets and liabilities are offset if there is a legally enforceable right and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle on a net basis.

A deferred tax asset is recognized in the books when it is expected that in the future there will be taxable income against which the temporary differences can be utilized. Deferred tax assets are examined at each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realized.

ICL could become liable for additional taxes in the case of distribution of intercompany dividends between ICL's companies. These additional taxes are not included in the financial statements as ICL's companies decided not to cause distribution of a dividend that involves additional taxes to the paying company in the foreseeable future. In cases where an investee company is expected to distribute a dividend involving additional tax, the Company records a reserve for expected additional taxes.

P. Earnings per share

ICL presents basic and diluted earnings per share data for its ordinary share capital. The basic earnings per share are calculated by dividing the income or loss attributable to the holders of the Company's ordinary shares by the weighted-average number of ordinary shares outstanding during the year, after adjustment in respect of treasury shares. The diluted earnings per share are determined by adjusting the income or loss attributable to the holders of the Company's ordinary shares and the weighted-average number of ordinary shares outstanding after adjustment in respect of treasury shares and for the effect of restricted shares and options for shares granted to employees.

Q. Transactions with controlling shareholder

Assets and liabilities included in a transaction with a controlling shareholder are measured at fair value on the date of the transaction.

Note 3 - Significant Accounting Policies (cont'd)

R. Non-current assets and disposal groups held for sale

Non-current assets (or disposal groups composed of assets and liabilities) are classified as held for sale if it is highly probable that they will be recovered primarily through a sale transaction and not through continuing use.

Immediately before classification as held for sale, the assets (or components of the disposal group) are remeasured in accordance with ICL's accounting policies. Thereafter, the assets (or components of the disposal group) are measured at the lower of their carrying amount and fair value less costs to sell.

Any impairment loss on a disposal group is initially allocated to goodwill, and then to remaining assets on a pro rata basis, except that no loss is allocated to assets that are not in the scope of the measurement requirements of IFRS 5 such as: inventories, financial assets, deferred tax assets and employee benefit assets, which continue to be measured in accordance with ICL's accounting policies. Impairment losses recognized and subsequent gains or losses on remeasurement, are recognized as profit or loss. Gains are not recognized in excess of any cumulative impairment loss. In subsequent periods, depreciable assets classified as held for sale are not depreciated on a periodic basis.

Note 4 – Determination of Fair Values

As part of the accounting policies and disclosures, ICL is required to determine the fair value of both financial and non-financial assets and liabilities. The fair values have been determined for measurement and/or disclosure purposes based on the methods described below. Further information about the assumptions made in determining the fair values is disclosed in the notes specific to that asset or liability.

A. Investments in equity securities

The fair value of investments in equity instruments classified as fair value through other comprehensive income – investments in equity instruments and as fair value through profit and loss, is determined based on their market price at date of the report.

B. Derivatives

The fair value of forward contracts on foreign currency is determined by averaging the exchange rate and the appropriate interest coefficient for the period of the transaction and the relevant currency index. The fair value of interest rate swap contracts is determined by discounting the estimated amount of the future cash flows based on the terms and length of period to maturity of each contract, while using market interest rates of similar instruments at the date of measurement. Future contracts on energy and marine shipping prices are presented at fair value based on quotes of the prices of products on an ongoing basis.

The reasonableness of the fair value is examined by comparing it to banks' quotations.

C. Liabilities in respect of debentures

The fair value of liabilities including debentures is determined for disclosure purposes only and is calculated based on the present value of future cash flows in respect of the principal and interest components, discounted at the market rate of interest as of the reporting date. The fair value of marketable debentures is determined based on the stock market prices as of the date of the report.

D. Property, plant and equipment of the subsidiaries Dead Sea Works, Dead Sea Bromine and Dead Sea Magnesium in Israel

The fair value of property, plant and equipment of the subsidiaries Dead Sea Works, Dead Sea Bromine and Dead Sea Magnesium (hereinafter – the Subsidiaries) was measured in their statutory reports based on the Replacement Cost Methodology under IFRS. This evaluation was performed in recent years and serve, among others, as the basis for the mineral based financial reports prepared pursuant to the provisions of the Taxation of Natural Resources Law. For further information, see Note 15.

Note 5 - Operating Segments

A. General

1. Information on operating segments:

ICL is a global specialty minerals company operating bromine, potash and phosphate mineral value chains in a unique, integrated business model. Our operations are organized under four segments: Industrial Products, Potash, Phosphate Solutions and Innovative Agriculture Solutions.

As part of management's strategy to strengthen the focus on its specialties products a decision was made regarding the Company's managerial structure, according to which, as of January 2022, the activities of ICL Boulby and ICL Amfert will be allocated from the potash and phosphate solutions segments, respectively, to the Innovative Ag Solutions segment. This transition is not reflected in the presentation set forth below.

Industrial Products - The Industrial Products segment produces bromine out of a solution that is a by-product of the potash production process in Sodom, Israel, as well as bromine-based compounds. Industrial Products uses most of the bromine it produces for self-production of bromine compounds at its production sites in Israel, the Netherlands and China. Industrial Products is also engaged in the production and marketing of phosphorous-based products. In addition, the Industrial Products segment produces several grades of potash, salt, magnesium chloride and magnesia products.

Potash - The Potash segment produces and sells mainly potash, salt, Polysulphate®, magnesium and electricity. Potash is produced in Israel and Spain, using an evaporation process to extract potash from the Dead Sea in Israel and conventional mining from an underground mine in Spain. In its ICL Boulby mine in the UK, the Company produces Polysulphate®, which is composed of sulphur, potash, calcium and magnesium. The Company's FertilizerpluS product line is based mainly on Polysulphate®. The segment also includes a magnesium product line which produces pure magnesium and magnesium alloys, as well as chlorine and sylvinite. In addition, the segment sells salt that is produced in its potash and Polysulphate® underground mines in Spain and the UK. The Company has a power plant in Sodom, which supplies electricity to ICL companies in Israel (electricity surplus is sold to external customers) and steam to all facilities in the Sodom site.

Phosphate Solutions - The Phosphate Solutions segment is based on a phosphate value chain which uses phosphate commodity products, such as phosphate rock and fertilizer-grade phosphoric acid ("green phosphoric acid"), to produce specialty products with higher added value. The segment also produces and markets phosphate-based fertilizers.

Phosphate rock is mined and processed from open pit mines, two of which are located in the Negev Desert in Israel, while the third is situated in Yunnan province in China. Sulphuric acid, green phosphoric acid and phosphate fertilizers are produced in facilities in Israel, China and Europe.

Note 5 - Operating Segments (cont'd)

A. General (cont'd)

1. Information on operating segments: (cont'd)

The Phosphate Solutions segment manufactures purified phosphoric acid by purifying green phosphoric acid. Pure phosphoric acid and green phosphoric acid are used to manufacture downstream products with high added value, such as phosphate salts and acids, for a wide range of food and industrial applications. Phosphate salts and acids are used in various industrial end markets, such as oral care, cleaning products, paints and coatings, LFP batteries, water treatment, asphalt modification, construction, metal treatment, and more. The segment's products for the food industry include functional food ingredients and phosphate additives, which provide texture and stability solutions for processed meat, meat alternatives, poultry, seafood, dairy, beverages and baked goods. In addition, the segment supplies purified phosphoric acid to ICL's specialty fertilizers business and produces alternative protein meat substitutes, as well as milk and whey proteins for the food ingredients industry.

Innovative Ag Solutions - The Innovative Ag Solutions segment aims to achieve global leadership in specialty fertilization markets by enhancing its global positions in its core markets of specialty agriculture, ornamental horticulture, turf and landscaping, targeting high-growth markets such as Brazil, India and China, by leveraging its unique R&D capabilities, vast agronomic experience, global footprint, backward integration to potash and phosphate and chemistry know-how, while integrating and generating synergies from acquired businesses.

In January 2021, the Company completed the acquisition of Fertiláqua, one of Brazil's leading specialty plant nutrition companies, and in July 2021, the acquisition of the South American Plant Nutrition business of Compass Minerals América do Sul S.A. (hereinafter - ADS).

ICL is continuously working to expand its broad portfolio of specialty plant nutrition, plant stimulation and plant health solutions, which consists of enhanced efficiency and controlled release fertilizers (CRF), water soluble fertilizers (WSF), liquid fertilizers and straights (MKP/MAP/PeKacid), soil and foliar micronutrients, secondary nutrients, biostimulants, soil conditioners, seed treatment products, and adjuvants.

The Innovative Ag Solutions segment develops, manufactures, markets and sells its products globally, mainly in Brazil, Europe, Asia, North America and Israel. It produces water soluble specialty fertilizers in Belgium, Israel and Spain, liquid fertilizers in Israel, Spain, China and Brazil, straights soluble fertilizers in China and Israel, controlled-release fertilizers in the Netherlands, Brazil and the United States, as well as secondary nutrients, biostimulants, soil conditioners, seed treatment product, and adjuvants in Brazil.

Other Activities - Business activities which include, among other, ICL's innovative arm, promoting innovation, developing new products and services, as well as digital platforms and technological solutions for farmers and agronomists. This category includes Growers and Agmatix, innovative start-ups that are developing agricultural data processing and analysis capabilities for the future of agriculture. These activities are not presented as reportable segments, since they do not meet the required quantitative thresholds.

Note 5 - Operating Segments (cont'd)

A. General (cont'd)

2. Segment capital investments

The capital investments made by the segments, for each of the reporting periods, include mainly property, plant and equipment, as well as intangible assets acquired in the ordinary course of business and as part of business combinations.

3. Inter-segment transfers and unallocated income (expenses)

Segment's revenue, expenses and results include inter-segment transfers that are based on transaction prices in the ordinary course of business. This is aligned with the reports that are regularly reviewed by the Chief Operating Decision Maker. The inter-segment transfers are eliminated as part of financial statements' consolidation process.

The Segment profit is measured based on the operating income, without the allocation of certain expenses to the operating segments, as presented in the reports regularly reviewed by the Chief Operating Decision Maker. This is the basis for analyzing segment results, since management believes that it is the most relevant measure for the assessment of such results.

Note 5 - Operating Segments (cont'd)

B. Operating segment data

	Industrial Products	Potash	Phosphate Solutions	Innovative Ag Solutions	Other Activities	Reconciliations	Consolidated
				$ millions			
For the year ended December 31, 2021							
Sales to external parties	1,601	1,768	2,334	1,226	26	-	6,955
Inter-segment sales	16	163	98	19	2	(298)	-
Total sales	1,617	1,931	2,432	1,245	28	(298)	6,955
Segment operating income (loss)	435	399	307	121	(8)	(60)	1,194
Other income not allocated to the segments							16
Operating income							1,210
Financing expenses, net							(122)
Share in earnings of equity-accounted investees							4
Income before income taxes							1,092
Depreciation amortization and impairment	65	165	215	38	2	(1)	484
Capital expenditures	74	298	238	36	6	17	669
Capital expenditures as part of business combination	-	-	-	377	-	-	377

Note 5 – Operating Segments (cont'd)

B. Operating segment data (cont'd)

	Industrial Products	Potash	Phosphate Solutions	Innovative Ag Solutions	Other Activities	Reconciliations	Consolidated
				$ millions			
For the year ended December 31, 2020							
Sales to external parties	1,242	1,183	1,871	715	32	–	5,043
Inter-segment sales	13	163	77	16	3	(272)	–
Total sales	1,255	1,346	1,948	731	35	(272)	5,043
Segment operating income (loss)	303	120	66	40	(5)	(15)	509
Other expenses not allocated to the segments							(307)
Operating income							202
Financing expenses, net							(158)
Share in earnings of equity-accounted investees							5
Income before income taxes							49
Depreciation amortization and impairment	77	166	210	25	3	98	579
Capital expenditures	84	296	275	20	6	15	696
Capital expenditures as part of business combination	–	–	–	–	26	–	26

Note 5 - Operating Segments (cont'd)

B. Operating segment data (cont'd)

	Industrial Products	Potash	Phosphate Solutions	Innovative Ag Solutions	Other Activities	Reconciliations	Consolidated
				$ millions			
For the year ended December 31, 2019							
Sales to external parties	1,307	1,330	1,901	699	34	-	5,271
Inter-segment sales	11	164	79	18	3	(275)	-
Total sales	1,318	1,494	1,980	717	37	(275)	5,271
Segment operating income	338	289	100	21	19	(7)	760
Other expenses not allocated to the segments							(4)
Operating income							756
Financing expenses, net							(129)
Share in earnings of equity-accounted investees							1
Income before income taxes							628
Depreciation amortization and impairment	67	149	177	21	22	(3)	433
Implementation of IFRS 16	8	95	113	9	105	9	339
Capital expenditures	66	383	213	21	4	6	693

Note 5 – Operating Segments (cont'd)

C. Information based on geographical location

The following table presents the distribution of ICL's sales by geographical location of the customer:

	2021		2020		2019	
	$ millions	% of sales	$ millions	% of sales	$ millions	% of sales
Brazil	1,178	17	447	9	581	11
USA	1,091	16	793	16	840	16
China	1,060	15	806	16	802	15
United Kingdom	386	6	336	7	347	7
Germany	345	5	327	6	334	6
Israel	291	4	260	5	241	5
Spain	280	4	243	5	249	5
France	270	4	238	5	257	5
India	213	3	194	4	178	3
Italy	145	2	114	2	116	2
All other	1,696	24	1,285	25	1,326	25
Total	6,955	100	5,043	100	5,271	100

Note 5 – Operating Segments (cont'd)

C. Information based on geographical location (cont'd)

The following table presents the distribution of the operating segments sales by geographical location of the customer:

	Industrial Products	Potash	Phosphate Solutions	Innovative Ag Solutions	Other Activities	Reconciliations	Consolidated
				$ millions			
For the year ended December 31, 2021							
Europe	530	497	765	424	23	(80)	2,159
Asia	597	513	621	156	1	(12)	1,876
South America	64	507	359	378	–	(3)	1,305
North America	363	216	492	120	1	(6)	1,186
Rest of the world	63	198	195	167	3	(197)	429
Total	1,617	1,931	2,432	1,245	28	(298)	6,955

	Industrial Products	Potash	Phosphate Solutions	Innovative Ag Solutions	Other Activities	Reconciliations	Consolidated
				$ millions			
For the year ended December 31, 2020							
Europe	458	411	665	334	30	(76)	1,822
Asia	405	433	480	127	1	(14)	1,432
South America	40	230	227	21	–	(1)	517
North America	299	86	372	105	2	(5)	859
Rest of the world	53	186	204	144	2	(176)	413
Total	1,255	1,346	1,948	731	35	(272)	5,043

Note 5 – Operating Segments (cont'd)

C. Information based on geographical location (cont'd)

The following table presents the distribution of the operating segments sales by geographical location of the customer: (cont'd)

	Industrial Products	Potash	Phosphate Solutions	Innovative Ag Solutions	Other Activities	Reconciliations	Consolidated
				$ millions			
For the year ended December 31, 2019							
Europe	469	422	712	336	31	(85)	1,885
Asia	399	470	447	118	1	(12)	1,423
South America	56	327	263	23	–	(1)	668
North America	353	95	370	95	–	(3)	910
Rest of the world	41	180	188	145	5	(174)	385
Total	1,318	1,494	1,980	717	37	(275)	5,271

Note 5 – Operating Segments (cont'd)

C. Information based on geographical location (cont'd)

The following table presents the distribution of the Company’s sales by geographical location of the main facilities from which they were produced.

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Israel	3,526	2,636	2,815
Europe	2,437	2,014	2,079
South America	1,095	424	441
North America	897	757	816
Asia	861	643	615
Others	56	48	47
	8,872	6,522	6,813
Intercompany sales	(1,917)	(1,479)	(1,542)
Total	6,955	5,043	5,271

The following table presents operating income by geographical location of the assets from which it was produced:

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Israel*	863	105	578
Asia	179	64	59
South America**	95	35	19
North America	71	47	61
Europe	7	(50)	32
Others	4	4	3
Intercompany eliminations	(9)	(3)	4
Total	1,210	202	756

* Israel operating income for 2020 includes a loss of $274 million resulting from impairments and the initiation of efficiency initiatives and measures.

** South America operating income for 2021 includes $51 million resulting from the operations of Fertilaqua and ADS, which were acquired during the year. For additional information see Note 8B.

Note 5 - Operating Segments (cont'd)

C. Information based on geographical location (cont'd)

The following table present the non-current assets by geographical location of the assets (*)

	As of December 31	
	2021	2020
	$ millions	$ millions
Israel	4,079	3,952
Europe	1,505	1,575
Asia	483	490
South America	391	58
North America	333	319
Other	5	5
Total	6,796	6,399

(*) Mainly consist of property, plant and equipment, intangible assets and non-current inventories.

Note 6 - Inventories

	As of December 31	
	2021	2020
	$ millions	$ millions
Finished products	946	807
Work in progress	299	263
Raw materials	349	207
Spare parts	125	125
Total inventories	1,719	1,402
Of which:		
Non-current inventories - mainly raw materials (presented in non-current assets)	149	152
Current inventories	1,570	1,250

Note 7 - Prepaid expenses and other receivables

	As of December 31	
	2021	2020
	$ millions	$ millions
Government institutions	97	72
Current tax assets	97	65
Prepaid expenses	51	50
Derivative instruments	48	24
Financial asset at amortized cost	-	66
Other	64	64
	357	341

Note 8 - Investments in Subsidiaries

A. Non-controlling interests in subsidiaries

The following tables present information with respect to non-controlling interests in a subsidiary, YPH (at the rate of 50%), before elimination of inter-company transactions. The information includes fair value adjustments that were made on the acquisition date, other than goodwill and presented without adjustments for the ownership rates held by the Company.

	As of December 31	
	2021	2020
	$ millions	$ millions
Current assets	231	149
Non-current assets	408	400
Current liabilities	(168)	(189)
Non-current liabilities	(83)	(76)
Equity	(388)	(284)

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Sales	528	359	349
Operating Income	105	29	23
Depreciation and amortization	38	37	41
Operating income before depreciation and amortization	143	66	64
Net Income	96	23	11
Total Comprehensive income	104	40	8

B. Business Acquisition and Divestiture

(1) As part of the Company's strategy to expand the specialty fertilizers business and focus on growing markets, such as achieving leadership positions in Brazil, a high growth specialty plant nutrition market, in January 2021, the Company completed the acquisition of Agro Fertiláqua Participações S.A., one of Brazil's leading specialty plant nutrition companies, for a consideration of $131 million, including net debt of $43 million.

In July 2021, the Company completed the acquisition of the South American plant nutrition business of ADS, for a total consideration of about $443 million, including net debt of about $104 million. ADS offers a broad range of solutions for plant nutrition and stimulation, soil treatment, seed treatment and plant health, covering all key Brazilian crops, and as such significantly expands ICL's product portfolio and segment profitability, while providing seasonal balance between the Northern and Southern hemispheres.

Note 8 – Investments in Subsidiaries (cont'd)

B. Business Acquisition and Divestiture (cont'd)

Identifiable assets acquired and liabilities assumed (*):

	$ millions
Cash and cash equivalents	34
Inventories	102
Trade and Other receivables	169
Property, plant and equipment	125
Intangible assets	252
Other non-current assets	23
Trade and Other payables	(106)
Loans and Credit	(169)
Provisions	(3)
Net identifiable assets	427

(*) As of the reporting date, the Company is still in a process of finalizing ADS' Purchase Price Allocation (PPA).

(2) In July 2021, the Company completed the sale of Jiaxing ICL Chemical Co. Ltd (ICL Zhapu), which was part of the Industrial Products segment to China Sanjiang Fine Chemicals Company Limited, for a consideration of about $25 million. As a result, in 2021, the Company recognized a capital gain of about $18 million, as "other income".

(3) As part of the Company's strategy to divest low synergy businesses and non-core business activities, in January 2022, the Company entered into a definitive agreement to sell its 50% share in the joint venture Novetide Ltd., which was accounted for according to the equity method. The sale's consideration is about $33 million, of which $8 million represent an estimate for the fair value of a contingent consideration. The closing of the transaction is expected in early March 2022. As a result, in the first quarter of 2022, the Company will recognize a capital gain of about $20 million, subject to net debt and working capital adjustments at the closing date.

Note 9 – Other non-current assets

	As of December 31	
	2021	2020
	$ millions	$ millions
Non-current inventories	149	152
Surplus in employees' defined benefit plans (1)	115	91
Derivative designated as a cash flow hedge	97	115
Investments in equity-accounted investees	26	27
Other	16	8
	403	393

(1) See Note 16.

Note 10 – Property, Plant and Equipment

A. Composition

	Land and buildings	Technical equipment and machinery	Dikes and evaporating ponds	Plants under construction (1)	Other	Right of use asset	Total
				$ millions			
Cost							
Balance as of January 1, 2021	880	7,419	1,441	778	1,003	496	12,017
Additions in respect of business combinations	85	20	–	9	2	9	125
Additions	193	382	51	(99)	78	37	642
Disposals	(2)	(44)	(1)	–	(6)	(20)	(73)
Exit from consolidation	(9)	(21)	–	–	(1)	(2)	(33)
Translation differences	(40)	(92)	(26)	(24)	(3)	(2)	(187)
Balance as of December 31, 2021	1,107	7,664	1,465	664	1,073	518	12,491
Accumulated depreciation							
Balance as of January 1, 2021	491	4,300	763	–	817	96	6,467
Depreciation	30	227	55	–	71	71	454
Reversal of impairment	–	(6)	–	–	–	–	(6)
Disposals	(5)	(34)	–	–	(4)	(19)	(62)
Exit from consolidation	(3)	(19)	–	–	–	–	(22)
Translation differences	(11)	(58)	(21)	–	(3)	(1)	(94)
Balance as of December 31, 2021	502	4,410	797	–	881	147	6,737
Depreciated balance as of December 31, 2021	605	3,254	668	664	192	371	5,754

(1) The additions are presented net of items for which construction has been completed and accordingly were reclassified to other categories in the "property, plant and equipment" section.

Note 10 – Property, Plant and Equipment (cont'd)

A. Composition (cont'd)

	Land and buildings	Technical equipment and machinery	Dikes and evaporating ponds	Plants under construction (1)	Other	Right of use asset	Total
				$ millions			
Cost							
Balance as of January 1, 2020	804	6,865	1,392	765	945	423	11,194
Additions	63	467	21	(24)	68	80	675
Disposals	(7)	(34)	–	–	(7)	(21)	(69)
Exit from consolidation	(14)	(5)	–	–	(6)	(1)	(26)
Translation differences	34	126	28	37	3	15	243
Balance as of December 31, 2020	880	7,419	1,441	778	1,003	496	12,017
Accumulated depreciation							
Balance as of January 1, 2020	445	3,950	666	–	760	42	5,863
Depreciation	35	246	47	–	66	67	461
Disposals	(6)	(31)	–	–	(7)	(15)	(59)
Impairment	–	58	27	–	–	–	85
Exit from consolidation	(2)	(4)	–	–	(4)	–	(10)
Translation differences	19	81	23	–	2	2	127
Balance as of December 31, 2020	491	4,300	763	–	817	96	6,467
Depreciated balance as of December 31, 2020	389	3,119	678	778	186	400	5,550

(1) The additions are presented net of items for which construction has been completed and accordingly were reclassified to other categories in the "property, plant and equipment" section.

Note 10 – Property, Plant and Equipment (cont'd)

B. Additional information

(1) In accordance with the Company's policy regarding the periodic examination of the estimated useful life of Property, Plant and Equipment, in 2021, the Company conducted an examination of the estimated remaining useful life of Property, Plant and Equipment at its facilities in Israel, which was based on the Company's experience, level of maintenance and operation of the facilities over the years. According to the examination, it was found that following the increase in maintenance activity and the implementation of operational excellence processes, the life expectancy of certain Property, Plant and Equipment is higher than their previously estimated remaining useful life. Based on the assessment, the estimated useful life of the said assets was extended by 5-10 years, as of January 2021. The impact of this update is a reduction in depreciation expenses, of $51 million in earnings and a balance of $18 million as a change in inventory value.

(2) In December 2021, the Company entered into an agreement with a third party for the sale of an asset located in the industrial area of Ashdod, Israel, for a consideration of about $16.5 million. As a result, the Company recognized a capital gain of $16 million as "other income" in its Statement of Income.

Note 11 – Intangible Assets

A. Composition

	Goodwill	Concessions and mining rights	Trademarks	Technology / patents	Customer relationships	Computer application	Others	Total
	$ millions							
Cost								
Balance as of January 1, 2021	341	218	92	93	172	118	73	1,107
Additions in respect of business combinations	210	–	1	2	39	–	–	252
Additions	–	–	–	6	1	19	1	27
Translation differences	(29)	(3)	(5)	(4)	(9)	(13)	(4)	(67)
Balance as of December 31, 2021	522	215	88	97	203	124	70	1,319
Amortization								
Balance as of January 1, 2021	21	74	34	55	123	76	54	437
Amortization for the year	–	6	3	5	12	7	3	36
Translation differences	(1)	–	(3)	(2)	(4)	(9)	(2)	(21)
Balance as of December 31, 2021	20	80	34	58	131	74	55	452
Amortized Balance as of December 31 ,2021	502	135	54	39	72	50	15	867

Note 11 - Intangible Assets (cont'd)

A. Composition (cont'd)

	Goodwill	Concessions and mining rights	Trademarks	Technology / patents	Customer relationships	Computer application	Others	Total
	$ millions							
Cost								
Balance as of January 1, 2020	323	209	86	84	176	99	69	1,046
Additions in respect of business combinations	18	-	-	7	1	-	-	26
Additions	-	-	-	1	-	18	2	21
Exit from consolidation	-	-	-	(5)	(10)	-	-	(15)
Translation differences	-	9	6	6	5	1	2	29
Balance as of December 31, 2020	341	218	92	93	172	118	73	1,107
Amortization and impairment losses								
Balance as of January 1, 2020	21	70	28	49	114	68	44	394
Amortization	-	2	3	5	9	7	2	28
Impairment	-	-	-	-	-	-	5	5
Exit from consolidation	-	-	-	(2)	(3)	-	-	(5)
Translation differences	-	2	3	3	3	1	3	15
Balance as of December 31, 2020	21	74	34	55	123	76	54	437
Amortized Balance as of December 31 ,2020	320	144	58	38	49	42	19	670

Note 11 – Intangible Assets (cont'd)

B. Total book value of intangible assets having defined useful lives and those having indefinite useful lives are as follows:

	As of December 31	
	2021	2020
	$ millions	$ millions
Intangible assets having a defined useful life	333	317
Intangible assets having an indefinite useful life	534	353
	867	670

Note 12 – Impairment Testing

A. Impairment testing for intangible assets with an indefinite useful life

The goodwill is not monitored for internal reporting purposes and, accordingly, it is allocated to the Company's operating segments and not to the cash-generating units, the level of which is lower than the operating segment, as long as the acquired unit is presented in the Company's reportable segments. The examination of impairment of the carrying amount of the goodwill is made accordingly.

For impairment testing purpose, the trademarks with indefinite useful life were allocated to the cash-generating units, which represent the lowest level within the Company.

The carrying amounts of intangible assets with an indefinite useful life are as follows:

	As of December 31	
	2021	2020
	$ millions	$ millions
Goodwill		
Phosphate Solutions	114	116
Industrial Products	91	94
Innovative Ag. Solutions*	260	73
Potash	19	19
Other	18	18
	502	320
Trademarks	32	33
	534	353

* The increase is mainly from the acquisitions of Fertiláqua and ADS businesses. For further information, see Note 8B.

Note 12 - Impairment Testing (cont'd)

A. Impairment testing for intangible assets with an indefinite useful life (cont'd)

The Company conducted its annual impairment test of goodwill during the third quarter and did not identify any impairment. The recoverable amount of the operating segments was determined based on their value in use, which is an internal valuation of the discounted future cash flows generated from the continuing operations of the operating segments.

The future cash flow of each operating segment was based on the segment approved five-year plan, which includes the segment estimations for revenues, operating income and other factors, such as working capital and capital expenditures. The segments' projections were based, among other things, on the assumed sales volume growth rates based on long-term expectations, internal selling prices and raw materials prices based on external data sources, when applicable and relevant.

The key assumptions used to calculate the operating segments' recoverable amounts are the nominal after-tax discount rate of 8% and the long-term growth rate of 2%, reflecting the industries and markets the Company is involved in.

Note 13 - Credit from Banks and Others

A. Composition

	As of December 31	
	2021	2020
	$ millions	$ millions
Short-term debt		
From financial institutions	327	296
Current maturities of:		
Debentures	131	206
Long-term loans from financial institutions	56	90
Lease Liability	63	64
Long-term loans from others	-	23
	250	383
Total Short-Term debt	577	679
Long- term debt and debentures		
Long term lease liability	299	325
Loans from financial institutions	679	194
Other loans	-	24
	978	543
Marketable debentures	1,517	1,618
Non-marketable debentures	191	275
	1,708	1,893
	2,686	2,436
Less - current maturities of:		
Debentures	131	206
Long-term loans from financial institutions	56	90
Lease liability	63	64
Long-term loans from others	-	23
	250	383
Total Long- term debt and debentures	2,436	2,053

For further information, see Note 21.

Note 13 - Credit from Banks and Others (cont'd)

B. Yearly movement in Credit from Banks and Others (*)

	As of December 31	
	2021	2020
	$ millions	$ millions
Balance as of January 1	2,660	2,559
Changes from financing cash flows		
Additions in respect of business combination	171	-
Receipt of long-term debts	1,230	1,175
Repayment of long-term debt	(1,120)	(1,133)
Repayment of short-term credit	(58)	(52)
Interest paid	(112)	(109)
Receipt (payments) from transaction in derivatives	(17)	24
Total net financing cash flows	94	(95)
Initial recognition of lease liability	37	80
Interest expenses	126	120
Effect of changes in foreign exchange rates	(21)	84
Change in fair value of derivatives	(24)	(53)
Other changes	42	(35)
Balance as of December 31	2,914	2,660

(*) The balance includes Short-term debt, derivatives on loans and debentures, loans and debentures and interest payables.

Note 13 - Credit from Banks and Others (cont'd)

C. Sale of receivables under securitization transaction

In September 2020, the Company and certain subsidiaries (hereinafter - the Subsidiaries) signed a series of agreements regarding a securitization transaction with three international banks (hereinafter - the Lending Banks) for the sale of their trade receivables to a special company which was established specifically for this purpose (hereinafter - the Acquiring Company).

The new securitization agreements were signed with a committed amount of $300 million and an additional uncommitted amount of $100 million, maturing in September 2025 (hereinafter - the Agreements). These Agreements replace the prior securitization agreements, which expired in September 2020. The structure and terms of the Agreements are very similar to the prior securitization agreement.

The Company's policy is to utilize the securitization limit based on its cash flow needs, alternative financing sources and market conditions. According to the Agreements, the Company undertook to comply with a financial covenant according to which the ratio of net debt to EBITDA will not exceed 4.75. If the Company does not meet this ratio, the Acquiring Company can discontinue acquiring new trade receivables (without affecting existing acquisitions). As of the reporting date, the Company complies with the above financial covenant.

The Acquiring Company finances acquisition of the debts through a loan received from a financial institution that is not affiliated with the Company. The period during which the Subsidiaries are entitled to sell their trade receivables to the Acquiring Company is five years from the closing date of the transaction, both parties have the option, at the end of each year, to notify for the transaction's cancellation. Once the Company has transferred its trade receivables, it no longer has the right to sell them to another party. The selling price of the trade receivables is the amount of the debt sold, less the calculated interest cost based on the expected period between the sale date of the customer debt and its repayment date. Upon acquisition of the debt, the Acquiring Company pays part of the debt price in cash and the remainder in a subordinated note, which is paid after collection of the debt sold. The rate of the cash consideration varies depending on the composition and behavior of the customer portfolio. The Subsidiaries continue to handle the collection of the trade receivables included in the securitization transaction, on behalf of the Acquiring Company.

In addition, the Agreements set several conditions regarding the quality of the customer portfolios, which give the Lending Banks the option of terminating the undertaking or excluding the subsidiaries whose customer portfolios do not meet the provided conditions from the Agreements.

The trade receivables are fully presented in the Company's statements of financial position and the receipts received from the Acquiring Company are presented as a financial liability under short-term credit. As of December 31, 2021, utilization of the securitization facility within this framework amounted to $180 million (December 31, 2020 - $183 million).

Note 13 – Credit from Banks and Others (cont'd)

D. Information on material loans and debentures outstanding as of December 31, 2021:

Instrument type	Loan date	Original principal (millions)	Currency	Carrying amount ($ millions)	Interest rate	Principal repayment date	Additional information
Debentures – Series F	May 2018, December 2020	693	U.S. Dollar	715	6.38%	May 2038	(4), (5)
Debentures – Series E	April 2016	1,569	Israeli Shekel	378	2.45%	2021– 2024 (annual installment)	Partially repaid (1), (4)
Debentures (private offering) – 3 series	January 2014	275	U.S. Dollar	145 46	5.16% 5.31%	January 2024 January 2026	(1)
Debentures – Series G	January/May 2020	766	Israeli Shekel	241	2.40%	2022– 2034 (annual installment)	(4)
Debentures – Series D	December 2014	184	U.S. Dollar	183	4.50%	December 2024	(4), (5)
SLL	September 2021	250	Euro	282	0.80%	September 2026	(2)
Loan – European Bank	September 2021	25	Euro	28	0.95%	June 2025	(3)
Loan–Israeli institutions	November 2013	300	Israeli Shekel	56	4.74%	2015–2024 (annual installment)	Partially repaid
Loan – Asian Bank	May 2020, May 2021 September 2020, March 2021	151 380	Chinese Yuan	20 56	4.25%–4.95% 4.25%–4.40%	December 2020 – May 2023 March 2021–March 2024	Partially repaid
Loan – Brazilian Bank	December 2014–January 2021	350	Brazilian Real	47	4%–8%	January 2015–June 2025	Partially repaid

Note 13 – Credit from Banks and Others (cont'd)

D. Information on material loans and debentures outstanding as of December 31, 2021: (cont'd)

Additional Information:

(1) In January 2021, the Company repaid $84 million of a private placement bond as scheduled. In March 2021, the Company repaid NIS 392 million (about $118 million) of Series E debentures, out of the total NIS 1,569 million (about. $487 million), as scheduled. In December 2021 the Company repaid an amount of $ 69.4 million in accordance with the agreement of loan with European Bank.

(2) In September 2021, the Company entered into a new sustainability linked loan (SLL) agreement in the amount of €250 million, with a five-year term through 2026 and a fixed annual interest rate of 0.8%. The loan was entered into with a group of five leading global lenders.

The loan is an innovative step forward in the Company’s ongoing sustainability efforts and includes three sustainability performance targets: (1) an annual 4% to 5% reduction in direct and indirect Scope 1 and Scope 2 CO_2e emissions resulting from ICL global operations. (2) Through 2025, the Company is committed to adding a significant number of Tfs (Together for Sustainability) qualified vendors each year who meet criteria of management, environment, health and safety, labor and human rights, ethics, and governance and (3) for women to hold at least 25% of senior management roles, by the end of 2024.

(3) In September 2021, ICL Iberia signed a new loan agreement in the amount of €25 million with a 45-month term through 2025 and a fixed annual interest rate of 0.95%.

(4) On June 23, 2021, the credit rating agency S&P reaffirmed the Company’s international credit rating and senior unsecured rating 'BBB-’. In addition, the credit rating agency S&P Ma’alot reaffirmed the Company’s credit rating 'ilAA’ with a stable rating outlook. As of December 31, 2021, the Company is in compliance with all its financial covenants set forth in its financing agreements. For more details see note 13F.

(5) On June 21, 2021, the credit rating agency Fitch Ratings reaffirmed the Company’s long-term issuer default rating and senior unsecured rating at 'BBB-’. The outlook on the long-term Issuer default rating is stable.

Note 13 - Credit from Banks and Others (cont'd)

E. Credit facilities:

Issuer	Group of international banks (1)	European bank	Brazilian bank (2)
Date of the credit facility	March 2015	December 2016	March 2021
Date of credit facility termination	March 2025	May 2024	March 2023
The amount of the credit facility	USD 1,200 million	USD 30 million	BRL 230 million
Credit facility has been utilized	Euro 150 million	USD 30 million	BRL 180 million
Interest rate	Up to 33% use of the credit: Libor/Euribor + 0.70%. From 33% to 66% use of the credit: Libor/Euribor + 0.80% 66% or more use of the credit: Libor/Euribor + 0.95%	30 million dollar-Libor + 0.80%	CDI + 0.95%
Loan currency type	USD and Euro loans	USD loans	BRL loans
Pledges and restrictions	Financial covenants - see Section D, a cross-default mechanism and a negative pledge.	Financial covenants - see Section D and a negative pledge.	-
Non-utilization fee	0.21%	-	-

(1) In October 2021, an additional bank joined the credit facility agreement, increasing the revolving credit facility by an additional $100 million, leading to a total amount of $1.2 billion. Most banks signed on to continue the credit facility agreement and from March 2023 to March 2025, the total credit facility will amount to $1 billion. As of December 31, 2021, the Company had utilized approximately $170 million of the facility's framework.

(2) In March 2021, the Company signed a framework credit facility agreement with MUFG Bank for a period of two years, according to which the Company can withdraw up to BRL 230 million (about $42 million). As of December 31, 2021, the Company has withdrawn BRL 180 million (about $32 million), with a maturity date of March 2023.

Note 13 – Credit from Banks and Others (cont'd)

F. Restrictions on the Group relating to the receipt of credit

As part of the loan's agreements the Company has signed, various restrictions apply including sustainability performance targets and financial covenants, a cross-default mechanism and a negative pledge.

Set forth below is information regarding the financial covenants applicable to the Company as part of the loan agreements and the compliance therewith.

Financial Covenants:

Financial Covenants (1)	Financial Ratio Required under the Agreement	Financial Ratio December 31, 2021
Total shareholder's equity	Equity greater than $2,000 million	$4,527 million
Ratio of EBITDA to the net interest expenses	Equal to or greater than 3.5	14.98
Ratio of the net financial debt to EBITDA	Less than 3.5	1.38
Ratio of certain subsidiaries loans to the total assets of the consolidated company	Less than 10%	4.51%

(1) The examination of compliance with the financial covenants is based on the Company's consolidated financial statements. As of December 31, 2021, the Company complies with all of its financial covenants.

G. Pledges and Restrictions Placed in Respect of Liabilities

(1) The Company has undertaken various obligations in respect of loans and credit lines from banks, including a negative pledge, whereby the Company committed, among other things, in favor of the lenders, to limit guarantees and indemnities to third parties (other than guarantees in respect of subsidiaries) up to an agreed amount of $550 million. The Company has also committed to grant loans only to subsidiaries and to associated companies, in which it holds at least 25% of the voting rights. The Company has further committed not to grant any credit, other than in the ordinary course of business, and not to register any charges on its existing and future assets and income. For further information regarding the covenants in respect of these loans and credit lines, see item F above.

(2) As of December 31, 2021, the total guarantees provided by the Company were in the amount of $93 million (December 31, 2020 – $92 million).

Note 14 – Other Payables

	As of December 31	
	2021	2020
	$ millions	$ millions
Employees	414	322
Current tax liabilities	183	87
Governmental (mainly in respect of royalties)	103	75
Accrued expenses	75	76
Income received in advance	33	17
Derivative designated as an economic hedge	3	43
Others	101	84
	912	704

Note 15 – Taxes on Income

A. Taxation of companies in Israel

The current and deferred taxes expenses of Israeli entities are booked under the applicable tax rates below:

1. Income tax rate

The Israeli statutory primary income tax rate is 23%.

2. Tax benefits under the Israeli Law for the Encouragement of Capital Investments, 1959 (hereinafter – the Encouragement Law)

a) Beneficiary Enterprises

The production facilities of some of the Company's subsidiaries in Israel (hereinafter – the Subsidiaries) have received "Beneficiary Enterprise" status under the Encouragement law after Amendment No. 60 to the Law was published in April 2005. The main benefit granted to the Subsidiaries is a preferred tax rate.

Under the "Ireland" track, the Company paid a reduced tax rate of 11.5% as of 2008 on parts of its income. The benefit deriving from the "Ireland" track ended in 2017, excluding a single entity in Israel for which the entitlement ended in 2021.

The part of taxable income entitled to benefits at reduced tax rates is calculated based on the ratio of the "Beneficiary Enterprise" turnover to a company's total turnover. The turnover attributed to the "Beneficiary Enterprise" is generally calculated according to the increase in the turnover compared to a "base" turnover, which is the average turnover in the three years prior to the election year of the "Beneficiary Enterprise".

A company having a "Beneficiary Enterprise" that distributes a dividend out of exempt income, will be subject to corporate tax in the year in which the dividend was distributed on the amount distributed (including corporate tax applicable amount due to the distribution) at the tax rate applicable under the Encouragement Law in the year in which the income was generated, had it not been exempt from tax.

Note 15 - Taxes on Income (cont'd)

A. Taxation of companies in Israel (cont'd)

2. Tax benefits under the Israeli Law for the Encouragement of Capital Investments, 1959 (cont'd)

a) Beneficiary Enterprise (cont'd)

On November 15, 2021, the Israeli Economic Efficiency Law for the years 2021 and 2022 was published, which consists of numerous legislative amendments and arrangements, including an amendment to Section 74 of the Encouragement Law, which deals with the identification of sources of dividend distributions as of August 15, 2021 (hereinafter - the amendment).

The amendment stipulates that in any dividend distribution from companies holding accumulated profits that were exempt from tax until their distribution as a dividend ("trapped earnings"), a certain part of the distribution will be considered a distribution of those trapped earnings, which will be fully taxed upon release.

In addition, a temporary provision to the Encouragement Law was published, which offers a reduced tax payment arrangement to companies that have trapped earnings. The temporary provision, which is valid until November 14, 2022, stipulates that companies that have chosen to apply it, will be entitled to a tax rebate on corporate income tax, for the released trapped earnings. The release of trapped earnings allows their distribution at a beneficiary corporate tax rate according to the ratio of the distributed profits.

The beneficiary corporate tax will be determined according to the ratio of the trapped earnings that the company seeks to release from all its trapped earnings. It will range between 40% to 70% of the corporate tax rate that would have applied to income in the year it was generated, but in any case, not less than 6%. Eligibility for the beneficiary corporate tax rate is conditional on a company's decision to release part or all of its trapped earnings and the payment of the tax due until November 14, 2022, as well as on making investments in the companies' industrial plants over five years, in accordance with the formula set forth in the amendment.

Considering the above-mentioned amendment, the Company assessed its deferred tax liabilities with regards to the possibility to release trapped earnings in its future dividend distributions. In December 2021, due to the Company's settlement agreement with the Israeli Tax Authorities, regarding tax assessments for the years 2015-2019, and as a result of the Company's decision to apply the said temporary provision, the Company recognized a tax provision for the release of trapped earnings in the total amount of $47 million. Accordingly, no additional tax provision is required in respect of the unreleased trapped earnings which as of December 31, 2021, amounted to about NIS 950 million ($305 million).

Note 15 – Taxes on Income (cont'd)

A. Taxation of companies in Israel (cont'd)

2. Tax benefits under the Israeli Law for the Encouragement of Capital Investments, 1959 (cont'd)

b) Preferred Enterprises

In December 2010, the Israeli Knesset approved the Economic Policy Law for 2011-2012, whereby the Encouragement law, was amended (hereinafter – the Amendment). The Amendment is effective from January 1, 2011 and its provisions apply to preferred income, derived or accrued by a Preferred Enterprise, as defined in the Amendment, in 2011 and thereafter.

The Amendment does not apply to an Industrial Enterprise that is a mine, or any other facility for production of minerals or a facility for exploration of fuel. Therefore, ICL plants that are defined as mining plants and mineral producers will not be able to take advantage of the tax rates included as part of the Amendment.

The tax rates applicable to Preferred Enterprises in Israel:

1) Preferred Enterprises located in Development Area A – 7.5%.

2) Preferred Enterprises located in the rest of the country – 16%.

In November 2015, the Knesset passed the Economic Efficiency Law, which expanded the exception to all of the Enterprise's activities up to the time of the first marketable product (for additional details – see Section 4 below). However, tax benefits to which a Beneficiary Plant was entitled were not cancelled in respect of investments made up to December 31, 2012. Therefore, such plants are able to utilize the tax benefits in respect of such investments, in accordance with the provisions of the old law.

It is further provided in the Amendment that tax will not apply to a dividend distributed out of preferred income to a shareholder that is an Israeli-resident company. A dividend distributed out of preferred income to a shareholder that is an individual or a foreign resident is subject to tax at a rate of 20%, unless a lower tax rate applies under a relevant treaty for prevention of double taxation.

Note 15 - Taxes on Income (cont'd)

A. Taxation of companies in Israel (cont'd)

3. The Law for the Encouragement of Industry (Taxation), 1969

a) Some of the Company's Israeli subsidiaries are "Industrial Enterprise", as defined in the abovementioned law. In respect of buildings, machinery and equipment owned and used by any "Industrial Enterprise", the Company is entitled to claim accelerated depreciation as provided by the Income Tax Regulations - Adjustments for Inflation (Depreciation Rates), 1986 which allow accelerated depreciation to any "Industrial Enterprise" as of the tax year in which each asset is first placed in service.

b) The Industrial Enterprises owned by some of the Company's Israeli subsidiaries have a common line of production or similar industrial branch activity and, therefore, they file, together with the Company, a consolidated tax return in accordance with Section 23 of the Law for the Encouragement of Industry. Accordingly, each of the said companies is entitled to offset its tax losses against the taxable income of the other companies.

4. The Law for Taxation of Profits from Natural Resources

The Law for Taxation of Profits from Natural Resources (hereinafter - the Law), is effective since January 1, 2016. The government take on natural resources in Israel includes three elements: Royalties, Corporate Income Tax and Surplus Profit Levy. The highlights of the Law are set forth below:

Royalties:

In accordance with the Mines Ordinance, the rate of the royalties, in connection with resources produced from the quarries, will be 5%. For production of phosphates, the royalty rate is 5% of the value of the quantity produced.

Imposition of Surplus Profit Levy:

The Surplus Profit Levy is applied for the bromine, phosphate and magnesium minerals from 2016 and for potash from 2017. The tax base, which will be calculated for every mineral separately, is the mineral's operating income, in accordance with the accounting statement of income, to which certain adjustments will be made.

The taxable profit is based on the mineral operating income, as adjusted, after a deduction of 5% of the mineral's year end working capital, and an amount that reflects a yield of 14% on the value of property, plant and equipment used for production and sale of the quarried material (hereinafter - Yield).

On the tax base, as stated, a progressive tax will be imposed at a rate to be determined based on the Yield in that year. For a Yield between 14% and 20%, Natural Resources Tax will be imposed at the rate of 25%, while Yield in excess of 20% will be subject to Natural Resources Tax at the rate of 42%. In years in which the Natural Resources Tax base is negative, the negative amount will be carried forward from year to year and will constitute a tax shield in the succeeding tax year. The above computations, including the right to use prior years' losses, are made separately, without considering setoffs, for each natural resource production and sale activity.

Note 15 - Taxes on Income (cont'd)

A. Taxation of companies in Israel (cont'd)

4. The Law for Taxation of Profits from Natural Resources (cont'd)

Imposition of Surplus Profit Levy: (cont'd)

Limitations on the Natural Resources Tax – the Natural Resources Tax will only apply to profits deriving from the actual production and sale of each of the following resources: potash, bromine, magnesium and phosphates, and not to the profits deriving from the downstream industrial activities. Calculation of the Natural Resources Tax will be made separately for every mineral mining concession. Nonetheless, regarding magnesium, it was provided that commencing from 2017, upon sale of Carnalite by DSW to magnesium and reacquisition of a Sylvinite by-product by DSW, magnesium will charge DSW $100 per tonne of potash, which is produced from the Sylvinite (linked to the CPI).

A mechanism was provided for determination of the market price, with respect to transactions in natural resources executed between related parties in Israel, as well as a mechanism for calculation of the manner for costs allocation between the production and sale of the natural resource, on the one hand, and the downstream activities, on the other hand.

Regarding the bromine resource, the sale price of bromine sold to related parties, in and outside of Israel, who use the bromine for bromine compounds manufacturing activities, shall be, in each tax year, the higher of:

1) Actual price in the sale transaction.

2) A price which will provide an operating profit for the bromine compounds manufacturer of 12% out of the revenue it generates from bromine compounds sales.

Regarding the phosphate resource, the sale price of phosphate sold to related parties for purposes of downstream manufacturing activities shall be, in each tax year, the higher of:

1) Actual price in the sale transaction.

2) A price which will keep an operating profit with the downstream products manufacturer of 12% out of the revenue it generates from downstream phosphate made of products sales.

3) The production and operating costs attributable to a unit of phosphate.

The Company took an alternative tax filing position, according to which, all the Dead Sea minerals should be taxed as a unified mineral under the above-mentioned mechanism as the natural resource that is used by the company is the Dead-Sea brine.

Note 15 - Taxes on Income (cont'd)

A. Taxation of companies in Israel (cont'd)

4. The Law for Taxation of Profits from Natural Resources (cont'd)

Corporate income Tax:

The Law for Encouragement of Capital Investments was revised such that the definition of a "Plant for Production of Quarries" will include all the plant's activities up to production of the first marketable natural resource of potash, bromine, magnesium and phosphates. Accordingly, activities involved with production of the resource will not be entitled to tax benefits under the Law, whereas activities relating to downstream products, such as bromine compounds, acids and fertilizers, will be entitled to tax benefits under the Law.

The Natural Resource Tax will be deductible from the Company's taxable income and the Company will pay the Corporate Tax on the balance as is customary in Israel.

Amendment number 3 to the Law

In November 2021, Amendment number 3 to the Law was approved by the Israeli Kneset, according to which the arrangement of tax collection will be altered so that companies will be required to pay 75% of the disputed tax, after objecting to a tax assessment by appeal to the district court, and prior to a Court ruling. Prior to this amendment, the payment of the Surplus Profit Levy in dispute was not required until a Court ruling is rendered. This amendment may impact the collection of Surplus Profit Levy from the Company for the years 2016 and onwards.

B. Taxation of non-Israeli subsidiaries

Subsidiaries incorporated outside of Israel are assessed for tax under the tax laws in their countries of residence. The principal tax rates applicable to the major subsidiaries outside Israel are as follows:

Country	Tax rate	Note
Brazil	34%	
Germany	29%	
United States	26%	(1)
Netherlands	25%	
Spain	25%	
China	25%	
United Kingdom	19%	

(1) The tax rate is an estimated average and includes federal and states tax. Different rate may apply in each specific year, as a result of different allocation of income between the different states.

Note 15 – Taxes on Income (cont'd)

C. Carried forward tax losses

As of December 31, 2021, the balances of the carryforward tax losses of subsidiaries for which deferred taxes were recorded, is about $286 million (December 31, 2020 – about $418 million).

As of December 31, 2021, the balances of the carryforward tax losses to future years of subsidiaries for which deferred taxes were not recorded, is about $338 million (December 31, 2020 – about $392 million).

As of December 31, 2021, the capital losses for tax purposes available for carryforward to future years for which deferred taxes were not recorded is about $161 million (December 31, 2020 – about $163 million).

D. Tax assessments

(1) The Company and the main operational companies in Israel (DSW, Rotem, Bromine, DSM, and BCL), have received final tax assessments up to and including 2019 (see items 2 and 3 below). Other companies in Israel received final tax assessments up to and including 2016. The main subsidiaries outside of Israel have final tax assessments up to and including 2015.

(2) Regarding the tax assessment for the years 2012-2014 issued by the Israeli Tax Authorities (ITA) to the Company and to certain Israeli subsidiaries, in September 2021, a judgment was given approving a settlement agreement between the Company and the ITA, for the final and complete settlement of all claims, demands and arguments of the ITA against the Company in connection with such tax assessments. As a result, the Company paid $30 million, plus interest and linkage. The settlement had no material impact on the Company's Financial Statements.

Regarding the tax assessment for the year 2015 issued by the ITA, in December 2021, the Company reached an agreement with the ITA regarding the tax years 2015-2019, pursuant to which the Company will pay $105 million, plus interest and linkage. The agreement will constitute complete and final settlement of all ITA's claims, demands and arguments against the Company for the said tax years. The settlement had no material impact on the Company's Financial Statements. For the release of trapped earnings see item A(2) above.

(3) The Company's subsidiary in Belgium (hereinafter – ICL Belgium or the Company) recognized a notion deduction on its capital, based on its interpretation of the Belgian tax law. This position was disputed by the tax authorities. In November 2021, the Supreme Court accepted the Company's position, which finalized all tax disputes with the local tax authorities.

Note 15 – Taxes on Income (cont'd)

E. Uncertain Tax Position

The measurement of the estimated Tax provisions requires judgment related to certain tax positions, which may result in future demand for additional tax payments by the Tax authorities. A tax provision is recorded only when the Company estimates that the chances of its position to be accepted are lower than the chances it will be rejected. It is possible that the tax authorities will demand additional tax payments that are not known to the Company at this stage.

The Law for Taxation of Profits from Natural Resources in Israel (hereinafter – the Law) is a new law that entered into effect with respect to the bromine, phosphate and magnesium minerals in 2016, and with regard to the potash mineral, in 2017.

As of the reporting date, no regulations under the Law have yet been enacted (except for regulations regarding advances on account of tax payments, published in July 2018), no circulars have been published and no court decisions have been rendered as to the implementation of this new Law that was imposed, to the best of the Company's knowledge, only on one other company. The financial statements of Dead Sea Works, Dead Sea Bromine and Dead Sea Magnesium (hereinafter – the Subsidiaries), serve as a basis for the mineral based financial reports (hereinafter – Surplus Profit Reports) required to be filed for tax calculation under the Law. Such calculation involves interpretations and assumptions on several significant matters, which require management’s judgment.

The Company's position is that the Surplus Profit Levy should be calculated on the Dead Sea Solution, which is the natural resource used by the Company, and not for each product produced from the Dead Sea Solution. Furthermore, based on the Company’s understanding of the law, the carrying amount of the property, plant and equipment, for the purpose of preparation of the financial statements for 2016 and onward of the Subsidiaries, which serve as the basis for the Surplus Profit Reports, are presented on the basis of their replacement cost (as used assets), on the date the Law entered into effect. Replacement cost is an accounting method according to International Financial Reporting Standards (IFRS), which are the accepted accounting principles in Israel, applied by the Company and its Subsidiaries. The presentation of property, plant and equipment in the Subsidiaries' financial statements according to the aforesaid method, is not reflected in the Company's consolidated financial statements.

As part of the preparation of the Subsidiaries' financial statements, the Company received an opinion from an independent appraiser regarding the fair value of the property, plant and equipment, which was based on the Replacement Cost methodology (as used assets). According to the opinion, the fair value of the property, plant and equipment was estimated at about $6 billion, as of December 31, 2015, the date the Law entered into effect.

Note 15 – Taxes on Income (cont'd)

E. Uncertain Tax Position (cont'd)

Given the mineral's price environment, its effect on the profitability of the Subsidiaries and after deduction of a 14% allowed deductible on the balance of property, plant and equipment, as stated in the law and based on the replacement cost, as of December 31, 2021, no natural resources tax liability was payable. In respect of the phosphate resource, due to prior years' losses, no natural resources tax liability was payable.

The Tax Authority's position could be materially different, even in very significant amounts, mainly, as a result of the different interpretation regarding the implementation of the Law, with respect to the carrying amount for natural resources tax purposes of the property, plant and equipment.

Should the ITA, and subsequently the applicable District Court, in case of an appeal, decides that the measurement of the property, plant and equipment, for this purpose, should be in accordance with depreciated historical cost, and fully rejects the Company's arguments with respect to this issue, the result can be an increase in the Company's tax liabilities in an aggregate amount of about $237 million (including interest and linkage and net of corporate income tax) for the years 2016-2021. The Company believes that it is more likely than not that its position will be accepted.

In March 2021, the ITA issued an assessment for the years 2016-2017, which includes a demand for payment of Surplus Profit Levy, in the amount of approximately $77 million, plus interest and linkage. The amount represents, in essence, the different interpretation regarding the measurement of operational property, plant and equipment. The Company submitted its objection to the ITA. As of the reporting date, no decision has yet been made regarding the said objection.

Note 15 – Taxes on Income (cont'd)

F. Deferred income taxes

1. The composition of the deferred taxes and the changes therein, are as follows:

	In respect of financial position				In respect of carry forward tax losses	Total
	Depreciable property, plant and equipment and intangible assets	Inventories	Provisions for employee benefits	Other		
	$ millions					
Balance as of January 1, 2020	(421)	32	84	19	54	(232)
Changes in 2020:						
Amounts recorded in the statement of income	(17)	6	13	(28)	60	34
Amounts recorded to a capital reserve	–	–	(6)	–	(3)	(9)
Translation differences	(1)	–	3	2	4	8
Balance as of December 31, 2020	(439)	38	94	(7)	115	(199)
Changes in 2021:						
Additions in respect of business combinations	-	1	1	9	2	13
Amounts recorded in the statement of income	16	–	2	(14)	(24)	(20)
Amounts recorded to a capital reserve	–	–	(22)	(1)	–	(23)
Translation differences	2	–	(2)	(3)	(5)	(8)
Balance as of December 31, 2021	(421)	39	73	(16)	88	(237)

2. The currencies in which the deferred taxes are denominated:

	As of December 31	
	2021	2020
	$ millions	$ millions
Euro	84	73
Brazilian Real	13	(4)
British Pound	–	17
U.S Dollar	(10)	(6)
Israeli Shekels	(327)	(280)
Other	3	1
	(237)	(199)

Note 15 - Taxes on Income (cont'd)

G. Taxes on income included in the income statements

1. Composition of income tax expenses (income)

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Current taxes	145	70	91
Deferred taxes	22	(43)	61
Taxes in respect of prior years	93	(2)	(5)
	260	25	147

2. Theoretical tax

Following is a reconciliation of the theoretical tax expense, assuming all income is taxed at the regular tax rates in Israel (see A(2) above) and the tax expense presented in the statements of income:

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Income before taxes on income, as reported in the statements of income	1,092	49	628
Statutory tax rate (in Israel)	23%	23%	23%
Theoretical tax expense	251	11	144
Add (less) - the tax effect of:			
Reduced tax due to tax benefits	(64)	(6)	(8)
Differences deriving from additional deduction and different tax rates applicable to foreign subsidiaries	(10)	(4)	(15)
Tax on dividend	3	2	2
Deductible temporary differences and their reversal (including carryforward losses) for which deferred taxes assets were not recorded and non-deductible expenses	(8)	14	17
Taxes in respect of prior years*	93	(2)	(5)
Differences in measurement basis	(8)	10	15
Other differences	3	-	(3)
Taxes on income included in the income statements	260	25	147

* In 2021, including $47 million in respect of trapped earnings release

Note 15 - Taxes on Income (cont'd)

H. Taxes on income relating to items recorded in equity

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Tax recorded in other comprehensive income			
Actuarial gains from defined benefit plan	(22)	(6)	10
Change in investments at fair value through other comprehensive income	(21)	-	(1)
Taxes in respect of exchange rate differences on equity loan to a subsidiary included in translation adjustment	(1)	(3)	1
Total	(44)	(9)	10

Note 16 - Employee Benefits

A. Composition

Composition of employee benefits:

	As of December 31	
	2021	2020
	$ millions	$ millions
Fair value of plan assets	648	629
Termination benefits	(135)	(158)
Defined benefit obligation	(993)	(1,075)
	(480)	(604)

Composition of fair value of the plan assets:

	As of December 31	
	2021	2020
	$ millions	$ millions
Equity instruments		
With quoted market price	230	224
Without quoted market price	50	40
	280	264
Debt instruments		
With quoted market price	337	334
Without quoted market price	3	3
	340	337
Deposits with insurance companies	28	28
	648	629

Note 16 – Employee Benefits (cont'd)

B. Severance Pay

1. Israeli companies

The labor laws in Israel require the Company to pay severance pay to employees who were dismissed or have retired (including those who left the Company in other specific circumstances). The liability for the payment of severance pay is calculated according to the labor agreements in effect on the basis of salary components which, in the opinion of Company management, create an obligation to pay severance pay.

The Company has two severance pay plans: one plan according to the provisions of section 14 of the Severance Pay Law, which is accounted for as a defined contribution plan; and the other for employees to whom section 14 does not apply, which is accounted for as a defined benefit plan. The Company's liability in Israel for the payment of severance pay to employees is mostly covered by current deposits in the names of the employees in recognized pension and severance pay funds, and by the acquisition of insurance policies, which are accounted for as plan assets.

2. Certain subsidiaries outside Israel

In countries wherein subsidiaries operate that have no law requiring payment of severance pay, the subsidiaries have not recorded a provision in the financial statements for possible eventual future severance payments to employees, except in cases where part of the activities of the enterprise is discontinued and, as a result, the employees are dismissed.

C. Pension and Early Retirement

(1) Some of the Company's employees in and outside of Israel have defined benefit pension plans for their retirement, which are controlled by the Company. Generally, according to the terms of the plans, as stated, the employees are entitled to receive pension payments based on, among other things, their number of years of service (in certain cases up to 70% of their last base salary) or computed, in certain cases, based on a fixed salary. Some employees of a subsidiary in Israel are entitled to early retirement if they meet certain conditions, including age and seniority at the time of retirement.

(2) Some subsidiaries have signed plans with funds – and with a pension fund for some of the employees – under which such subsidiaries make current deposits with that fund which releases them from their liability for making a pension payment under the labor agreements to their employees upon reaching a retirement age. The amounts funded are not reflected in the statements of financial position, since they are not under the control and management of the subsidiaries.

Note 16 – Employee Benefits (cont'd)

D. Post-employment retirement benefits

Some of the Company retirees receive, aside from the pension payments from a pension fund, benefits that are primarily holiday gifts and paid vacations. The company's liability for these costs accrues during the employment period. The Company includes in its financial statements the projected costs in the post-employment period according to an actuarial calculation.

E. Movement in net defined benefit obligation and in its components:

	Fair value of plan assets		Defined benefit obligation		Defined benefit obligation, net	
	2021	2020	2021	2020	2021	2020
	$ millions	$ millions	$ millions	$ millions	$ millions	$ millions
Balance as of January 1	629	583	(1,075)	(1,004)	(446)	(421)
Income (costs) included in profit or loss:						
Current service costs	–	–	(24)	(22)	(24)	(22)
Interest income (expenses)	6	5	(14)	(14)	(8)	(9)
Past service cost	–	–	12	11	12	11
Effect of movements in exchange rates, net	8	16	(16)	(34)	(8)	(18)
Included in other comprehensive income:						
Actuarial profits (losses) deriving from changes in financial assumptions	–	–	68	(24)	68	(24)
Other actuarial gains	17	9	–	–	17	9
Change with respect to translation differences, net	(10)	18	21	(32)	11	(14)
Other movements:						
Benefits received (paid)	(6)	(6)	35	44	29	38
Employer contribution	4	4	–	–	4	4
Balance as of December 31	648	629	(993)	(1,075)	(345)	(446)

The actual return on plan assets in 2021, is $23 million, compared with $14 million in 2020 and $61 million in 2019.

F. Actuarial assumptions

Principal actuarial assumptions as of the reporting date (expressed as weighted averages):

	For the year ended December 31		
	2021	2020	2019
	%	%	%
Discount rate as of December 31	2.1	1.7	2.1
Future salary increases	3.9	3.4	3.2
Future pension increase	2.3	2.0	2.1

Note 16 - Employee Benefits (cont'd)

G. Sensitivity analysis

Assuming all other assumptions remain constant, the following reasonable possible changes affect the defined benefit obligation as of the date of the financial statements in the following manner:

	December 2021			
	Decrease 10%	Decrease 5%	Increase 5%	Increase 10%
	$ millions	$ millions	$ millions	$ millions
Significant actuarial assumptions				
Salary increases	(14)	(7)	7	14
Discount rate	20	10	(10)	(20)
Mortality table	24	12	(12)	(24)

The assumptions regarding the future mortality rate are based on published statistics and accepted mortality tables.

H. The Effect of the plans on the Company's future cash flows

The expenses recorded in respect of defined contribution plans in 2021 are $43 million (in 2020 $39 million and in 2019 $37 million).

The Company estimates that the expected deposits in 2021 to fund defined benefit plans are about $9 million.

As of December 31, 2021, the Company estimates that the life of the defined benefit plans, based on a weighted average, is about 13.6 years (2020 - about 15.3 years).

I. Long-term incentive plan

(1) In February 2022, the Company’s HR & Compensation Committee and the Board of Directors approved a triennial equity grant for the years 2022-2024 in the form of options exercisable to the Company's ordinary shares. For further information - see Note 19.

(2) In November 2021, Company's HR & Compensation Committee and the Board of Directors approved a new Cash LTI plan, according to which, other senior managers will be awarded a cash incentive in 2024, the fair value of the grant as of the grant date is about $40 million. The grant is subject to achievement of certain financial targets over the three years and can be affected by the change in share price.

(3) In April 2019, Company’s HR & Compensation Committee and the Board of Directors approved a Cash LTI plan, according to which, senior managers will be awarded with a cash incentive of about $32 million to be paid in 2022, subject to compliance with certain financial targets over the three years. As of December 31, 2021, the financial targets were met.

Note 17 – Provisions

A. Composition and changes in the provision

	Site restoration and equipment dismantling	Legal claims	Other	Total
	$ millions	$ millions	$ millions	$ millions
Balance as of January 1, 2021	279	10	32	321
Provisions recorded during the year	24	5	12	41
Provisions recorded in respect of business combinations	–	3	–	3
Provisions reversed during the year	–	(3)	(1)	(4)
Payments during the year	(13)	(1)	(2)	(16)
Translation differences	(7)	(1)	–	(8)
Balance as of December 31, 2021	283	13	41	337

(1) Main items under 'Site restoration and equipment dismantling':

a. Spain – In June 2018, a new restoration plan was approved for the Suria and Sallent sites, which included a plan for handling the salt piles and dismantling of facilities. The restoration plan for the Suria site is scheduled to extend until 2094, and for the Sallent site up to 2075.

Estimation of the projected costs for the closure and restoration of the Sallent site – the main portion of the estimated costs for closure and restoration is attributed to restoration of the salt pile. The Company is treating the salt pile, by both utilizing the salt for production and sale for de-icing purposes, and by processing the material and removing it to the sea via a Collector. As of December 31, 2021, the total provision for the closure and restoration of the Sallent site amounts to $77 million. The estimation is based on a long-term forecast, covering a period of more than 50 years, along with observed estimates and, therefore, the actual costs that may be required to restore the Sallent site may differ, even substantially, from the current provision. In the Company's estimation, the provision in its books reflects the best estimate of the expense required to settle this obligation.

b. Rotem Israel – as of December 31, 2021, according to the Company's estimation, the provision for the restoration of the mining sites and waste repositories, for Rotem Israel's operations, amounted to $89 million. The provision is measured based on the present value of the cash flows, which relies on the Company's estimation of the future expense required for the restoration of the mining sites. The actual costs that may be required may differ, even substantially, from the current provision, as a result of the inherent complexity of such estimation, the Company's future decisions regarding the facilities and regulatory requirements.

Note 17 – Provisions (cont'd)

A. Composition and changes in the provision (cont'd)

c. Bromine Israel (Neot Hovav) – pursuant to the Ministry of Environmental Protection, the Company is required to treat both solid waste of past periods which is stored in a designated defined area on the site's premises, and currently-produced waste created during the ongoing production processes in the plant. Waste treatment is partly conducted through a hydro-bromine acid recovering facility (BRU), operated by the Company. Part of the waste is sent for external designated treatment. As of December 31, 2021, the provision for prior periods waste treatment amounted to about $43 million. In the Company's estimation, based on the information currently available to it, the provision included in its financial statements covers the estimated cost for treating prior periods waste.

(1) In 2016, a court decision was rendered which determined that ICL Iberia bears responsibility for contamination of water in certain wells at the Suria and Sallent sites (due to an over concentration of salt). In 2018, claims were received from several owners of the land surrounding the wells, demanding compensation from ICL Iberia for damages in the aggregate amount of $22 million. In the Company's estimation it is more likely than not that it would be required to compensate the owners in the amount of up to $4 million. The provision in the Company's books reflects this estimate.

(2) In 2017, the Israeli Water Law was amended, according to which saline water of the kind produced for Dead Sea plants by the Company's own water drilling is charged with water fees. The Company objected to the charges relating to water drilling within the concession area, which constitutes about 65% of the total charge, based on various arguments, most notably the provisions of the Concession Law. In October 2021, the Water Authority informed the Company that water fees will not be charged for water production within the concession area.

In addition, in March 2021, a decision was made by the Water Authority, whereby despite the Company's objection, its definition should be changed to "Consumer-Producer", as defined in the Water Law, starting with the production license for 2021. The main implication of this change is an increase in the water fees of about $3 million per year for water from drillings outside the concession area. The Company filed an appeal with the water court against the said decision and the parties presented their arguments in a preliminary hearing. A hearing procedure is being held, in the framework of which an additional deliberation was scheduled for April 2022.

Note 18 - Commitments, Concessions and Contingent Liabilities

A. Commitments

(1) Several of the Group's subsidiaries have entered into agreements with suppliers for the purchase of raw materials and energy in the ordinary course of business, for various periods ending on December 31, 2036. As of December 31, 2021, the total amount of the commitments under the said purchase periods of the agreements is about $2.4 billion. This item takes into consideration part of the agreements described below.

(2) Several of the Group's subsidiaries have entered into agreements with suppliers for the acquisition of property, plant and equipment. As of December 31, 2021, the subsidiaries have capital expenditures commitments of about $617 million. This item takes into consideration part of the agreements described below.

(3) As part of the collaboration between ICL's subsidiary in Spain (ICL Iberia) and the government of Catalonia to achieve environmental sustainability goals, the Company has undertaken to carry out restoration of the salt piles in its sites, mainly by processing and removing them to the sea via a collector. In April 2021, the Company signed an agreement with the Catalan Water Agency for the construction and operation of a collector. The main highlights of the agreement include, among other things, the guidelines by which the project will be managed, the financing aspects of the project, the definition of project costs and the determination of the operational maintenance mechanism, including usage costs. Based on the said agreement and Spain's water law, it was determined that ICL Iberia will assume up to 90% of the project's cost (approximately $110 million), to be paid throughout the construction and operating periods. Construction, which has already begun, is expected to extend over a four-year period and the operations period is expected to be over 25 years.

(4) In December 2017, the Company entered into a gas purchase agreement with Energean Israel Limited (hereinafter – Energean) who holds a license for the development of the Karish and Tanin gas reservoirs. Under the agreement, Energean is expected to supply the Company with natural gas (NG) at a quantity of up to 13 BCM, at a value of $1.8 billion, over a period of 15 years, commencing with the commercial operation of Karish and Tanin. The NG from the reservoirs will be used for running ICL's factories and power stations in Israel.

In 2018, the Company entered into two supply agreements with Tamar and Leviathan reservoirs to secure its gas supply needs until the end of 2025 or until the entry of the Karish and Tanin reservoirs into service, whichever occurs first.

In February 2020, Energean announced a "Force Majeure" under the GSPA and of potential expected delays in the supply of NG. ICL rejected the announcement.

In October 2020, the Company chose to exercise its rights for early termination of its agreements with Tamar and Leviathan reservoirs, and to sign an exclusive agreement with Tamar reservoir to supply the full amount of NG consumed by the Company in the interim period, until full gas supply is obtained from Energean, at a price of about $4 per MMBTU (hereinafter – the Bridge Agreement). The Bridge Agreement is in effect until the end of April 2022, on a firm basis, with an extension option on an interruptible basis until December 31, 2022.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

A. Commitments (cont'd)

(4) (Cont'd)

In January 2022, Energean announced that the gas supply is expected to be postponed until the third quarter of 2022, following its previous announcement of postponement until mid-2022. The Company has reserved all of its rights in relation to Energean's announcements.

The Company is taking measures to secure its supply of NG considering the continued delays in Energean's supply and believes it is more likely than not that it will obtain sufficient NG for its facilities in Israel until the full supply of NG from Energean is obtained. Nevertheless, considering the current circumstances and additional possible delays in Energean's supply, as well as expected high demand, which may lead to potential shortage and/or significant price increase of NG in Israel, there is no certainty that the Company will successfully secure the required NG quantities for its facilities, or their prices from the end of April 2022. Failure to ensure sufficient supply of NG for the Company's facilities and/or to preserve the current price environment may lead to a material impact on the Company's business, financial position and results of operations.

(5) In June 2020, the Company entered into a long-term lease agreement with a third party, according to which ICL will lease an office building in Be'er Sheva Israel for a period of 15 years, with a 10-year extension option, at an annual rent of about $3 million. The lease period is expected to commence in 2024 (at the completion of the construction period).

(6) The Articles of Association of the Company and its Israeli subsidiaries include provisions that permit exemption, indemnification and insurance of the liability of officers, all in accordance with the provisions of the Companies Law.

The Company, with the approval of its HR & Compensation Committee, the Board of Directors and the General Meeting of the shareholders, granted its officers a letter of exemption and indemnification, and also maintains an insurance policy covering directors' and officers' liability. The directors' and officers' liability insurance and the exemption and indemnity undertaking do not apply to those cases specified in Section 263 of the Companies Law. The exemption relates to damage caused and/or will be caused, by those officers as a result of a breach of the duty of care to the Company. Regarding directors who are office holders of Israel Corp., who may serve from time to time, on January 5, 2021, the shareholders' general meeting approved the extension of the period for exemption and indemnification entered into with such office holders, for an additional 9 years, commencing November 30, 2020, provided that the exemption shall not apply to liabilities arising in connection with a transaction or resolution in which a controlling shareholder or an office holder, including an office holder who is other than the office holder party to the agreement, has a personal interest.

The amount of the indemnification payable by the Company under the letter of indemnification, in addition to amounts received from an insurance company, if any, for all of the officers on a cumulative basis, for one or more of the events detailed therein, is limited to $300 million. The insurance is renewed annually.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions

(1) Dead Sea Works Ltd. (hereinafter – DSW)

Pursuant to the Israeli Dead Sea Concession Law, 1961 (hereinafter – the Concession Law), as amended in 1986, and the concession deed attached as an addendum to the Concession Law, DSW was granted a concession to utilize the resources of the Dead Sea and to lease the land required for its plants in Sodom for a period ending on March 31, 2030, accompanied by a priority right to receive the concession after its expiration, should the Government decide to offer a new concession.

In accordance with section 24 (a) of the Supplement to the Concession Law, it is stated, among other things, that at the end of the concession period all the tangible assets at the concession area will be transferred to the government, in exchange for their amortized replacement value – the value of the assets as if they are purchased as new at the end of the concession period, less their technical depreciation based on their maintenance condition and the unique characteristics of the Dead Sea area.

Pursuant to section 24 (b) of the Supplement to the Concession Law, it is stated that capital investments made 10 years before the concession ends (i.e., April 2020) to the end of the concession period require a prior consent of the Government, unless they can be fully deducted for tax purposes before the end of the concession period. However, the Government's consent to any fundamental investment that may be necessary for the proper operation of the plant, will not be unreasonably delayed or suspended. In 2020, a work procedure was signed between the Company and the Israeli Government for the purpose of implementing section 24(b). The procedure determines, among other things, the manner of examining new investments and the consent process. In addition, the procedure determines the Company's commitment to invest in fixed assets, including for preservation and infrastructure, and for ongoing maintenance of the facilities in the concession area (for the period beginning in 2026) and the Company's commitment to continue production of potassium chloride and elemental bromine (for the period commencing 2028), all subject to the conditions specified in the procedure. Such commitments do not change the way the Company currently operates. The Company operates with the Israeli Government in accordance with the procedure and obtains investment approvals from time to time as required.

In 2015, the Minister of Finance appointed a team to determine the “governmental activities to be conducted towards the end of the concession period”. The public’s comments in this matter were submitted to an inter-ministerial team.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions (cont'd)

(1) DSW (cont'd)

Based on the interim report and its recommendations published in May 2018, and following a public hearing, in January 2019, the Israeli Ministry of Finance released the final report of the inter-ministry team headed by Mr. Yoel Naveh, former Chief Economist, which includes a series of guidelines and recommendations regarding the actions that the government should take towards the end of the concession period. Since the report includes guiding principles and a recommendation to establish sub-teams to implement such principles, the Company is unable to assess, at this stage, the concrete implications, or if the recommendations will be implemented in practice, as well as the relevant timing. In addition, there is no certainty as to how the government will interpret the Concession Law and implement processes accordingly.

In addition, in 2015, the Minister of Finance appointed a team headed by the (former) Accountant General to evaluate the manner in which, according to the current concession, the replacement value of DSW's tangible assets would be calculated, assuming that these assets would be returned to the government at the end of the concession period. The determination date of the actual calculation is only at the end of the concession period. As far as the Company is aware, this work has not yet been completed.

The consolidated Financial Statements were prepared under management's belief that it is more likely than not, that DSW will continue to operate the relevant assets for their remaining useful lives, which extends beyond the term of the current concession period, by obtaining the renewed concession or by operating the assets for an alternative holder. The consolidated depreciation expenses in 2021, relating to the assets located within the concession area, amounted to about $86 million.

As part of the preparation process for the Israeli Subsidiaries' financial statements, DSW, Dead Sea Bromine and Dead Sea Magnesium for 2016 and onward, which serve as a basis for the financial reports prepared pursuant to the provisions of the Taxation of Natural Resources Law (hereinafter – the Law), the Company received an opinion from an independent appraiser regarding the fair value of fixed assets. The Property, Plant and Equipment value provided in the opinion is based on the Replacement Cost methodology (as used assets) and was estimated at about $6 billion, as of December 31, 2015, the date the Law entered into effect.

Though the assets assessed for tax purposes and the assets that may be valuated under the Concession Law are highly correlated, there is no complete identity between them. The Company believes that the applied Replacement Cost Methodology used in the opinion for estimating the fair value coincides with the methodology mentioned in the Concession Law for future valuation of the Property, Plant and Equipment upon termination of the concession period. Nevertheless, there could be other interpretations to the manner of implementation of the Concession Law's provisions or with respect to the valuation methodology. Therefore, the estimated value with respect to the Concession Law could materially differ from the Company's estimates, even with respect to the same assets and dates.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions (cont'd)

(1) DSW (cont'd)

It is expected that the value of the Property, Plant and Equipment, at the end of the concession period, will change as time passes and as a result of purchase and disposals of assets.

Royalties

In consideration of the concession, DSW pays royalties to the Government of Israel, calculated at a rate of 5% of the value of the products at the plant gate, less certain expenses.

DSW granted a sub-concession to Dead Sea Bromine Ltd. to produce bromine and its compounds from the Dead Sea, the expiration date of which is concurrent with the DSW concession. The royalties in respect of the products manufactured by Dead Sea Bromine are received by DSW, which then pays them to the State of Israel. Royalties are also paid by Dead Sea Magnesium on the basis of carnallite used for production of magnesium.

(2) Rotem Amfert Israel (hereinafter – “Rotem Israel”)

Rotem Israel has been mining phosphates in the Negev in Israel for more than sixty years. The mining is conducted in accordance with phosphate mining concessions, which are granted from time to time by the Minister of Energy under the Mines Ordinance, by the Supervisor of Mines in his Office, as well as the mining authorizations issued by the Israel Lands Authority (hereinafter – the Authority). The concessions relate to quarries (phosphate rock), whereas the authorizations cover use of land as active mining areas.

Mining Concessions

Rotem Israel had two mining concessions: (1) Rotem Field (including the Hatrurim Field) and (2) Zafir Field (Oron-Zin) which were valid until the end of 2021.

In December 2021, the Ministry of Energy granted Rotem Israel an extension to a unified concession (which includes all Rotem's mining fields) for an additional three years, until the end of 2024. In order to comply with the concession's provisions, the Company undertook, among other things, to assure that Rotem meets its existing obligations to rehabilitate its mining and plants areas, according to outlined requirements attached to the new concession, also by means of a bank guarantee in the amount of $19 million.

As part of the Company’s efforts to secure Rotem Israel’s future phosphate rock resources, in January 2022, the Ministry of Energy granted Rotem Israel an exploration license for phosphate in an area of 1,065 dunams, North of the Oron Concession. The license is valid until the end of 2023. The Company intends to carry out the examinations required to establish the existence of minerals in this area.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions (cont'd)

(2) Rotem Israel (cont'd)

Lease Agreements

Rotem Israel has two lease agreements in effect until 2024 and 2041 and an additional lease agreement of the Oron plant, which the Company has been working to extend since 2017, by exercising the extension option provided in the agreement.

Mining Royalties

As part of the terms of the concessions in respect of mining of phosphate, Rotem Israel is required to pay the State of Israel royalties based on a calculation as stipulated in the Israeli Mines Ordinance.

In accordance with the Mines Ordinance (Third addendum A), the royalty rate for production of phosphates is 5% of the value of the quarried material. As part of the process of extending the concession as detailed above, an order was issued by the Ministry of Energy to amend the Third addendum A which is intended to anchor and clarify the basis for calculating the royalties and its components in the coming years. Following the provision of the order, the Company also aligned its royalties' calculation for prior years, and as a result, recognized an additional amount of $7 million.

Planning and Building

The mining and quarrying activities require a zoning approval of the site based on a plan in accordance with the Israeli Planning and Building Law, 1965. These plans are updated, as needed, from time to time. As of the reporting date, there are various requests at different stages of deliberations pending before the planning authorities.

Zin-Oron area – In 2016, the District Board for the Southern District approved a detailed site plan for mining phosphates in the Zin-Oron area. This plan, which covers an area of about 350 square kilometers, will permit the continued mining of phosphate located in the Zin valley and in the Oron valley for a period of 25 years or until the exhaustion of the raw material – whichever occurs first, with the possibility for extension (under the authority of the District Planning Board).

Barir field – The Company is working to promote the plan for mining phosphates in Barir field, located in the southern part of the South Zohar deposit in the Negev Desert. In 2015, the National Planning and Building Council (hereinafter – the National Council) approved the Policy Document regarding Mining and Quarrying of Industrial Minerals, which included a recommendation to permit phosphate mining in the South Zohar deposit and to advance a detailed National Outline Plan for the Barir field mining site. According to the recommendation of the National Council, the government's Housing Cabinet approved the National Outline Plan (hereinafter – NOP 14B).

In 2018, the Minister of Health filed an appeal of the said approval, requiring compliance with the Ministry of Health's recommendation to conduct a survey regarding the health impact in each site included in NOP 14B. As part of a discussion in the Housing Cabinet regarding the appeal, it was decided, with the consent of the Ministries of Health, Finance and Energy, to remove the appeal and to approve the NOP 14B, which was formally published later.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions (cont'd)

(2) Rotem Israel (cont'd)

In addition, it was decided to establish a team with representatives of the ministries of Treasury, Health, Transportation, Environmental Protection and Energy (hereinafter – The Inter-ministerial team), which will present to the Housing Cabinet a report that includes health aspects for NOP 14B.

In 2018 and 2019, petitions were submitted to the Israeli Supreme Court of Justice by the municipality of Arad and by residents of the Bedouin diaspora in the "Arad Valley" against the National Council, the Government of Israel and Rotem Israel, to revoke the approval of NOP 14B and to order the National Council to discuss the NOP directives, while giving proper weight to the health risk.

In 2020, the inter-ministerial team reached an outline agreement regarding the examination of the health aspects of the NOP 14B, which, according to the state, constitutes an appropriate response for the review of potential health hazards on which the petitions focus.

In October 2021, the Israeli Supreme Court of Justice decided to reject the petitions. The court's decision followed the National Planning and Building Council's decision, from August 2021, to incorporate the main points of the outline agreement in the provisions of NOP 14B.

In November 2021, the Housing Cabinet, approved once again the amended NOP 14B, following which, the Minister for Environmental Protection submitted a request for a government review of past decisions, which in accordance with the decision of the Ministry of the Interior will be held within 180 days, prior to promoting the Barir Detailed NOP.

In addition to the procedures described above, securing the future of the phosphate mining operations at Rotem Israel depends among other things, on the following matters:

- Emissions permit under the Israeli Clean Air Act (hereinafter – the Law): In June 2021, the Company's emission permit was renewed by the Israeli Ministry of Environmental Protection (MoEP), until September 2023. The renewed permit reflects an updated outline of requirements. Postponement in the execution of a limited number of projects was granted within the framework of an administrative order under Section 45 of the Law, received in July 2021. Management still expects difficulties in meeting the execution schedules of a limited number of projects and accordingly continues to work with the MoEP to find a satisfactory solution regarding the timing of the investments, taking into account the impact of uncertainty surrounding Rotem Israel's activity, as far as the implementation of long-term projects is concerned.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions (cont'd)

(2) Rotem Israel (cont'd)

- Oron's lease agreement - The Company has been working to extend the lease agreement for Oron's plant area since 2017 by exercising the extension option provided in the agreement.

- Phosphogypsum storage - In October 2021, a new Urban Building Plan was approved, the main objectives of which are to regulate areas for phosphogypsum storage reservoirs. According to the new Plan, the Company is required to obtain building permits involving permit fees. Due to the ambiguity of the guidelines regarding the fee's calculation, there is a difficulty in estimating the future required outflows.

- Energy Production – In order to ensure the continuity of energy production in Rotem Israel, and in accordance with the policy of the Ministry of Energy and the Ministry of Environmental Protection, the Company is working to accelerate the completion of a project to replace existing energy production infrastructure at Rotem, which utilizes oil shale, with a natural gas-based steam boiler, so it will be completed before the existing mined reserves of oil shale are utilized.

- Finding economically feasible alternatives for continued mining of phosphate rock in Israel – According to the Company's assessment of economic phosphate reserves in the existing mining areas and the estimated useful life of Rotem's phosphate rock reserves, which are essential for its production, is limited to only a few years. As described above, the Company is working to obtain permits and approvals which will provide an economic alternative for future mining of phosphate rock in Israel.

The Company is continuing its discussions with the relevant authorities, in order that the required approvals, permits and future phosphate rock resources are granted. The Company estimates that it is more likely than not that the said approvals, permits and future phosphate rock resources will be granted within a timeframe that will not materially impact the Company's results. Nevertheless, there is no certainty as to the receipt of such approvals, permits and future phosphate rock resources and/or the date of their receipt. Failure to obtain these approvals, permits and future phosphate rock resources, or a significant delay in receiving them can lead to a material impact on the Company's business, financial position and results of operations.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions (cont'd)

(3) ICL Iberia – a subsidiary in Spain

ICL Iberia was granted mining rights based on legislation of Spain's Government from 1973 and the regulations accompanying this legislation. Further to the legislation, the government of the Catalonia region published special mining regulations whereby ICL Iberia received individual licenses for each of the 126 different sites that are relevant to current and possible future mining activities. Some of the licenses are valid until 2037 and the remainder are effective until 2067. The concession for the "Reserva Catalana", an additional site where mining did not commence, expired in 2012. The Company is acting in cooperation with the Spanish Government to obtain a renewal of the concession. According to the Spanish authorities, the concession period is valid until a final decision is made regarding the renewal.

(4) United Kingdom

A. The mineral leases of ICL Boulby, ICL's subsidiary in the United Kingdom (hereinafter – ICL Boulby), are based on approximately 74 mineral leases and licenses for extracting various minerals, in addition to numerous easements and rights of way from private owners of land under which ICL Boulby operates, and mineral lease rights under the North Sea granted by The Crown Estates. The mineral lease rights with The Crown Estates, include provisions to explore and exploit all targeted and known polyhalite mineral resources of interest to ICL Boulby. Said leases cover a total area of about 822 square kilometers (onshore leases total around 32 square kilometers and offshore leases from the Crown Estates cover around 790 square kilometers). All the lease periods, licenses, easements and rights of way are effective, some until 2022 and others until 2038. The Company is acting to renew the rights necessary for the mining operation which expire in 2022, or, alternatively, to seek ownership of these rights.

   Regarding ICL Boulby's planning permit for mineral exploitation, which is valid until 2023, in December 2021, the North York Moors Park Authority Planning Committee approved ICL Boulby Mine's application for the continuation of polyhalite and salt production for an additional 25 years, commencing 2023.

   The Company believes, it is more likely than not that it will obtain renewal or ownership of all the needed rights and permits.

   With respect to the mining royalties, ICL Boulby pays royalties of 1.5% which in 2021, amounted to $1.4 million.

B. A UK subsidiary which is a part of the Innovative Ag Solutions segment (hereinafter – Everris Limited), has peat mines in the UK (Creca, Nutberry and Douglas Water). Peat is used as a component to produce professional growing media. All sites are owned by Everris Limited. The current extraction permits are granted by the local authorities and are renewed after examining the renewal applications. The extraction permits for Nutberry and Douglas Water were granted until the end of 2024 and until 2037 for Creca.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

B. Concessions (cont'd)

(5) YPH – China

Mining Concessions

YPH, ICL's subsidiary in China, which is equally owned with Yunnan Phosphate Chemicals Group Corporation Ltd. ("YYTH"), holds two phosphate mining licenses that were issued in July 2015, by the Division of Land and Resources of the Yunnan district in China: (1) a mining license for the Haikou Mine (hereinafter – Haikou) which the Company operates and which is valid until January 2043, and (2) a mining license for the Baitacun Mine, which was renewed in 2021, and is valid until 2023. The Company intends to conduct a risk survey to assess the feasibility and profitably of mining the site.

Grant of Mining Rights to Lindu

In 2016, a subsidiary of YYTH (hereinafter – YPC) issued a statement whereby in 2010 it entered into agreements with the local authority of Jinning County, Yunnan Province and Jinning Lindu Mining Development and Construction Co. Ltd. (hereinafter – Lindu Company), according to which Lindu Company is permitted to mine up to two million tonnes of phosphate rock from a certain area measuring 0.414 square kilometers within the area of the Haikou mine (hereinafter – the Daqing Area) and to sell such phosphate rock to any third party in its own discretion.

YPC has undertaken that YPH's mining right in the Haikou mine will not be adversely affected by the above-mentioned arrangements. It was decided that YPH should conduct further communications with YPC and Lindu Company, for the purpose of protecting its legal rights and to urge the parties to reach a fair, just, and reasonable solution to this issue, as soon as possible.

Natural Resources Royalties

With respect to the mining rights, in accordance with China "Natural Resources Tax Law", YPH pays royalties of 8% on the selling price based on the market price of the rock prior to its processing.

Planning and Building

The production process in YPH requires the Company to operate gypsum and flotation ponds that accumulate phosphogypsum fluid and other materials formed in the production processes. The Company has successfully reached an alignment with the authorities to allow the continuation of its current operations in its ponds until March 2022. YPH is planning to expand its ponds area as part of its ongoing operations plan beyond that date. As of the reporting date, the Company is awaiting the final official certification, which was already obtained verbally in the discussions with the authorities, that will enable the required ponds expansion.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities

(1) Ecology

A. In September 2020, an application for a class action was filed in the Beer Sheva District Court in Israel against the Company, the Company's subsidiary Rotem Israel, and certain of the Company's present and past office-holders by a number of local residents in the Arava region in the south of Israel (hereinafter – the Applicants). The Applicants claim that discharge, leakage and seepage of wastewater from ICL's Zin site allegedly caused various environmental hazards to the Zin stream, which resulted in damage to various groups in Israel’s population, including: the Israeli public whose property is Zin stream; those who avoided visiting Zin stream due to the environmental hazards; visitors of Zin stream who were exposed to the aforementioned hazards and the residents of the area near Zin stream who were affected by the hazards. Accordingly, the Applicants request several remedies, including restitution and compensation for the damage that they claim was caused to the various groups in a minimum amount of NIS 3 billion (approximately $933 million), the majority of which relates to compensation for claimed consequential damages. Following the Applicants’ request for temporary relief, a hearing procedure is being held, in the framework of which the Court ordered to receive a regulator position before giving a final decision. The regulator position is expected to be submitted in March 2022.The Company rejects all the said allegations. Considering the preliminary stage of the proceeding and lack of precedents of such cases in Israel, there is a difficulty in estimating its outcome. No provision has been recorded in the Company's financial statements.

B. In July 2019, an application for approval of a claim as a class action was submitted to the Jerusalem District Court by an Israeli environmental association (hereafter – the Applicant) against 30 defendants, including Fertilizers and Chemicals Ltd., a subsidiary of the Company (hereinafter – the Respondents). The application includes claims relating to air pollution in Haifa Bay (located in northern Israel) and to alleged illness therefrom to the population of the said area.

Within the framework of the petition, the Applicant requests declarative relief and the establishment of a mechanism for compensation awards, without specifying their amount, or alternatively, for splitting remedies to allow each group member to sue for damages in a separate proceeding. On January 10, 2022, the Company filed its response objecting to the petition. A hearing procedure is currently being held, in the framework of which a deliberation should take place in the first quarter of 2022. Considering the early stage of the proceeding and the limited precedents of such cases in Israel, there is a difficulty in estimating its outcome. No provision has been recorded in the Company's financial statements.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(1) Ecology (cont'd)

C. In March 2018, an application for certification of a claim as a class action was filed with the Be’er Sheva District Court by two groups: the first class constituting the entire public of the State of Israel and the second-class constituting visitors of the Bokek stream and the Dead Sea (hereinafter – the Applicants), against the subsidiaries, Rotem Israel and Periclase Dead Sea Ltd. (hereinafter – the Respondents).

According to the claim, the Respondents have allegedly caused continuous, severe and extreme environmental hazards through pollution of the “Judea group – Zafit formation” groundwater aquifer (hereinafter – the Aquifer) and the Ein Bokek spring with industrial wastewater, and, in doing so, the Respondents have violated various provisions of property law and environmental protection law, including the provisions of the Law for Prevention of Environmental Hazards and the Water Law, as well as violations relating to the Torts Ordinance – breach of statutory duty, negligence and unjust profits.

As a result, the Court was requested to order the Respondents to eliminate the proprietary violation in reference to the Aquifer and Bokek stream by restoration thereof and to pay the public compensation in an estimated amount of NIS 1.4 billion (about $435 million).

In July 2019, the Respondents filed their response, together with three expert opinions, in which they denied all the Applicant's claims. In 2021, the petitioners notified the Court of their decision to cease the mediation process, which was initiated at the end of 2020. Following the petitioners request, the Court's proceedings were renewed. Considering the early stage of the proceedings, the limited precedents of such cases in Israel and due to preliminary issues that arise from the request, there is a difficulty in estimating their outcome. No provision has been recorded in the Company's financial statements.

D. In July and August 2017, three applications for certification of claims as class actions were filed against the Company, as a result of a partial collapse of the dyke in an evaporation pond at Rotem Amfert Israel which resulted in contamination of the Ashalim Stream and its surrounding area. The claimants contend that the Company breached various provisions of environmental laws, including, the provisions of the Law for Prevention of Environmental Hazards, the Water Law, provisions of the Torts Ordinance, a breach of statutory duty and negligence. In the framework of the first application, the Court was requested to instruct the Company to rectify the harm caused as a result of its omissions, in order to prevent recurrence of the damage caused as well as to grant a monetary remedy for non-pecuniary damages. The monetary remedy was not defined, however, according to the claimants, the amount of the personal claim is NIS 1,000 ($311) for each resident of the State of Israel, who number approximately 8.68 million persons.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(1) Ecology (cont'd)

D. (Cont'd)

In the framework of the second application, the Court was requested to grant a monetary remedy in an amount of no less than NIS 250 million ($77 million), and concurrently to award personal compensation in the amount of NIS 2,000 ($622) for each resident of the State of Israel, this being in respect of non-pecuniary damages. Furthermore, the Court was requested to instruct the Company to comply with the relevant laws and the rules provided thereunder. As part of the third application, the Court was requested to instruct the Company, among other things, to prepare plans for removal of the contamination, restoration of the Ashalim Stream and its surrounding area, for control and prevention of recurrence of the damage caused, to pay monetary relief to the class of injured parties, in the amount of NIS 202.5 million ($63 million), and to provide compensation by means of restoring the natural values impaired and return the area to its former condition.

In May 2018, the Nature and Parks Authority (hereinafter – NPA), filed an application for certification of a class action against the Company, Rotem Amfert Israel and past and present officers of the Company and Rotem Amfert Israel (jointly hereinafter – the Respondents), with respect to the Ashalim incident. According to the NPA, the Respondents, jointly and/or severally, are liable for compensation due to the Ashalim incident, among other things by virtue of the Torts Ordinance and/or unjust profits and by virtue of any other law. In the Application, the Court was requested, among other things, to issue orders, the purpose of which is to take all necessary measures to prevent the recurrence of the environmental hazard, and also to cooperate with the NPA and the State's authorities in order to minimize the ecological and environmental damage in order to allow for the restoration of the nature reserve. Furthermore, the Court was requested to grant monetary relief to the public injured by the ecological and environmental damage, and to grant a monetary relief for the purpose of the restoration of the nature reserve, in the aggregate amount of NIS 397 million (about $123 million).

In conjunction with the aforesaid application, the NPA filed a motion to strike the three applications mentioned above and to prefer the approval application on its behalf, as it argues that it is the most suitable to serve as the representative plaintiff in a class action in this regard, as its application is detailed and well-established as well as the special status conferred upon it under the Class Actions Law, which allows for specific benefits.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(1) Ecology (cont'd)

D. (Cont'd)

In November 2018, the Company was notified that all four applicants had agreed to join efforts and manage the class actions in a joint and coordinated manner, as well as of their consent to take part in a mediation process in an attempt to resolve the disputes outside of court. In January 2020, the parties signed a procedural agreement that regulates the procedure by which the disputes will be addressed in the mediation procedure which has been initiated. Considering the early stage of the proceedings, there is a difficulty in estimating their outcome. The Company is in contact with its insurance carriers to activate the relevant insurance policies. No provision has been recorded in the Company's financial statements.

In May 2018, the Company was served with a motion for discovery and pursual of documents (hereinafter – the Motion), filed with the Tel Aviv District Court, by a shareholder of the Company (hereinafter – the Movant), as a preliminary proceeding in preparation for the possible filing of an application for certification of a multiple derivative action against officers of the Company and Rotem Israel who, according to the Movant, caused the alleged damages incurred and to be incurred by the Company as a result of the Ashalim incident. In 2018, the parties reached an arrangement, according to which, the legal proceedings will be delayed until the relevant investigation's materials are provided to the Company by the investigating authority. As of the reporting date, such investigative materials have not yet been received. Considering the proceedings are in an early stage and even suspended, there is a difficulty in estimating their outcome.

E. In 2015, a request was filed for certification of a claim as a class action, in the Tel Aviv-Jaffa District Court, against eleven defendants, including a subsidiary, Fertilizers and Chemical Ltd., in respect of claims relating to air pollution in Haifa Bay and for the harm allegedly caused by it to residents of the Haifa Bay area. The amount of the claim is about NIS 13.4 billion (about $4.2 billion). In the Company's estimation, based on the factual material provided to it and the relevant court decision, it is more likely than not that the plaintiffs' contentions will be rejected.

F. In December 2021, the Company, along with the State of Israel, received a letter of warning prior to pursuing legal action, by Kibbutz Mitzpe Shalem in Israel, claiming, among others, that they were allegedly responsible for the closure of Mineral Beach in January 2015, as a result of a sinkhole. The Kibbutz claims alleged damages of $27 million and has requested a dialogue meeting to be held before pursuing legal action.

The Company operates in accordance with the provisions of the Concession Law and permits issued by the local Authorities. The Company rejects all of the allegations against it by the Kibbutz. Considering the preliminary stage of the proceeding it is difficult to estimate its outcome.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(2) Increase in the level of the evaporation Pond in Sodom (hereinafter – Pond 5)

The minerals from the Dead Sea are extracted by way of solar evaporation, whereby salt precipitates onto the bed of Pond 5, located in one of the sites of DSW. The precipitated salt creates a layer on Pond 5 bed with a volume of approximately 16 million cubic meters per year.

The production process of the raw material requires that a fixed brine volume is preserved in Pond 5. Failure to maintain a constant volume of brine in Pond 5 could result in a reduction in production capacity. To this end, up to the end of 2021, the raising of the brines' level of Pond 5 was according to the rate at which the pond floor rises, while performing the salt harvest. Since the solutions' level maximum height (15.1 meters) was reached at the end of 2021, from 2022 onwards, the solutions' volume in Pond 5 will be preserved by way of harvesting the salt ("the Permanent Solution" and/or "the Salt Harvesting Project" as described below).

Raising the water level of Pond 5 above a certain level may cause structural damage to the foundations of hotel buildings situated close to the water’s edge, to the settlement of Neve Zohar and to other infrastructure located along the western shoreline of the Pond.

Until the end of 2020, in order to ensure that Pond 5 water level does not exceed the maximum height (15.1 meters), the Government of Israel, through the Dead Sea Preservation Government Company Ltd., implemented a project for construction of coastline defenses, together with DSW (which financed 39.5% of the project's cost), as part of which the dike along the western beachfront of Pond 5, across from the hotels, was raised, together with a system for lowering subterranean water. The construction work with respect to the hotels' coastlines was completed and currently the Dead Sea Preservation Government Company Ltd. is carrying out elevation work in the intermediate area between the two hotel complexes.

The "Permanent Solution", which should provide a defense at least until the end of the current concession period in 2030, was established in the agreement with the Government of Israel signed in 2012. The purpose of the agreement was, among others, to provide a permanent solution for raising the water level in Pond 5 and stabilizing the water therein at a fixed level by harvesting salt from this pond and transferring it to the Northern Basin of the Dead Sea. According to the agreement, the planning and execution of the Permanent Solution will be through the Salt Harvesting Project which will be performed by DSW. In addition, the agreement stipulates that from January 1, 2017, the water level in the pond will not rise above 15.1 meters. Nevertheless, in the event of a material deviation from the project's timetables, without the Company having violated its obligations, the Company will be permitted to request raising of the water level above 15.1 meters.

The Company bears 80% and the State of Israel bears 20% of the cost of the Salt Harvesting Project. However, the State's share will not exceed NIS 1.4 billion.

In 2015 and 2016, the National Infrastructures Committee and the Israeli Government, respectively, approved National Infrastructures Plan 35A (hereinafter – the Plan), which includes the statutory infrastructure for establishment of the Salt Harvesting Project in Pond 5, and construction of the P-9 pumping station in the Northern Basin of the Dead Sea.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(2) Increase in the level of Pond 5 (cont'd)

A salt dredger, which is part of the implementation of the Salt Harvesting Project, commenced operations in the fourth quarter of 2020 and allowed DSW to establish the pond level below its maximum height at the end of 2021. The P-9 pumping station commenced operation in early 2022.

(3) Spain

A. A subsidiary in Spain (hereinafter – ICL Iberia) operated two potash production centers in Suria and Sallent. As part of an efficiency plan, the Company consolidated the activities of ICL Iberia into one site by means of expanding the Suria production site and discontinuing the mining activities at the Sallent site. The mining activities in Spain require, among other things, an environmental mining license and an urban license.

ICL Iberia holds an urban license for the Suria site, followed by an environmental mining license that complies with new environmental protection regulations in Spain (Autoritzacio Substantive). In November 2021, an updated environmental mining license was granted, which allows for higher volume processing.

In addition, since 2018, ICL Iberia prepared an environmental impact assessment, as well as new urban permits to expand capacity of the salt mountain in Suria, which allows it to continue piling salt in upcoming years, until the evacuation solution by a collector is applied. The restoration plan for the Suria site, which was approved in 2018, and updated in 2021, and which also includes a plan for handling the salt piles and dismantling facilities is scheduled to continue until 2094.

B. Following an arbitration proceeding conducted between a Spanish subsidiary (IBP) and Nobian concerning the termination of a partnership agreement between them, in October 2021 an agreement was signed to terminate the partnership, under which the Company will pay a net amount of approximately $17 million for Nobian's holding in Sal Vesta (51%), Nobian’s share in a joint venture (SOPAA) and for the net settlement of all additional disputes between the parties.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(4) In March 2021, an application for a class action was filed with the Tel Aviv-Jaffa District Court against the Company, Israel Corporation Ltd. and the controlling shareholder of Israel Corporation (hereinafter - the Respondents). The application includes a series of allegations concerning, among others, alleged misleading and violation of the Company's reporting and disclosure obligations to the public under the Israeli Securities Law, 5728-1968, relating to the implications of the royalties' claim filed in 2011 by the State of Israel against its subsidiary, Dead Sea Works Ltd., pursuant to the Dead Sea Concession Law, 5721-1961, which was conducted and concluded within an arbitration proceeding. The applicant is a shareholder of the Company asking to act on behalf of a represented class including all those who acquired Company shares or Israel Corp. shares and held them between August 17, 2011, and May 27, 2014. According to the application, this group incurred alleged damages by the Respondents, and accordingly, the Court is requested to rule in favor of the group members who are shareholders of the Company, damages in the amount of about NIS 133 million (about $40 million) and in favor of group members, who are shareholders of Israel Corp. an additional amount of NIS 57 million (about $17 million), as of May 27, 2014.

The Company rejects the claims made in the application and, accordingly, in September 2021 filed its response within the framework of the legal proceeding. Considering the preliminary stage of the proceeding there is a difficulty in estimating its outcome. No provision has been recorded in the Company's financial statements.

(5) In connection with the Harmonization Project (to create one global ERP system), which was discontinued in 2016 by a decision of the Company's Board of Directors, in December 2018, the Company filed a lawsuit in the Tel Aviv District Court against IBM Israel, the leading project provider (hereinafter - IBM), in the amount of $300 million (about a billion NIS) for compensation of damages incurred to the Company due to IBM's failure to meet its undertakings within the Project, which led to the failure of the Project.

In March 2019, IBM filed its statement of defense, together with a counterclaim against the Company, according to which IBM claims that ICL allegedly refrained from making certain payments, conducted negotiations in bad faith, and terminated the project unilaterally, in a way that harmed IBM's reputation and goodwill and therefore claims an amount of about $53 million (about ILS 170 million), including VAT and interest. In June 2019, the Company filed a statement of defense with respect to the counterclaim in which the Company rejected all of IBM's claims. In January 2021, IBM filed a request for dismissal including the deletion of the remedies claimed by the Company arising from the termination of the agreement between the parties. In August 2021, the Company filed a request to delete IBM's statements of claim, on the grounds that IBM acted in order to delay, burden and disrupt a professional expert's work, and thus to impair the documents discovery process. Considering the early stage of the proceedings and the complexity of the claims, it is difficult to estimate their outcome. Nevertheless, the Company believes it is more likely than not that IBM's claims in its counterclaim will be rejected.

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(6) In December 2018, an application for certification of a class action was filed with the Tel Aviv District Court against the Company, Israel Corporation, and office holders, including directors who held office during the said dates which are stated in the application, with respect to the manner in which the IT (the Harmonization) project was managed and terminated. According to the allegations made in the Application, the Company failed to properly report negative developments which occurred on certain dates during the said IT project, and such failure caused the company immense financial damages.

The represented class was defined in the application as all those who acquired the Company's shares at any time during the period commencing June 11, 2015 and did not sell them until September 29, 2016 (hereinafter – the Applicants).

The aggregate amount of the claim, for all members of the represented class, is estimated to be between $123 million (about NIS 395 million) for maximal damage, and $8 million (about NIS 26 million), for minimal damage. In April 2019, the Company filed its position to the Court denying the allegations made in the application.

In January 2020, the Company filed an application, which was accepted in court, to postpone the proceedings until a verdict is received in its lawsuit against IBM (see item 5 above). The delay was accepted subject to the Company's on-going updates regarding the IBM proceeding. In April 2020, the Applicants filed a request with the Supreme Court for leave to appeal the said Court's decision. In July 2021, the Tel Aviv District Court ruled that the Applicants may file a reply as well as an application for disclosure of documents, and that in November 2021, instructions will be given regarding the continuation of the proceedings. Following this decision, the Applicants requested that the Supreme Court suspend the decision of the application to appeal, in relation to the District Court's ruling to delay the proceedings, until it receives its instructions regarding their continuation. In August 2021, the Supreme Court denied the petitioners' request for leave to appeal. In addition, in September 2021, the Applicants filed a motion for disclosure of documents to the Tel Aviv District Court. On February 13, 2022, a hearing was held, following which, the court issued interim orders regarding the discovery proceedings. Considering the proceedings are in early stages and even suspended, there is a difficulty in estimating the chances the application will be accepted. No provision has been recorded in the Company's financial statements.

(7) In July 2018, an application for certification of a class action was filed with the Central District Court against the Company and its subsidiaries, Rotem Israel and Fertilizers and Chemicals Ltd. (jointly hereinafter – the Defendants). The causes of action are the alleged exploitation of the Defendants' monopolistic position to charge consumers in Israel excessive and unfair prices for products classified as "solid phosphate fertilizer" between 2011 and 2018, contrary to the provisions of the Restrictive Trade Practices Law, and unjust profits at the expense of the plaintiff and the represented group. The representative plaintiff is a Kibbutz member who grows various plants and trees in his yard and in a nearby orchard.

The represented group includes all the consumers who purchased, directly or indirectly, solid phosphate fertilizer products manufactured by the Defendants, or farming produce fertilized with solid phosphate fertilizer or food products that include such farming produce as stated above, in the years 2011-2018 (hereinafter – the Represented Group).

Note 18 - Commitments, Concessions and Contingent Liabilities (cont'd)

C. Contingent liabilities (cont'd)

(7) (cont'd)

According to the statement of claim, the plaintiff requests, among other things, that the Court rules in his favor and in favor of the Represented Group, awarding them compensation for the damages allegedly caused to them, in the total amount of NIS 56 million (about $17 million), based on a calculation pursuant to the "difference test", measuring the difference between the price of a product and its cost, as described in the statement of claim, or in the amount of about NIS 73 million (about $23 million), based on the "comparison test", comparing the price of a product to its price in other markets, as described in the statement of claim. It should be noted that the Company's total sales of solid phosphate fertilizers in Israel during 2017 were negligible. In March 2020, the Central District Court granted the Defendants a motion for delay in proceedings, until a decision is made by the Supreme Court in similar proceedings implicating the said case. The Company denies the allegations, and believes it is more likely than not that its claims will be accepted.

(8) In addition to the contingent liabilities, as stated above, as of the reporting date, the contingent liabilities regarding the matters of environmental protection and legal claims, which are pending against the Group, are in immaterial amounts. It is noted that part of the above claims is covered by insurance. According to the Company's estimation, the provisions recognized in its financial statements are sufficient.

Note 19 – Equity

A. Composition:

	As of December 31, 2021		As of December 31, 2020	
	Authorized	Issued and paid	Authorized	Issued and paid
Number of ordinary shares of Israeli Shekel 1 par value (in millions)	1,485	1,312	1,485	1,305
Number of Special State shares of Israeli Shekel 1 par value	1	1	1	1

(*) For information regarding the amount of treasury shares, see Note 19.G.(1).

The reconciliation of the number of shares outstanding at the beginning and end of the year is as follows:

	Number of Outstanding Shares (in millions)
As of January 1, 2020	1,305
Issuance of shares	–
As of December 31, 2020	1,305
Issuance of shares	7
As of December 31, 2021	1,312

B. Rights conferred by the shares

(1) The ordinary shares grant their holders voting rights in General Meetings of the Company, the right to participate in shareholders' meetings, the right to receive dividends and the right to a share in excess assets upon liquidation of ICL.

(2) The Special State of Israel Share, held by the State of Israel for the purpose of monitoring matters of vital interest to the State of Israel, grants special rights to make decisions, among other things, on the following matters:

- Sale or transfer of company assets, which are "essential" to the State of Israel, not in the ordinary course of business.
- Voluntary liquidation, change or reorganization of the organizational structure of ICL or merger (excluding mergers of entities controlled by ICL, directly or indirectly, that would not impair the rights or power of the Government, as holder of the Special State Share).
- Any acquisition or holding of 14% or more of the issued share capital of ICL.
- The acquisition or holding of 25% or more of the issued share capital of ICL (including augmentation of an existing holding up to 25%), even if there was previously an understanding regarding a holding of less than 25%.

Note 19 – Equity (Cont'd)

B. Rights conferred by the shares (cont'd)

- Any percentage of holding of the Company's shares, which grants its holder the right, ability or actual possibility to appoint, directly or indirectly, such number of the Company's directors equal to half or more of the Company's directors appointed.

During the second half of 2018, an inter-ministry team was established, headed by the Ministry of Finance, whose purpose is, among other things, to regulate the authority and supervision in respect of the Special State of Israel Share, as well as reduce the regulatory burden. In 2019, the work of this team was suspended until further notice due to the dissolution of the Knesset and lack of permanent Government. The Company is unable to estimate when or whether the team will recommence and what are the implications of this process over the Company, if any.

Note 19 - Equity (cont'd)

C. Share-based payments

1. Non-marketable options

<table>
<tr><th>Grant date</th><th>Employees entitled</th><th>Number of instruments (thousands)</th><th>Issuance's details</th><th>Instrument terms</th><th>Vesting conditions</th><th>Expiration date</th></tr>
<tr><td>August 6, 2014</td><td>Officers and senior employees</td><td>3,993</td><td rowspan="7">An issuance of non-marketable and non-transferrable options, for no consideration, under the amended 2014 Equity Compensation Plan.</td><td>Upon exercise, each option may be converted into one ordinary share of NIS 1 par value of the Company. In case that on the exercise date the closing price of an ordinary share is higher than twice the exercise price (the "Share Value Cap"), the number of the exercised shares will be reduced so that the product of the exercised shares actually issued to an offeree multiplied by the share closing price will equal to the product of the number of exercised options multiplied by the Share Value Cap.</td><td>3 equal tranches:
(1) one third on December 1, 2016
(2) one third on December 1, 2017
(3) one third on December 1, 2018</td><td>Two years from the vesting date.</td></tr>
<tr><td>June 30, 2016</td><td>Officers and senior employees</td><td>3,035</td><td rowspan="6">Upon exercise, each option may be converted into one ordinary share of NIS 1 par value of the Company.</td><td rowspan="6">3 equal tranches:
(1) one third at the end of 12 months after the grant date
(2) one third at the end of 24 months after the grant date
(3) one third at the end of 36 months after the grant date</td><td rowspan="2">June 30, 2023</td></tr>
<tr><td>September 5, 2016</td><td>Former chairman of BOD</td><td>186</td></tr>
<tr><td>February 14, 2017</td><td>Former CEO</td><td>114</td><td>February 14, 2024</td></tr>
<tr><td>June 20, 2017</td><td>Officers and senior employees</td><td>6,868</td><td rowspan="2">June 20, 2024</td></tr>
<tr><td>August 2, 2017</td><td>Former chairman of BOD</td><td>165</td></tr>
<tr><td>March 6, 2018</td><td>Officers and senior employees</td><td>5,554</td><td>March 6, 2025</td></tr>
</table>

Note 19 – Equity (cont'd)

C. Share-based payments (cont'd)

1. Non-marketable options (cont'd)

<table>
<tr><th>Grant date</th><th>Employees entitled</th><th>Number of instruments (thousands)</th><th>Issuance's details</th><th>Instrument terms</th><th>Vesting conditions</th><th>Expiration date</th></tr>
<tr><td>May 14, 2018</td><td>CEO</td><td>385</td><td rowspan="6">An issuance of non-marketable and non-transferrable options, for no consideration, under the amended 2014 Equity Compensation Plan.</td><td rowspan="6">Upon exercise, each option may be converted into one ordinary share of NIS 1 par value of the Company.</td><td rowspan="2">3 equal tranches:
(1) one third at the end of 12 months after the grant date
(2) one third at the end of 24 months after the grant date
(3) one third at the end of 36 months after the grant date</td><td>May 14, 2025</td></tr>
<tr><td>August 20, 2018</td><td>Former chairman of BOD</td><td>403</td><td>August 20, 2025</td></tr>
<tr><td>April 15, 2019</td><td>Officers and senior manager</td><td>13,242</td><td rowspan="4">2 equal tranches:
(1) half at the end of 24 months after the grant date.
(2) half at the end of 36 months after the grant date.</td><td rowspan="4">5 years after the grant date</td></tr>
<tr><td>June 27, 2019</td><td>CEO</td><td>3,512</td></tr>
<tr><td>May 29, 2019 *</td><td>Chairman of BOD</td><td>2,169</td></tr>
<tr><td>June 30, 2021</td><td>Senior employees</td><td>647</td></tr>
</table>

* The options were issued upon Mr. Doppelt's entry into office on July 1, 2019.

Note 19 - Equity (cont'd)

C. Share-based payments (cont'd)

1. Non-marketable options (cont'd)

Additional Information

The options issued to the employees in Israel are covered by the provisions of Section 102 of the Israeli Income Tax Ordinance. The issuance is performed through a trustee under the Capital Gains Track. The exercise price is linked to the known CPI as of the date of payment, which is the exercise date. In the event that the Company of distributes a dividend, the exercise price is reduced on the "ex dividend" date, by the amount of the dividend per share (gross), based on the amount in NIS thereof at the effective date.

The fair value of the options granted in 2014, as part of 2014 amended equity compensation plan, was estimated using the binomial model for pricing options. The grants in 2016 until 2019 and 2021 under the amended 2014 Equity Compensation Plan, were estimated using the Black & Scholes model for pricing options. The parameters used in applying the models are as follows:

	2014 Plan					
	Granted 2014	Granted 2016	Granted 2017	Granted 2018	Granted 2019	Granted 2021
Share price (in $)	8.2	3.9	4.5	4.4	5.4	6.8
CPI-linked exercise price (in $)	8.4	4.3	4.3	4.3	5.3	7.1
Expected volatility:						
First tranche	29.40%	30.51%	31.88%	28.86%	27.85%	31.70%
Second tranche	31.20%	30.51%	31.88%	28.86%	27.85%	31.70%
Third tranche	40.80%	30.51%	31.88%	28.86%	–	–
Expected life of options (in years):						
First tranche	4.3	7.0	7.0	7.0	4.4	4.4
Second tranche	5.3	7.0	7.0	7.0	4.4	4.4
Third tranche	6.3	7.0	7.0	7.0	–	–
Risk-free interest rate:						
First tranche	(0.17)%	0.01%	0.37%	0.03%	(0.67)%	0.43%
Second tranche	0.05%	0.01%	0.37%	0.03%	(0.67)%	0.43%
Third tranche	0.24%	0.01%	0.37%	0.03%	–	–
Fair value (in $ millions)	8.4	4.0	11.3	8.8	7.5	0.6
Weighted average grant date fair value per option (in $)	1.9	1.1	1.6	1.4	1.2	1.3

Note 19 – Equity (cont'd)

C. Share-based payments (cont'd)

1. Non-marketable options (cont'd)

The expected volatility was determined based on the historical volatility in the Company's share prices in the Tel-Aviv Stock Exchange.

The expected life of the options was determined according to Management's estimate of the period in which the employees will hold the options, taking into consideration their position with the Company and the Company's past experience regarding the turnover of employees.

The risk-free interest rate was determined based on the yield to maturity of shekel-denominated Israeli Government debentures, with a remaining life equal or similar to the anticipated life of the option.

The cost of the benefit embedded in the options and shares from the amended Equity Compensation Plan 2014 is recognized in the statement of income over the vesting period of each portion. Accordingly, in 2021, 2020, and 2019, the Company recorded expenses of $6 million, $8 million and $12 million, respectively.

The movement in the options are as follows:

	Number of options (in millions)
Balance as of January 1, 2020	30
Movement in 2020:	
Expired during the year	(2)
Exercised during the year	(1)
Total options outstanding as of December 31, 2020	27
Movement in 2021:	
Granted during the year	1
Exercised during the year	(16)
Total options outstanding as of December 31, 2021	12

Subsequent to the date of the report

In February 2022, the Company's HR & Compensation Committee and the Board of Directors, approved a new triennial equity grant for the years 2022-2024 in the form of about 13 million non-marketable and non-transferable options for no consideration, under the amended 2014 Equity Compensation Plan to senior managers (including the CEO and the Chairman of the Board). The Fair value at the grant date (February 8, 2022) is about $24.5 million. Regarding to the grant of the CEO and the Chairman of the Board, the final quantity and fair value of their options will be determined at the date of the Annual General Meeting of Shareholders. The vesting period of the options will be in three equal tranches, upon the lapse of 12 months, 24 months and 36 months from the grant date.

Note 19 - Equity (cont'd)

C. Share-based payments (cont'd)

1. Non-marketable options (cont'd)

The exercise prices for options outstanding at the beginning and end of each period are as follows:

	December 31, 2021	December 31, 2020	December 31, 2019
Granted 2014 US Dollar	-	-	7.15
Granted 2016 US Dollar	4.61	4.56	4.36
Granted 2017 US Dollar	4.19	4.17	4.01
Granted 2018 US Dollar	4.11	4.12	3.99
Granted 2019 US Dollar	5.77	5.66	5.42
Granted 2021 US Dollar	7.39	-	-

The number of outstanding vested options at the end of each period and the weighted average of the exercise price for these options are as follows (*):

	December 31, 2021	December 31, 2020	December 31, 2019
Number of options exercisable (in Millions)	4	11	12
Weighted average exercise price in Israeli Shekel	14.29	13.89	15.19
Weighted average exercise price in US Dollar	4.59	4.32	4.40

(*) The share price as of December 31, 2021, is NIS 30.01 and $9.65.

The range of exercise prices for the options outstanding vested at the end of each period is as follows:

	December 31, 2021	December 31, 2020	December 31, 2019
Range of exercise price in Israeli Shekel	12.77-18.06	13.15-18.32	13.55-24.71
Range of exercise price in US Dollar	4.11-5.81	4.09-5.70	3.92-7.15

The average remaining contractual life for the outstanding vested options at the end of each period is as follows:

	December 31, 2021	December 31, 2020	December 31, 2019
Average remaining contractual life	2.83	3.58	3.85

Note 19 - Equity (cont'd)

C. Share-based payments (cont'd)

2. Restricted shares

Grant date	Employees entitled	Number of instruments (thousands)	Vesting conditions (*)	Instrument terms	Additional Information	Fair value at the grant date (Million)
June 30, 2016	Officers and senior employees	990	3 equal tranches: (1) one third at the end of 12 months after the grant date (2) one third at the end of 24 months after the grant date (3) one third at the end of 36 months after the grant date	An issuance for no consideration, under the amended 2014 Equity Compensation Plan.	The value of the restricted shares was determined according to the closing price on the TASE on the most recent trading day preceding the grant date (the approval date of the BOD and/or the approval date of the General Meeting where required).	4.1
September 5, 2016	Former chairman of BOD	55				
June 20, 2017	Officers and senior employees	2,211				10
August 2, 2017	Former chairman of BOD	53				0.3
January 10, 2018	ICL's Directors (excluding ICL's CEO & Chairman of the BOD)	137				0.6
March 6, 2018	Officers and senior employees	1,726				8
May 14, 2018	CEO	121				0.6
August 20, 2018	Former chairman of BOD	47				0.2
April 23, 2020	ICL's Directors (excluding directors who are officers or directors of Israel Corporation Ltd.)	177	3 equal tranches: (1) one third on January 1, 2021 (2) one third on January 1, 2022 (3) one third on January 1,2023		The value of the restricted shares was determined according to the closing price on the TASE on the most recent trading day preceding the Grant Date (the approval date of the annual General Meeting of shareholders).	0.6

(*) Vesting of the Restricted Shares would be fully accelerated if the holder ceases to serve as a director of the Company, unless he/she ceased to hold office due to those certain circumstances regarding early termination of office or imposition of enforcement measures, as set forth in Sections 231-232a and 233(2) of the Israeli Companies Law.

Note 19 – Equity (cont'd)

D. Dividends distributed to the Company's Shareholders

The date of Board of Directors' decision to distribute the dividend	Actual date of distribution of the dividend	Gross amount of the dividend distributed (in millions of $)	Net amount of the distribution (net of the subsidiary's share) (in millions of $)	Amount of the dividend per share (in $)
February 4, 2019	March 13, 2019	62	61	0.05
May 6, 2019	June 19, 2019	76	75	0.06
July 30, 2019	September 24, 2019	74	73	0.06
November 5, 2019	December 18, 2019	65	64	0.05
Total 2019		277	273	0.22
February 11, 2020	March 18, 2020	23	23	0.02
May 10, 2020	June 17, 2020	30	30	0.02
July 27, 2020	September 16, 2020	36	36	0.03
November 10, 2020	December 16, 2020	29	29	0.02
Total 2020		118	118	0.09
February 10, 2021	March 16, 2021	34	34	0.03
May 5, 2021	June 16, 2021	67	67	0.05
July 27, 2021	September 1, 2021	68	68	0.05
November 3, 2021	December 15, 2021	107	107	0.08
Total 2021		276	276	0.21
February 8, 2022*	March 8, 2022	169	169	0.13

(*) The record date is February 23, 2022, and the payment date is March 8, 2022.

Note 19 – Equity (cont'd)

E. Cumulative translation adjustment

The translation reserve includes all translation differences arising from translation of financial statements of foreign operations.

F. Capital reserves

The capital reserves include expenses for share-based compensation to employees against a corresponding increase in equity (See item C above) and change in investment at fair value through other comprehensive income (See Note 21.E(3)).

G. Treasury shares

During 2008 and 2009 22.4 million shares were acquired by the Group under a purchase plan, for a total consideration of approximately $258 million. Total shares held by the Group are about 24.5 million.

Note 20 – Details of Income Statement Items

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Sales	6,955	5,043	5,271
Cost of sales			
Materials consumed	2,342	1,647	1,702
Cost of labor	906	794	766
Depreciation and amortization	413	416	384
Energy and fuel	343	316	340
Other	340	380	262
	4,344	3,553	3,454

Note 20 – Details of Income Statement Items (cont'd)

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Selling, transport and marketing expenses			
Land and Marine transportation	742	515	509
Cost of labor	171	134	133
Other	154	117	125
	1,067	766	767
General and administrative expenses			
Cost of labor	166	136	153
Professional Services	44	32	42
Other	66	64	59
	276	232	254
Research and development expenses, net			
Cost of labor	52	40	36
Other	12	14	14
	64	54	50

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Other income			
Capital gain	16	–	12
Profit from divestment	14	–	–
Past service cost	12	11	5
Reversal of provision for legal claims	11	–	7
Reversal of Impairment of fixed assets	9	–	10
Other	1	9	6
Other income recorded in the income statements	63	20	40
Other expenses			
Provision for legal claims	17	–	14
Provision for historical waste removal and site closure costs	14	83	7
Transaction costs	8	–	–
Impairment and disposal of assets	9	90	–
Provision for early retirement and dismissal of employees	–	78	5
Other	9	5	4
Other expenses recorded in the income statements	57	256	30

Note 20 – Details of Income Statement Items (cont'd)

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Financing income and expenses			
Financing income:			
Net gain from change in fair value of derivative designated as economic hedge	59	–	45
Net gain from change in fair value of derivative designated as cash flow hedge	18	54	38
Interest income from banks and others	17	7	8
	94	61	91
Financing expenses:			
Interest expenses to banks and others	126	120	125
Net loss from changes in exchange rates	79	58	72
Financing expenses in relation to employees' benefits	23	38	39
Banks and finance institutions commissions (mainly commission on early repayment of loans)	6	4	3
Net loss from change in fair value of derivative designated as economic hedge	–	23	–
Financing expenses	234	243	239
Net of borrowing costs capitalized	18	24	19
	216	219	220
Net financing expenses recorded in the income statements	122	158	129

Note 21 - *Financial Instruments and Risk Management*

A. General

The Company has extensive international operations wherein it is exposed to credit, liquidity and market risks (including currency, interest and other price risks). In order to reduce the exposure to these risks, the Company holds financial derivative instruments, (including forward transactions, SWAP transactions, and options) to reduce the exposure to foreign currency risks, commodity price risks, energy and marine transport and interest risks. Furthermore, the Company holds derivative financial instruments to hedge the exposure and changes in the cash flows.

The transactions in derivatives are executed with large Israeli and non-Israeli financial institutions, and therefore Company management believes the credit risk in respect thereof is low.

This Note presents information about the Company's exposure to each of the above risks, and the Company's objectives, policies and processes for measuring and managing risk.

The Company regularly monitor the extent of our exposure and the rate of the hedging transactions for the various risks described below. The Company execute hedging transactions according to our hedging policy with reference to the actual developments and expectations in the various markets.

Note 21 - Financial Instruments and Risk Management (cont'd)

B. Groups and measurement bases of financial assets and financial liabilities

	As of December 31, 2021			
	Financial assets		Financial liabilities	
	Measured at fair value through the statement of income	Measured at amortized cost	Measured at fair value through the statement of income	Measured at amortized cost
	$ millions	$ millions	$ millions	$ millions
Current assets				
Cash and cash equivalents	-	473	-	-
Short-term investments and deposits	-	91	-	-
Trade receivables	-	1,418	-	-
Other receivables	-	45	-	-
Foreign currency derivative designated as economic hedge	23	-	-	-
Marine transport derivative designated as economic hedge	2	-	-	-
Foreign currency and interest derivative instruments designated as cash flow hedge	23	-	-	-
Non-current assets				
Foreign currency and interest derivative instruments designated as cash flow hedge	97	-	-	-
Other non-current asset	-	14	-	-
Total financial assets	145	2,041	-	-
Current liabilities				
Short term debt	-	-	-	(577)
Trade payables	-	-	-	(1,064)
Other current liabilities	-	-	-	(153)
Foreign currency derivative designated as economic hedge	-	-	(3)	-
Non-current liabilities				
Long term debt and debentures	-	-	-	(2,436)
Interest derivative instruments designated as economic hedge	-	-	(7)	-
Other non- current liabilities	-	-	-	(49)
Total financial liabilities	-	-	(10)	(4,279)
Total financial instruments, net	145	2,041	(10)	(4,279)

Note 21 - Financial Instruments and Risk Management (cont'd)

B. Groups and measurement bases of financial assets and financial liabilities (cont'd)

	As of December 31, 2020				
	Financial assets			Financial liabilities	
	Measured at fair value through the statement of income	Measured at fair value through the statement of comprehensive income	Measured at amortized cost	Measured at fair value through the statement of income	Measured at amortized cost
	$ millions	$ millions	$ millions	$ millions	$ millions
Current assets					
Cash and cash equivalents	-	-	214	-	-
Short-term investments and deposits	-	-	100	-	-
Trade receivables	-	-	883	-	-
Other receivables	-	-	122	-	-
Investments at fair value through other comprehensive income	-	53	-	-	-
Foreign currency and interest derivative designated as economic hedge	24	-	-	-	-
Non-current assets					
Foreign currency and interest derivative instruments designated as cash flow hedge	115	-	-	-	-
Investments at fair value through other comprehensive income	-	83	-	-	-
Other non-current asset	-	-	8	-	-
Total financial assets	139	136	1,327	-	-
Current liabilities					
Short term debt	-	-	-	-	(679)
Trade payables	-	-	-	-	(740)
Other current liabilities	-	-	-	-	(156)
Foreign currency and interest derivative designated as economic hedge	-	-	-	(42)	-
Energy and marine transport derivative designated as economic hedge	-	-	-	(1)	-
Non-current liabilities					
Long term debt and debentures	-	-	-	-	(2,053)
Foreign currency and interest derivative designated as economic hedge	-	-	-	(13)	-
Foreign currency and interest derivative instruments designated as cash flow hedge	-	-	-	(28)	-
Other non- current liabilities	-	-	-	-	(53)
Total financial liabilities	-	-	-	(84)	(3,681)
Total financial instruments, net	139	136	1,327	(84)	(3,681)

Note 21 – Financial Instruments and Risk Management (cont'd)

C. Credit risk

(1) General

(a) Customer credit risks

Credit risk is the risk of financial loss to the Company if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and it arises mainly from the Company's receivables from customers and from other receivables as well as from investments in securities.

The Company sells to a wide range and large number of customers, including customers with material credit balances. On the other hand, the Company does not have a concentration of sales to individual customers.

The Company has a regular policy of insuring the credit risk of its customers by means of purchasing credit insurance with insurance companies, other than sales to government agencies and sales in small amounts. Most of all other sales are executed only after receiving approval of coverage in the necessary amount from an insurance company or other collaterals of a similar level.

The use of an insurance company as aforementioned ensures that the credit risk is managed professionally and objectively by an expert external party and transfers most of the credit risk to third parties. Nevertheless, the common deductible in credit insurances is 10% (even higher in a small number of cases) thus the Company is still exposed to part of the risk, out of the total insured amount.

In addition, the Company has an additional deductible cumulative annual amount of approximately $6 million through a wholly-owned captive reinsurance company.

Most of the Company's customers have been trading with the Company for many years and only rarely have credit losses been incurred by the Company. The financial statements include specific allowance for doubtful debts that appropriately reflect, in Management's opinion, the credit loss in respect of accounts receivables which are considered doubtful.

(b) Credit risks in respect of deposits

The Company deposits its balance of liquid financial assets in bank deposits and in securities. All the deposits are with a diversified group of leading banks preferably with banks that provide loans to the Company.

Note 21 - Financial Instruments and Risk Management (cont'd)

C. Credit risk (cont'd)

(2) Maximum Exposure to credit risk

The carrying amount of financial assets represents the maximum credit exposure. The maximum exposure to credit risk at the reporting date was:

	As of December 31	
	Carrying amount ($ millions)	
	2021	2020
Cash and cash equivalents	473	214
Short term investments and deposits	91	100
Trade receivables	1,418	883
Other receivables	45	122
Derivatives	145	139
Other non-current assets	14	8
	2,186	1,466

The maximum exposure to credit risk for trade receivables, at the reporting date by geographic region was:

	As of December 31	
	Carrying amount ($ millions)	
	2021	2020
Asia	440	258
Europe	362	330
South America	306	68
North America	193	144
Israel	95	67
Other	22	16
	1,418	883

(3) Aging of debts and impairment losses

The aging of trade receivables at the reporting date was:

	As of December 31			
	2021		2020	
	Gross	Impairment	Gross	Impairment
	$ millions	$ millions	$ millions	$ millions
Not past due	1,313	(1)	788	-
Past due up to 3 months	82	-	58	-
Past due 3 to 12 months	23	(2)	7	(1)
Past due over 12 months	9	(6)	40	(9)
	1,427	(9)	893	(10)

Note 21 - Financial Instruments and Risk Management (cont'd)

C. Credit risk (cont'd)

(3) Aging of debts and impairment losses (cont'd)

The movement in the allowance for doubtful accounts during the year was as follows:

	2021	2020
	$ millions	$ millions
Balance as of January 1	10	3
Additional allowance	(3)	5
Reversals	(2)	-
Changes due to translation differences	4	2
Balance as of December 31	9	10

D. Liquidity risk

Liquidity risk is the risk that the Company will not be able to meet its financial obligations as they fall due. The Company's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to timely meet its liabilities, under both normal and stressed conditions, without incurring unwanted losses.

The Company manages the liquidity risk by holding cash balances, short-term deposits and secured bank credit facilities.

The following are the contractual maturities of financial liabilities, including estimated interest payments:

	As of December 31, 2021				
	Carrying amount	12 months or less	1-2 years	3-5 years	More than 5 years
	$ millions				
Non-derivative financial liabilities					
Short term debt (not including current maturities)	327	329	-	-	-
Trade payables	1,064	1,064	-	-	-
Other current liabilities	153	153	-	-	-
Long-term debt, debentures and others	2,735	352	1,003	799	1,532
	4,279	1,898	1,003	799	1,532
Financial liabilities - derivative instruments					
Foreign currency and interest derivative designated as economic hedge	10	3	-	7	-

Note 21 - Financial Instruments and Risk Management (cont'd)

D. Liquidity risk (cont'd)

	As of December 31, 2020				
	Carrying amount	12 months or less	1-2 years	3-5 years	More than 5 years
	$ millions				
Non-derivative financial liabilities					
Short term debt (not including current maturities)	296	299	-	-	-
Trade payables	740	740	-	-	-
Other current liabilities	156	156	-	-	-
Long-term debt, debentures and others	2,489	489	529	859	1,559
	3,681	1,684	529	859	1,559
Financial liabilities - derivative instruments utilized for economic hedging					
Foreign currency and interest derivative designated as economic hedge	55	42	-	-	13
Energy and marine transport derivative designated as economic hedge	1	1	-	-	-
Foreign currency and interest derivative designated as cash flow hedge	28	-	-	-	28
	84	43	-	-	41

E. Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates and equity prices will affect the fair value or future cash flows of a financial instrument.

1. Interest risk

The Company has loans bearing variable interests and therefore its financial results and cash flows are exposed to fluctuations in the market interest rates.

The Company uses financial instruments, including derivatives, in order to hedge this exposure. The Company uses interest rate swap contracts mainly in order to reduce the exposure to cash flow risk in respect of changes in interest rates.

As part of the global reform in interest rate benchmarks, the Libor GBP settings ceased from 1 January 2022 and replaced by SONIA (GBP) Benchmark. Most US dollar LIBOR settings will continue to be calculated using panel bank submissions until mid-2023.

As of December 31,2021, USD LIBOR continues to be used as a reference rate and in valuation of instruments with maturities that exceed the expected end date for LIBOR. the Company has USD 30 million Libor Based Debt and USD 150 million LIBOR Based derivatives that exceed the expected end date for LIBOR.

As of December 31,2021, we have not finalized an agreement with the banks regarding the Libor transition effects on loans and derivatives.

Note 21 - Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

1. Interest risk (cont'd)

(a) Interest Rate Profile

Set forth below are details regarding the type of interest on the Company's non-derivative *interest-bearing financial instruments:*

	As of December 31	
	2021	2020
	$ millions	$ millions
Fixed rate instruments		
Financial assets	338	165
Financial liabilities	(2,466)	(2,450)
	(2,128)	(2,285)
Variable rate instruments		
Financial assets	36	223
Financial liabilities	(562)	(296)
	(526)	(73)

(b) Sensitivity analysis for fixed rate instruments

Most of the Company's instruments bearing fixed interest are not measured at fair value through the statement of income. Therefore, changes in the interest rate will not have any impact on the profit or loss in respect of changes in the value of assets and liabilities bearing fixed interest.

(c) Sensitivity analysis for variable rate instruments

The below analysis assumes that all other variables (except for the interest rate), in particular foreign currency rates, remain constant.

	As of December 31, 2021			
	Impact on profit (loss)			
	Decrease of 1% in interest	Decrease of 0.5% in interest	Increase of 0.5% in interest	Increase of 1% in interest
	$ millions	$ millions	$ millions	$ millions
SWAP instruments				
Changes in U.S. Dollar interest	(32)	(16)	15	29
Changes in Israeli Shekel interest	39	19	(18)	(35)

Note 21– Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

1. Interest risk (cont'd)

(d) Terms of derivative financial instruments used to hedge interest risk

	As of December 31, 2021			
	Carrying amount (fair value)	Stated amount	Maturity date	Interest rate range
	$ millions	$ millions	Years	%
U.S. Dollar				
SWAP contracts from variable interest to fixed interest	(7)	150	2024	2.47-2.6%
Israeli Shekel				
SWAP contracts from fixed ILS interest to fixed USD interest	119	579	2034	2.4-4.47%

	As of December 31, 2020			
	Carrying amount (fair value)	Stated amount	Maturity date	Interest rate range
	$ millions	$ millions	Years	%
U.S. Dollar				
SWAP contracts from variable interest to fixed interest	(13)	150	2024	2.47%-2.60%
Israeli Shekel				
SWAP contracts from fixed ILS interest to fixed USD interest	87	701	2034	2.40%-4.47%
GBP				
SWAP contracts from variable USD interest to fixed GBP interest.	5	63	18/05/2021	1-month libor
Euro				
SWAP contracts from variable USD interest to fixed EUR interest	(41)	324	19/05/2021	1-month libor

Note 21 - Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

2. Currency risk

The Company is exposed to currency risk with respect to sales, purchases, assets and liabilities that are denominated in a currency other than the functional currency of the Company. The main exposure is the New Israeli Shekel, Euro, British Sterling, Chinese Yuan Brazilian Real and Turkey Lira.

The Company enters into foreign currency derivatives - forward exchange transactions and currency options - all in order to protect the Company from the risk that the eventual cash flows, resulting from existing assets and liabilities, and sales and purchases of goods within the framework of firm or anticipated commitments (based on a budget of up to one year), denominated in foreign currency, will be affected by changes in the exchange rates.

(a) Sensitivity analysis

A 10% increase at the rate of the US$ against the following currencies would have increased (decreased) profit or loss by the amounts shown below. This analysis assumes that all other variables, in particular interest rates, remain constant.

	As of December 31	
	Impact on profit (loss)	
	2021	2020
	$ millions	$ millions
Non-derivative financial instruments		
U.S. Dollar/Euro	(80)	(96)
U.S. Dollar/Israeli Shekel	177	134
U.S. Dollar/British Pound	(1)	2
U.S. Dollar/Chinese Yuan	1	(1)
U.S. Dollar/Turkey Lira	-	(1)

A 10% decrease of the US$ against the above currencies as of December 31 would have the same effect but in the opposite direction.

Note 21 – Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

2. Currency risk (cont'd)

(a) Sensitivity analysis (cont'd)

Presented hereunder is a sensitivity analysis of the Company's foreign currency derivative instruments as of December 31, 2021. Any change in the exchange rates of the principal currencies shown below would have increased (decreased) profit and loss and equity by the amounts shown below. This analysis assumes that all other variables remain constant.

	As of December 31, 2021			
	Increase 10%	Increase 5%	Decrease 5%	Decrease 10%
	$ millions	$ millions	$ millions	$ millions
U.S. Dollar/Israeli Shekel				
Forward transactions	(48)	(25)	27	58
Options	(40)	(18)	25	55
SWAP	(69)	(36)	40	85
Euro/ U.S. Dollar				
Forward transactions	22	11	(11)	(22)
Options	5	2	(3)	(6)
U.S Dollar/RMB				
Forward transactions	(4)	(2)	3	5

Note 21 – Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

2. Currency risk (cont'd)

(b) Terms of derivative financial instruments used to reduce foreign currency risk

	As of December 31, 2021		
	Carrying amount	Stated amount	Average
	$ millions	$ millions	exchange rate
Forward contracts			
U.S. Dollar/Israeli Shekel	3	515	3.2
Euro/U.S. Dollar	4	240	1.2
U.S Dollar/Brazilian Real	(1)	37	5.4
U.S. Dollar/British Pound	–	16	1.4
U.S. Dollar/Chinese Yuan Renminbi	1	46	6.5
Other	–	23	–
Currency and interest SWAPs			
U.S. Dollar/Israeli Shekel	119	579	3.7
Put options			
U.S. Dollar/Israeli Shekel	14	660	3.2
Euro/U.S. Dollar	2	57	1.2
U.S. Dollar/Japanese Yen	–	4	109.7
U.S. Dollar/British Pound	–	12	1.4
Call options			
U.S. Dollar/Israeli Shekel	(2)	660	3.2
Euro/U.S. Dollar	–	57	1.2
U.S. Dollar/Japanese Yen	–	4	109.7
U.S. Dollar/British Pound	–	12	1.4

Note 21 - Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

2. Currency risk (cont'd)

(b) Terms of derivative financial instruments used to reduce foreign currency risk (cont'd)

	As of December 31, 2020		
	Carrying amount	Stated amount	Average
	$ millions	$ millions	exchange rate
Forward contracts			
U.S. Dollar/Israeli Shekel	8	377	3.2
Euro/U.S. Dollar	-	150	1.2
U.S. Dollar/British Pound	-	27	1.4
U.S. Dollar/Chinese Yuan Renminbi	-	23	6.6
Other	-	53	-
Currency and interest SWAPs			
U.S. Dollar/Israeli Shekel	87	701	3.7
Euro/U.S. Dollar	(41)	324	1.1
U.S. Dollar/British Pound	5	63	1.3
Put options			
U.S. Dollar/Israeli Shekel	13	400	3.3
Euro/U.S. Dollar	-	47	1.2
U.S. Dollar/Japanese Yen	-	2	107
U.S. Dollar/British Pound	-	10	1.3
Call options			
U.S. Dollar/Israeli Shekel	(1)	380	3.3
Euro/U.S. Dollar	(2)	47	1.2
U.S. Dollar/Japanese Yen	-	2	107
U.S. Dollar/British Pound	-	10	1.3

Note 21 - Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

2. Currency risk (cont'd)

(c) Linkage terms of monetary balances - in millions of Dollars

	As of December 31, 2021							
	US Dollar	Euro	British Pound	Israeli Shekel	Brazilian Real	Chinese Yuan Renminbi	Other	Total
Non-derivative instruments:								
Cash and cash equivalents	89	23	5	3	76	263	14	473
Short term investments and deposits	86	-	-	-	-	3	2	91
Trade receivables	684	260	41	82	222	91	38	1,418
Other receivables	2	22	1	19	1	-	-	45
Other non-current assets	4	4	-	-	5	-	1	14
Total financial assets	865	309	47	104	304	357	55	2,041
Short-term debt	196	92	12	184	41	52	-	577
Trade payables	210	216	28	410	103	91	6	1,064
Other current liabilities	33	73	4	18	10	15		153
Long term debt, debentures and others	1,161	499	21	635	51	67	2	2,436
Other non-current liabilities	1	46	-	-	2	-	-	49
Total financial liabilities	1,601	926	65	1,247	207	225	8	4,279
Total non-derivative financial instruments, net	(736)	(617)	(18)	(1,143)	97	132	47	(2,238)
Derivative instruments:								
Forward transactions	-	240	16	515	37	46	23	877
Cylinder	-	57	12	660	-	-	4	733
SWAPS - U.S. Dollar into Israeli Shekel	-	-	-	579	-	-	-	579
Total derivative instruments	-	297	28	1,754	37	46	27	2,189
Net exposure	(736)	(320)	10	611	134	178	74	(49)

Note 21 - Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

2. Currency risk (cont'd)

(c) Linkage terms of monetary balances - in millions of Dollars (cont'd)

	As of December 31, 2020							
	US Dollar	Euro	British Pound	Israeli Shekel	Brazilian Real	Chinese Yuan Renminbi	Others	Total
Non-derivative instruments:								
Cash and cash equivalents	114	13	5	2	6	60	14	214
Short term investments and deposits	88	5	-	-	-	4	3	100
Trade receivables	454	227	35	58	21	51	37	883
Other receivables	72	41	-	7	-	-	2	122
Investments at fair value through other comprehensive income	-	-	-	-	-	136	-	136
Other non-current assets	1	3	-	-	4	-	-	8
Total financial assets	729	289	40	67	31	251	56	1,463
Short-term debt	267	70	85	181	7	68	1	679
Trade payables	145	163	21	326	11	66	8	740
Other current liabilities	41	68	4	17	-	26		156
Long term debt, debentures and others	1,211	36	22	716	2	60	6	2,053
Other non-current liabilities	2	51	-	-	-	-	-	53
Total financial liabilities	1,666	388	132	1,240	20	220	15	3,681
Total non-derivative financial instruments, net	(937)	(99)	(92)	(1,173)	11	31	41	(2,218)
Derivative instruments:								
Forward transactions	-	150	27	377	15	23	38	630
Cylinder	-	47	10	400	20	-	2	479
SWAPS - U.S. Dollar into Israeli Shekel	-	-	-	701	-	-	-	701
SWAPS - U.S. Dollar into Euro	-	324	-	-	-	-	-	324
SWAPS - U.S. Dollar into British Pound	-	-	63	-	-	-	-	63
Total derivative instruments	-	521	100	1,478	35	23	40	2,197
Net exposure	(937)	422	8	305	46	54	81	(21)

Note 21 - Financial Instruments and Risk Management (cont'd)

E. Market risk (cont'd)

3. Other price risk

(a) Investment in shares

During the year 2021, the Company sold all of its remaining investment in YYTH shares (about 147 million shares), for a consideration of $293 million.

(b) Financial asset at amortized cost

As part of the sale of the fire safety and oil additives businesses, in 2018, the Company granted a loan to the buyers, in the carrying amount of $53 million bearing interest to be paid along with the loan principal. As of December 31, 2021, the loan has been fully repaid in a total amount including interest of $74 million.

4. Hedge accounting

The Company is exposed to changes in the exchange rate of the Israeli shekel against the dollar in respect of principal and interest in certain debentures, loans, labor costs and other operating expenses. The Company's risk management strategy is to hedge the changes in cash flows deriving from liabilities, labor costs and other operational costs denominated in Israeli shekels by using derivatives. These exposures are hedged from time to time, according to the assessment of the exposure and inherent risks against which the Company chooses to hedge, in accordance with the Company's risk management strategy.

In view of the above, in the fourth quarter of 2021, the Company designated several forward contracts and options transactions for cash flow hedge and applied hedge accounting. These transactions, which include a portion of labor costs and other operational costs denominated in Israeli shekel, are intended to secure the effect of the change in the exchange rate of the dollar against the hedged portion, thereby protecting the Company's operating income from currency fluctuation. The Company applies a 1:1 hedging ratio. The main source of potential ineffectiveness in these hedging ratios is negligible schedule differences between the hedged item and the hedging instrument. As of the date of the hedge transaction, the total balance of the hedged instruments amounted to about $230 million

In January and May 2020, the Company designated several swap contracts for cash flow hedge and applied hedge accounting. These transactions, which include principal and interest of Series G debentures, entitle the Company to receive fixed Israeli shekel interest against a liability to pay dollar interest at a fixed rate. The Company designated the spot component of the exchange rate swap contracts for hedging the currency risk in the cash flows of the said debt balances. The Company applies a 1:1 hedging ratio. The main source of potential ineffectiveness in these hedging ratios is the effect of the Company's and counterparty's credit risk on the fair value of the swap contracts. As of the date of the hedge transaction, the total balance of the hedged instruments amounted to about $110 million and $109 million, respectively.

Note 21 - Financial Instruments and Risk Management (cont'd)

F. Fair value of financial instruments

The carrying amounts in the books of certain financial assets and financial liabilities, including cash and cash equivalents, investments, short-term deposits and loans, receivables and other debit balances, long-term investments and receivables, short-term credit, payables and other credit balances, long-term loans bearing variable interest and other liabilities, and derivative financial instruments, correspond to or approximate their fair value.

The following table details the book value and the fair value of financial instrument groups presented in the financial statements not in accordance with their fair value:

	As of December 31, 2021		As of December 31, 2020	
	Carrying amount	Fair value	Carrying amount	Fair value
	$ millions	$ millions	$ millions	$ millions
Loans bearing fixed interest (1)	407	408	89	96
Debentures bearing fixed interest				
Marketable (2)	1,524	1,730	1,625	1,870
Non-marketable (3)	195	208	281	296
	2,126	2,346	1,995	2,262

(1) The fair value of the Shekel, Euro, Brazilian Real and Yuan loans issued bearing fixed interest is based on calculation of the present value of the cash flows in respect of the principal and the interest and is discounted at the market interest rates on the measurement date for similar loans having similar characteristics and is classified as Level 2 in the fair value hierarchy. The average discount interest as of December 31, 2021, for the Shekel, Euro Brazilian Real and Yuan loans was 1.5%, 1.2%, 13% and 4%, respectively (December 31, 2020, for the Shekel, Euro and Yuan loans 1.6%, 1.4%, and 5.1%, respectively).

(2) The fair value of the marketable debentures is based on the quoted stock exchange price and is classified as Level 1 in the fair value hierarchy.

(3) The fair value of the non-marketable debentures is based on calculation of the present value of the cash flows in respect of the principal and the interest and is discounted at the Libor rate customary in the market for similar loans having similar characteristics and is classified as Level 2 in the fair value hierarchy. The average discount interest as of December 31, 2021, was 2.5% (December 31, 2020 - 2.6%).

Note 21 - Financial Instruments and Risk Management (cont'd)

G. Hierarchy of fair value

The following table presents an analysis of the financial instruments measured by fair value, using the valuation method (See Note 4).

The following levels were defined:

Level 1: Quoted (unadjusted) prices in an active market for identical instruments

Level 2: Observed data (directly or indirectly) not included in Level 1 above.

Level 1	As of December 31, 2021	As of December 31, 2020
	$ millions	$ millions
Investments at fair value through other comprehensive income	-	136

Level 2	As of December 31, 2021	As of December 31, 2020
	$ millions	$ millions
Derivatives designated as economic hedge, net	15	(32)
Derivatives designated as cash flow hedge, net	120	87
	135	55

Note 22 – Earnings per Share

Basic earnings per share

Calculation of the basic earnings per share for the year ended December 31, 2021, is based on the earnings allocated to the holders of the ordinary shares divided by the weighted-average number of ordinary shares outstanding, calculated as follows:

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Earnings attributed to the shareholders of the Company	783	11	475

Weighted-average number of ordinary shares in thousands:

	For the year ended December 31		
	2021	2020	2019
	Shares thousands	Shares thousands	Shares thousands
Balance as of January 1	1,280,242	1,279,379	1,278,084
Shares issued during the year	223	29	98
Shares vested	2,342	618	768
Weighted average number of ordinary shares used in computation of the basic earnings per share	1,282,807	1,280,026	1,278,950

Diluted earnings per share

Calculation of the diluted earnings per share for the year ended December 31, 2021, is based on the earnings allocated to the holders of the ordinary shares divided by the weighted-average number of ordinary shares outstanding after adjustment for the number of potential diluted ordinary shares, calculated as follows:

Weighted average number of ordinary shares (diluted) in thousands:

	For the year ended December 31		
	2021	2020	2019
	Shares thousands	Shares thousands	Shares thousands
Weighted average number of ordinary shares used in the computation of the basic earnings per share	1,282,807	1,280,026	1,278,950
Effect of stock options and restricted shares*	4,244	247	3,106
Weighted average number of ordinary shares used in the computation of the diluted earnings per share	1,287,051	1,280,273	1,282,056

* As of December 31, 2021, all 12 million outstanding options, representing 4.2 million shares, were included in the diluted weighted average number of ordinary shares calculation. As of December 31, 2020 and 2019 – 27 million and 17.5 million options, respectively, were not included since they did not have a diluting effect.

Note 22 – Earnings per Share (cont'd)

The average market value of the Company's shares, for purposes of calculating the dilutive effect of the stock options, is based on the quoted market prices for the period in which the options were outstanding.

Note 23 – Related and Interested Parties

Related parties within its meaning in IAS 24 (2009), "Related Parties Disclosure"; Interested parties within their meaning in Paragraph 1 of the definition of an "interested party" in Section 1 of the Israeli Securities Law, 1968.

A. Parent company and subsidiaries

Israel Corp. is a public company listed for trading on the Tel Aviv Stock Exchange (TASE). Based on the information provided by Israel Corp., Millenium Investments Elad Ltd. ("Millenium") and Mr. Idan Ofer are considered as controlling shareholders jointly of Israel Corp., for purposes of the Israeli Securities Law (each of Millenium and Mr. Idan Ofer hold shares in Israel Corp. directly, and Mr. Idan Ofer serves as a director of Millenium and has an indirect interest in it as the beneficiary of the discretionary trust that has indirect control of Millenium, as stated below). Millenium holds approximately 44.44% of the share capital in Israel Corp., which holds as of December 31, 2021, approximately 45.62% of the voting rights and approximately 44.76% of the issued share capital, of the Company.

To the best of Israel Corp.'s knowledge, Millenium is held by Mashat (Investments) Ltd. ("**Mashat**") and by XT Investments Ltd. ("**XT Investments**"), with 84.73% and 15.27% holding rates in the issued share capital, respectively. Mashat is wholly owned by Ansonia Holdings Singapore B.V. ("Ansonia"). Ansonia is a wholly owned subsidiary of Jelany Corporation N.V., which is wholly owned by Court Investments Ltd. ("Court"). Court is wholly owned by a discretionary trust, in which Mr. Idan Ofer is the beneficiary. XT Investments is wholly owned by XT Holdings Ltd. ("XT Holdings"). To the best of Israel Corp.'s knowledge, ordinary shares of XT Holdings are held in equal shares by Orona Investments Ltd. (which is indirectly controlled by Mr. Ehud Angel) and by Lynav Holdings Ltd. ("Lynav"), which is controlled by a discretionary trust in which Mr. Idan Ofer is the beneficiary. Mr. Ehud Angel holds, among other things, a special share that grants him, inter alia, under certain limitations and for certain issues, an additional vote on the Board of Directors of XT Holdings. Lynav also holds directly 1.25% of the issued share capital of Israel Corp. In addition, Kirby Enterprises Inc., which is to the best of Israel Corp.'s knowledge, indirectly held by the same trust that holds Mashat, in which, as stated, Mr. Idan Ofer is the beneficiary, holds approximately 0.74% of the issued share capital of Israel Corp. Furthermore, Mr. Idan Ofer holds directly approximately 3.85% of the issued share capital of Israel Corp.

Even though Israel Corp. holds less than 50% of the Company's ordinary shares, it still has decisive influence at the General Meetings of the Company's shareholders and, effectively, it has the power to appoint directors and to exert significant influence with respect to the composition of the Company's Board of Directors.

Note 23 - Related and Interested Parties (cont'd)

A. Parent company and subsidiaries (cont'd)

As of December 31, 2021, 184 million ordinary shares have been pledged by Israel Corporation to secure certain liabilities, almost entirely comprised of margin loans with an aggregate outstanding principal of about $314 million.

B. Benefits to key management personnel (including directors)

The senior managers, in addition to their salaries, are entitled to non-cash benefits (such as vehicle, mobile etc.). The Group contributes to a post-employment defined benefit plan on their behalf. In accordance with the terms of the plan, the retirement age of senior managers is 67. Senior managers and directors also participate in the Company's incentive and equity remuneration plans (options for Company shares) (see Notes 16 and 19).

Set forth below are details of the benefits for key management personnel in 2021 and 2020.

The Company's key management personnel in 2021, consists of 22 individuals, of whom 11 are not employed by the company (directors). The Company's key management personnel in 2020, consisted of 19 individuals, of whom 10 were not employed by the Company (directors).

	For the year ended December 31	
	2021	2020
	$ millions	$ millions
Short-term benefits	12	9
Post-employment benefits	1	1
Share-based payments	5	7
Total *	18	17
* To interested parties employed by the Company	3	3
* To interested parties not employed by the Company	1	2

C. Ordinary transactions that are not exceptional

The Company’s Board of Directors, following the approval of the Audit Committee, decided that a transaction with related and interested parties will be considered a “negligible transaction” for public reporting purposes if all the following conditions have been met:

(1) It is not an “extraordinary transaction” within the meaning thereof in the Companies Law.

(2) The effect of each of the parameters listed below is less than one percent (hereinafter – the Negligibility Threshold).

Note 23 – Related and Interested Parties (cont'd)

C. Ordinary transactions that are not exceptional (cont'd)

For every transaction or arrangement that is tested for the Negligibility Threshold, the parameters will be examined, to the extent they are relevant, on the basis of the Company's condensed or audited consolidated financial statements, as applicable, prior to the transaction, as detailed below:

Acquisition of assets

Assets ratio – the amount of the assets in the transaction divided by total assets

Sale of assets

Assets ratio – the amount of the assets in the transaction divided by total assets.

Profit ratio – the profit or loss attributed to the transaction divided by the total annual comprehensive income or loss during the period.

Financial liabilities

Liabilities ratio – the amount of the liabilities in the transaction divided by the total liabilities.

Financing expenses ratio – the expected financing expenses in the specific transaction divided by the total financing expenses in the statement of income.

Acquisition and sale of products, services and manufacturing inputs

Revenue ratio – estimated revenue from the transaction divided by the annual revenue, or

Manufacturing expenses ratio – the amount of the expenses in the transaction divided by the annual cost of sales.

(3) The transaction is negligible also from a qualitative point of view. For the purpose of this criteria, it shall be examined whether there are special considerations justifying reporting of the transaction, even if it does not meet the quantitative criteria described above.

(4) In examining the negligibility of a transaction expected to occur in the future, among other things, the probability of the transaction occurring will be examined.

Note 23 - Related and Interested Parties (cont'd)

D. Transactions with related and interested parties

	For the year ended December 31		
	2021	2020	2019
	$ millions	$ millions	$ millions
Sales	7	3	4
Cost of sales	6	3	8
Selling, transport and marketing expenses	13	7	10
Financing expenses (income), net	(2)	(1)	(1)
General and administrative expenses	1	1	1
Management fees to the parent company	1	1	1

(1) On November 9, 2020, and November 11, 2020, our Audit and Accounting Committee and Board of Directors, respectively, approved, and on January 5, 2021, our general meeting of shareholders approved, the renewal of the management services agreement between the Company and Israel Corp. effective retroactively as of January 1, 2021, for an additional term of three years, expiring on December 31, 2023. According to the renewed management services agreement, the annual management fee to be paid to Israel Corp for each calendar year shall continue to be $1 million plus VAT. During the term of the agreement, the Company will not pay or grant any cash or equity compensation for the service of our directors who are office holders of Israel Corp. (except for the separate compensation arrangement between the Company and our Executive Chairman of the Board, Mr. Yoav Doppelt, as approved by our shareholders in May 2019, and as may be amended by shareholder approval from time to time). The Audit & Accounting Committee will continue to annually examine the reasonableness of the management fees paid in the previous year against the management services actually provided by Israel Corp to the Company in the same year. On February 21, 2022, the Audit & Accounting Committee examined the management services that were actually rendered in 2021 against the management fees paid in that year and concluded that the fees were reasonable. Notwithstanding the above, it was agreed by the Company and Israel Corp., that subject to the approval of the revised terms of our Executive Chairman of the Board, Mr. Yoav Doppelt, at the Annual General Meeting of our shareholders, expected to take place on March 30, 2022, the Management Agreement will be terminated effective as of July 1, 2022, following which directors who are office holders of Israel Corp. (other than Mr. Yoav Doppelt) shall begin to be paid the Director Cash Compensation. Mr. Sagi Kabla, Israel Corp.'s Chief Financial Officer, has requested that his Director Cash Compensation be either assigned and paid directly to Israel Corp. or paid directly to him, as instructed by Israel Corp.

(2) On January 30, 2020, our shareholders approved a new three-year framework transaction for the Company's engagement in directors' and officers' liability insurance policies, starting February 1, 2020 (the "New Framework Transaction"). The insurance policies under the New Framework Transaction shall include a joint primary tier with Israel Corp. with a joint liability cap of up to $20 million, and a separate tier covering the Company alone, with a liability cap of up to $330 million, with a total liability limit of up to $350 million for both tiers.

Note 23 – Related and Interested Parties (cont'd)

D. Transactions with related and interested parties (cont'd)

Our directors and officers are beneficiaries of both tiers. Pursuant to the New Framework Agreement, the cost of the annual premium shall not exceed a cap of $10 million for both tiers. The division of the premium amount between the Company and Israel Corp. in the joint tier are 80% to be paid by the Company and 20% by the Israel Corp, and the HR & Compensation Committee and the Board of Directors have the authority to change, from time to time, the premium allocation in respect of the joint tier between the companies, according to the recommendation of the insurers and/or brokers, and provided that such changes will not exceed 25% over the entire transaction period. Deviation from these limits shall require shareholder approval. In accordance with the terms of the New Framework Transaction and the Company's Compensation Policy, the Company's directors' and officers' liability insurance policy for 2021, was approved by the Company's authorized organs, effective as of March 2021. The 2021 directors' and officers' liability insurance policy includes a liability limit of $116 million for both tiers (comprised of a limit of $40 million, with an additional coverage Side A (directors and officers only) limit of $76 million).

(3) In December 2017, the Company, Oil Refineries Ltd. (a public company controlled by Israel Corp.) and OPC Energy Ltd. (a public company that is controlled indirectly by one of the Company's controlling shareholders) signed individual agreements with Energean PLC for the supply of natural gas. Under the agreement between the Company and Energean, the Company will be entitled to acquire up to 13 BCM of natural gas over a period of 15 years, in the total amount of about $1.8 billion. For further information see Note 18.

Note 23 – Related and Interested Parties (cont'd)

D. Transactions with related and interested parties (cont'd)

(4) In October 2020, the Company and Oil Refineries Ltd. signed individual bridge supply agreements with Tamar Reservoir for the supply of natural gas, following a process of joint negotiations with the supplier and the approval of ICL's general meeting of shareholders. For further information see Note 18.

E. Balances with related and interested parties

Composition:

	As of December 31	
	2021	2020
	$ millions	$ millions
Other current assets	40	35
Other current liabilities	4	2

Note 24 - Group Main Entities

		Ownership interest in its subsidiary and investee companies for the year ended December 31	
Name of company	Principal location of the company's activity	2021	2020
ICL Israel Ltd.	Israel	100.00%	100.00%
Dead Sea Works Ltd.	Israel	100.00%	100.00%
Dead Sea Bromine Company Ltd.	Israel	100.00%	100.00%
Rotem Amfert Negev Ltd.	Israel	100.00%	100.00%
Mifalei Tovala Ltd.	Israel	100.00%	100.00%
Dead Sea Magnesium Ltd.	Israel	100.00%	100.00%
Bromine Compounds Ltd.	Israel	100.00%	100.00%
Fertilizers and Chemicals Ltd.	Israel	100.00%	100.00%
Iberpotash S.A.	Spain	100.00%	100.00%
Fuentes Fertilizantes S.L.	Spain	100.00%	100.00%
ICL Europe Coöperatief U.A.	The Netherlands	100.00%	100.00%
ICL Europe B.V.	The Netherlands	100.00%	100.00%
ICL IP Terneuzen B.V	The Netherlands	100.00%	100.00%
ICL Finance BV	The Netherlands	100.00%	100.00%
Everris International B.V.	The Netherlands	100.00%	100.00%
ICL Puriphos B.V.	The Netherlands	100.00%	100.00%
ICL-IP America Inc	United States of America	100.00%	100.00%
ICL Specialty Products Inc	United States of America	100.00%	100.00%
Everris NA, Inc.	United States of America	100.00%	100.00%
Growers Holdings, Inc.	United States of America	100.00%	100.00%
BK Giulini GmbH	Germany	100.00%	100.00%
ICL Holding Germany GmbH	Germany	100.00%	100.00%
ICL Bitterfeld GmbH	Germany	100.00%	100.00%
Prolactal GmbH	Austria	100.00%	100.00%
Cleveland Potash Ltd.	United Kingdom	100.00%	100.00%
Everris Ltd.	United Kingdom	100.00%	100.00%
ICL America do Sul	Brazil	100.00%	100.00%
Agro Fertilaqua Participacoes S.A.	Brazil	100.00%	100.00%
Qualyquímica Industria e Comercio de Produtos Quimicos Ltda	Brazil	100.00%	100.00%
ICL Brasil, Ltda.	Brazil	100.00%	100.00%
ICL Investment Co. Ltd.	China	100.00%	100.00%
Yunnan Phosphate Haikou Co. Ltd.	China	50.00%	50.00%
ICL Asia Ltd	Hong Kong	100.00%	100.00%
ICL Trading (HK) Ltd.	Hong Kong	100.00%	100.00%
Scora S.A.S., France	France	100.00%	100.00%

Exhibit 8.1

Name of Subsidiary / Investee company	Jurisdiction of Incorporation
Agro-Vant	Israel
Bromine Compounds Ltd.,	Israel
Chemada Fine Chemicals Ltd.	Israel
Dead Sea Bromine Company Ltd.	Israel
Dead Sea Magnesium Ltd.	Israel
Dead Sea Periclase Fused Products Co.	Israel
Dead Sea Periclase Ltd.	Israel
Dead Sea Works Ltd.	Israel
Edom Mining and Development Ltd. (the operations were transferred to Rotem)	Israel
Fertilizers and Chemicals Ltd.	Israel
ICL Israel Ltd.	Israel
Keter Tovala Ltd (the operations were transferred to Rotem)	Israel
M.M.M. Company United Landfill, Industries (1998), Ltd.	Israel
Mifalei Tovala Ltd.,	Israel
Novetide Ltd.	Israel
P.A.M.A. Ltd (Energy Resources Development)	Israel
Revivim in the Bay Water Environment Ltd.	Israel
Rotem Amfert Negev Ltd.	Israel
Sherut Integrated transportation services 2013 Ltd.	Israel
Sherut Rail & Road Transportation Services 1990 Registered Partnership in Israel	Israel
Tami (IMI) Institute for R&D Ltd.	Israel
B.K. Giulini Argentina S.A	Argentina
Everris Australia Pty Ltd.	Australia
Fibrisol Service Australia Pty. Ltd.	Australia
Prolactal GmbH	Austria
ICL Belgium (Sales) N.V.	Belgium
ICL Belgium NV	Belgium
Bromisa Industrial e Commercial Ltda.	Brazil
ICL América do Sul S.A Ltda.	Brazil
ICL Brasil Ltda.	Brazil
Agro Fertilaqua Participacoes S.A, Brazil	Brazil
Mixmicro Indústria e Comércio de Produtos Químicos Ltda	Brazil
Qualyquimica Industria e Comercio de Produtos Quimicos S.A	Brazil
Allana Potash Corp.	Canada

Name of Subsidiary / Investee company	**Jurisdiction of Incorporation**
ICL Investment Co. Ltd.	China
Lianyungang Dead Sea Bromine Co. Ltd	China
Shanghai Tari International Food Additive Co. Ltd.,	China
Sinobrom Compounds Co. Ltd.	China
Yunnan BK Giulini Tianchuang Phosphate Co. Ltd.,	China
Yunnan ICL YTH Phosphate Research and Technology Center Co. Ltd.	China
Yunnan Phosphate Haikou Co. Ltd.	China
Yunnan Tianchuang Science & Technology Co., Ltd.	China
ICL (Zhangjiagang) International Trading Co. Ltd.	China
Allana Potash Afar PLC (under liquidation)	Ethiopia
ICL Potash Ethiopia Plc. (under liquidation)	Ethiopia
Nova Potash PLC (under liquidation)	Ethiopia
Rotem Manufacturing Private Limited Company	Ethiopia
ICL France Spécialités SAS	France
Protera SAS	France
Scora S.A.S.	France
Sofima SAS	France
BK Giulini GmbH	Germany
BKG Finance GmbH	Germany
BKG Finance Sup GmbH	Germany
Hoyerman Chemie GmbH	Germany
ICL Deutschland Ludwigshafen GmbH	Germany
ICL Deutschland Vertriebs GmbH	Germany
ICL Fertilizers Deutschland GmbH	Germany
ICL Holding beschränkt haftende O.H.G.	Germany
ICL Holding Germany GmbH	Germany
ICL IP Bitterfeld GmbH	Germany
ICL Ludwigshafen Service GmbH	Germany
ICL-IP Bitterfeld Grundbesitz GmbH & Co KG	Germany
Pulse-Tex GmbH	Germany
Turris Versicherungvermittlung GmbH	Germany

Name of Subsidiary / Investee company	Jurisdiction of Incorporation
A.R.M. Ltd.,	Hong Kong
D.D.F.R Corporation Ltd.	Hong Kong
ICL Asia Ltd.	Hong Kong
ICL Trading (HK) Ltd.	Hong Kong
ICL Fertilizers (India) Private Ltd.	India
ICL Management and Trading India Private Limited	India
ICL Italia Treviso SRL,	Italy
ICL Italy SRL Milano	Italy
ICL Japan Ltd.	Japan
Everris Kenya Ltd.	Kenya
ICL Korea Ltd.	Korea
Everris Malaysia Sdn. Bhd	Malaysia
ICL Fosfatos y Aditivos de México S. A. de C.V.	Mexico
Tari International N.Z. Ltd.	New Zealand
ICL Polska S.p z.o.o	Poland
ICL Romania S.r.l.	Romania
ICL Rus LLC	Russia
ICL Group Asia Pacific PTE. LTD	Singapore
ICL Slovakia (under liquidation)	Slovakia
Landkem (Pty) Ltd.	South Africa
Everris Iberica Fertilizers S.L.	Spain
Fomento y Desarrollo Agrícola S.L	Spain
Fuentes Fertilizantes S.L.	Spain
Iberpotash S.A.	Spain
ICL Iberia Ltd. SCA	Spain
Logística de Fertilizantes Fuentes S.A	Spain
Sal Vesta Iberia S.L.	Spain
Trafico de Mercancías S.A.	Spain
Twincap Forsakrings A.B.	Sweden
ICL Swiss (Zug) GmbH	Swiss
Intracap Insurance Ltd	Switzerland
ICL Fertilizers Tanzania Limited	Tanzania

Name of Subsidiary / Investee company	Jurisdiction of Incorporation
Amsterdam Fertilizers B.V.	The Netherlands
Ashli Chemicals (Holland) B.V.	The Netherlands
Everris International B.V.	The Netherlands
ICL Europe B.V.	The Netherlands
ICL Europe Coöperatief U.A.	The Netherlands
ICL Fertilizers Europe C.V.	The Netherlands
ICL Finance B.V.,	The Netherlands
ICL Puriphos B.V.	The Netherlands
ICL-IP Terneuzen B.V	The Netherlands
Incap B.V.	The Netherlands
Rotem Kimyevi Maddeler Sanayi ve Ticaret A.S,	Turkey
Amega Sciences Ltd.	UK
Cleveland Potash Ltd.	UK
Constantine & Company (Export) Limited	UK
Everris Ltd.	UK
Fibrisol Service Ltd.	UK
ICL UK (Sales) Ltd.	UK
Nutrient Sciences Ltd.	UK
B.K. Mercosur S.A.	Uruguay
Everris NA, Inc.	USA
Growers Holdings Inc.	USA
Growers Tech Inc.	USA
ICL Americas LLC	USA
ICL Finance Inc.	USA
ICL Group America Inc.	USA
ICL Specialty products Inc	USA
ICL Specialty Products North America Inc.	USA
ICL-IP America Inc.	USA

Exhibit 12.1

CERTIFICATION

I, Raviv Zoller, certify that:

1. I have reviewed this annual report on Form 20-F of ICL Group Ltd.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;

4. The company’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the company and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the company’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the company’s internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company’s internal control over financial reporting; and

5. The company’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company’s auditors and the audit committee of the company’s board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company’s ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the company’s internal control over financial reporting.

Date: February 22, 2022

/s/ Raviv Zoller
Raviv Zoller
President & Chief Executive Officer

Exhibit 12.2

CERTIFICATION

I, Aviram Lahav, certify that:

1. I have reviewed this annual report on Form 20-F of ICL Group Ltd.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;

4. The company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the company and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and

5. The company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the company's internal control over financial reporting.

Date: February 22, 2022

/s/ Aviram Lahav
Aviram Lahav
Chief Financial Officer

Exhibit 13.1

CERTIFICATION

The certification set forth below is being submitted in connection with the annual report of ICL Group Ltd. on Form 20-F (the “Report”) for the purpose of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934 (the “Exchange Act”) and Section 1350 of Chapter 63 of Title 18 of the United States Code. Raviv Zoller, the President & Chief Executive Officer, and Aviram Lahav, Chief Financial Officer of ICL Group Ltd., each certifies that, to the best of his knowledge:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of ICL Group Ltd.

Date: February 22, 2022

/s/ Raviv Zoller
Raviv Zoller
President & Chief Executive Officer

/s/ Aviram Lahav
Aviram Lahav
Chief Financial Officer

Exhibit 15.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
ICL Group Ltd:

We consent to the incorporation by reference in the registration statement (No. 333-205518) on Form S-8 of our report dated February 22, 2022, with respect to the consolidated financial statements of ICL Group Ltd. and the effectiveness of internal control over financial reporting.

/s/ Somekh Chaikin

Somekh Chaikin
Certified Public Accountants (Israel)
Member Firm of KPMG International
Tel Aviv, Israel
February 22, 2022

Exhibit 15.2

ICL GROUP LTD

S-K 1300 TECHNICAL REPORT SUMMARY

BOULBY (UK), CABANASSES AND VILAFRUNS (SPAIN), ROTEM (ISRAEL), DEAD SEA WORKS (ISRAEL), AND HAIKOU (CHINA) PROPERTIES

February 2022

wardell armstrong

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ICL GROUP LTD

S-K 1300 TECHNICAL REPORT SUMMARY

BOULBY (UK), CABANASSES AND VILAFRUNS (SPAIN), ROTEM (ISRAEL), DEAD SEA WORKS (ISRAEL), AND HAIKOU (CHINA) PROPERTIES

February 2022

APPROVED BY:
Dr Phil Newall   Managing Director

Wardell Armstrong is the trading name of Wardell Armstrong International Ltd,
Registered in England No. 3813172.

Registered office: Sir Henry Doulton House, Forge Lane, Etruria, Stoke-on-Trent, ST1 5BD, United Kingdom

UK Offices: Stoke-on-Trent, Birmingham, Bolton, Bristol, Bury St Edmunds, Cardiff, Carlisle, Edinburgh, Glasgow, Leeds, London, Newcastle upon Tyne and Truro. International Offices: Almaty and Moscow.

ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

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1 EXECUTIVE SUMMARY

1.1 Overview

This Technical Report Summary has been prepared by Wardell Armstrong International and Golder Associates Pty Ltd, in association with ICL Group Ltd., on the ICL Boulby (United Kingdom), ICL Iberia comprising Cabanasses and Vilafruns (Spain), ICL Rotem (including the Rotem, Oron and Zin operations) and DSW (Israel), and YPH (China) mining properties. The purpose of this Technical Report Summary is to support the disclosure of Mineral Resources and Mineral Reserves on the properties as of December 31, 2021 in the proposed registration statement on Form S-1 and periodic filings with the United States Securities and Exchange Commission (SEC). This Technical Report Summary conforms to SEC's Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601(b)(96) Technical Report Summary.

1.2 Property Description and Location

1.2.1 Boulby (United Kingdom)

The Boulby polyhalite underground mine is located on the coastline of northeast England, approximately 34km to the southeast of the town of Middlesbrough, with a long history of production dating back to 1969 and owns a private rail line spur that connects it with the deep-water port facilities at Teesport in Middlesbrough.

ICL Boulby, a limited liability company and wholly owned subsidiary of ICL Group Ltd., holds the freehold of the entirety of the mine site and its rail line up to the junction with national networks. ICL Boulby holds most of its mineral concession on a leasehold basis and has agreements with approximately 50 individual lease holders in the onshore domain. These are set to be consolidated to around 18 key areas as older agreements expire in areas that are not considered to be of value. Offshore mineral rights make up the majority of ICL Boulby's lease portfolio and agreement with the Crown Estates are in place to grant mining rights until 2035.

The mining rights are based on approximately 74 mining leases and licences for extracting various minerals, in addition to numerous easements and rights of way from private owners of land under which ICL Boulby operates, and mining rights under the North Sea granted by the British Crown (Crown Estates). The lease rights with the Crown Estates, include provisions to explore and exploit "Minerals", meaning all the *"potash (including but not limited to sylvinite, polyhalite and carnallite), halite and anhydrite and other minerals owned by the Landlord within or under the Land"* of interest to ICL Boulby. The said mineral leases cover a total area of about 822sqkm (onshore leases totalling around 32sqkm and the offshore leases around 790sqkm). As at the date of this report, all the lease periods, licences, easements and rights of way are effective, some up to 2022 and others up to 2038. The Company is acting to renew the rights necessary for the mining operation which expire in 2022, or, alternatively, to seek ownership of these rights.

ICL Boulby has a preferential right to renew some of its leases as it has the Planning Permission to extract minerals. There is no competitive bidding process. The entities involved in renewing or obtaining new leases are ICL Boulby, local solicitors and individual landowners who own the mineral rights, as described above. The particular conditions that must be met in order to retain the leases are payment of annual fees to the landowners and a royalty payment for minerals extracted from the property to the Crown Estates.

The Current planning permit expires in 2023. ICL Boulby submitted a new planning application in 2020, this has been granted by the North York Moors National Park Authority for 25 years (2023 - 2048).

1.2.2 Cabanasses and Vilafruns (Spain)

ICL Iberia Súria & Sallent (ICL Iberia), a wholly-owned subsidiary of ICL Group Ltd., owns the Cabanasses underground mine; with the recently closed Vilafruns underground mine on care and maintenance; both are located in the Bages district, Catalonia Province of northern Spain, approximately 60km northwest of Barcelona. The Cabanasses mine is located at the town of Súria, approximately 12km north of the district capital of Manresa in the Cardoner river valley, and the Vilafruns mine is located at the town of Sallent, approximately 13km east of Súria in the Llobregat river valley. Extracting potash is conducted by mining sylvinite, a mixture of potash and salt found in varying concentrations, the potash is then separated from the salt at production plants located near the mines.

The mines are located in the Catalan Potash Basin and extract potash from two seams (Seam A and Seam B) which consist of sylvinite (sylvite and halite) interbedded with halite. The sylvinite contains high grades of potassium chloride (KCl) and very low levels of insoluble material. The seams are laterally continuous, however, vary considerably in depth (800m to >1,000m) as a result of deformation associated with the Pyrenean fold and thrust belt. The Cabanasses mines adopts a modified room and pillar underground mining method utilising mechanical continuous miner machinery. The Cabanasses mine is currently operational while the Vilafruns mine ceased production in 2020 (now on care and maintenance) and all production transferred to Cabanasses. Cabanasses mine is accessed by shafts and a decline. The decline was commissioned in April 2021 and is 5km long with a gradient of 19% . The decline is installed with a conveyor and material is conveyed from the underground mine directly to the processing plant on the surface at a rate of 1,000tph. Prior to completion of the decline, material was transported from the shaft to the processing plant by 25t road trucks. Vilafruns mine is shaft and decline access and prior to cessation of operations, ore was transported by conveyor in the decline to the Súria plant and Sallent plants (the Sallent plant is now also non-operational). Processing is undertaken to separate potash and salt and includes flotation methods. A designated railway line is used to transport potash from the mine to a designated ICL Iberia owned facility at Barcelona port. Surplus salt produced is used in a variety of ways. Some is further processed to produce high purity pharmaceutical salt, some is sold for highway use in winter (de-icing salt) and the remainder is stored in waste impoundments located at the mines.

ICL Iberia was grant ed mining right s based on legislation of Spain ’s Government from 1973 and the regulations accompanying this legislation. Further to the legislation, the Government of the Catalonia region published special mining regulations whereby ICL Iberia received individual licences for each of the 126 different sites that are relevant to the current and possible future mining activities. Some of the licences are valid up to 2037 and the rest are effective up to 2067.

The concessions cover a total area of 69,298Ha (693km^2). As part of a renewal process, the Company is required to prepare and present a basic technical report describing the intended use of the mines. As required by law, the concessions are required to be renewed prior to the expiration date. If a concession expires, a bidding process will be initiated. ICL Iberia applies in advance for the renewal of mining concessions and until now, had no difficulties in renewing them.

1.2.3 Rotem (Israel)

Rotem Amfert Negev Limited (ICL Rotem), a limited liability company and wholly-owned subsidiary of ICL Group Ltd., retains and operates three phosphate open pit mines (Rotem, Oron, and Zin) in the Negev desert region of southern Israel, together with sulphuric acid plants, a phosphoric acid plant, and a fertilizer production facility. Port facilities for export sales are located at Ashdod and Eilat. Currently, Rotem and Oron remain operational and are connected by rail to Ashdod port on the Mediterranean and by road to Eilat on the Red Sea. Zin has closed and there is now only remediation activity.

The Rotem mine, with the Mishor Rotem beneficiation plant, is based on the Zefa-Ef'fe deposit, and is located some 17km to the south of the town of Arad and east of the town of Dimona. Zin and Oron, each with a dedicated beneficiation plant, lie to the southeast of the town of Yeruham. The head office of ICL Rotem is in the town of Be'er Sheva.

ICL Rotem operates under mining concessions and licences granted by the Israeli Minister of National Infrastructures and by the Israel Lands Administration ("ILA"), and holds mining concessions, valid until the end of 2024.

Rotem has been mining for more than sixty years and is conducted in accordance with phosphate mining concessions, granted by the Minister of Energy under the Mines Ordinance as necessary, as well as the mining authorisations issued by the Israel Lands Authority. The concessions relate to quarries (phosphate rock), whereas the authorisations cover use of land as active mining areas.

Rotem has the following two mining concessions:

1. Rotem Field (including the Hatrurim Field); and
2. Zafir Field (Oron-Zin).

At the end of 2021 Rotem received a new concession, uniting the two previous mining concessions. The concession was extended to the end of 2024.

The Oron and Zin concessions were granted in 1952 and 1970 respectively, with the Zin concession as part of the Oron concession and the joint concession was subsequently renamed Zafir. The Zafir concession (consisting of both the Oron and Zin), and Rotem concession, was renewed every 3 years, and in 1995 it was granted for 10 years and thereafter, in 2002, it was granted up to 2021 and subsequently extended to 2024. In 2011, the Supervisor expanded the Rotem concession area, by joining the Hatrurim site to the area of this concession. The matter was transferred to the Israel Lands Authority in order to treat the expansion of the permissible mining area to the Rotem field, in accordance with expansion of the concession area.

During the four h quarter of 2020, as part of the Company's actions to extend the validity of the said mining concessions and obtain the necessary approvals, positive recommendations were received from the Ministry of Energy, the Committee for Reducing Concentration and the Competition Authority, to extend the licences for an additional period of three years. In December 2020, the Minister of Energy approached the Chairman of the Finance Committee in the Knesset requesting that the Committee grant final approval to the said extension.

Rotem has two lease agreements in effect until 2024 and 2041 and an additional lease agreement of the Oron plant , which the Company has been working to extend since 2017, by exercising the extension option provided in the agreement.

1.2.4 DSW (Israel)

The Dead Sea Works (DSW) is located on the south-west shore of the Dead Sea's southern basin. It is one of the world's largest producer and supplier of potash products, in addition to a range of chemical products. The main product produced at the plant is muriate of potash (MOP) for use as agricultural fertiliser. The DSW comprises 37 evaporation 'ponds' covering an area of 146.7km^2 and its associated processing facilities. The Arava stream channel marks the border with Jordan to the east and an analogous operation (Arab Potash Company (APC)).

Water from the northern Dead Sea basin is pumped into evaporation ponds which cause the salt (carnallite) to precipitate out of solution and to sink and deposit on the bottom of the ponds. A dredge harvests the carnallite and pumps this solution to the processing facilities located at the southern end of the site.

Pursuant to the Israeli Dead Sea Concession Law, 1961 (hereinafter – the Concession Law), as amended in 1986, and the concession deed attached as an addendum to the Concession Law, DSW was granted a concession to utilize the resources of the Dead Sea and to lease the land required for its plants in Sodom for a period ending on March 31, 2030, accompanied by a priority right to receive the concession after its expiration, should the Government decide to offer a new concession. The concession covers a total area of 652km^2, including the evaporation ponds.

In consideration of the concession, DSW pays royalties and lease rentals to the Government of Israel and is subject to the Law for Taxation of Profits from Natural Resources, on top of the regular income tax.

1.2.5 YPH (China)

The YPH JV (YPH), a joint venture between ICL Group Ltd. and Yunnan Phosphate Corporation (YPC) owns and operates the Haikou Phosphate Mine and Processing Facility in the Xishan district of China. YPH JV holds two phosphate mining licences for the Haikou Mine and for the Baitacun Mine. Haikou is located some 60km south-west of the city of Kunming close to the western side of the Dianchi lake.

The Haikou open pit mine was established in 1966 and has been operating continuously since that date. The operation commenced with an annual capacity of 0.4Mt phosphate rock producing a concentrate of 0.1Mt. In 1972 the operation was expanded to an annual concentrate capacity of 0.2Mt. Further expansions have occurred at the operation over the 55 year life of the operation to date. The mine currently processes some 2.5Mtpa of phosphate rock producing a concentrate saleable product of some 1.5 to 1.6Mtpa. During late 2021 an update and expansion was undertaken on the Flotation circuit at the Haikou plant. The Flotation expansion will now allow the Haikou operation to process up to 3.4Mtpa producing a total saleable concentrate of 2.2Mtpa.

1.3 Accessibility, Climate, Local Resources, Infrastructure and Physiography

1.3.1 Boulby

The Boulby operation is well-connected to main infrastructure (road and energy supply) as well as possessing a dedicated rail link to a deep-water port at Teesside. Northeast England is characterised by a temperate climate with summer temperatures between 16 and 25°C and with winter temperatures typically -1 to 10°C. Annual rainfall is around 1,000mm with some snow fall between November and April. The operation currently has circa 460 employees, 90% of whom live within a 16km radius, with the majority of the workforce being long term employees (>10 years, and in some cases >25 years). Availability of experienced mining, processing and technical personnel is not considered a challenge due to the decline of the coal industry in the UK though Boulby is also recruiting 'green labour' with no previous experience into all areas of the business. Boulby Mine lies approximately 4km east of the town of Loftus, in a rural area within the North York Moors National Park. The site is surrounded by woodland, agricultural grazing land and open land about 80masl with relief across the site no more than 20-30m.

1.3.2 Cabanasses and Vilafruns

The properties of Cabanasses and Vilafruns are close to and well connected to the national road system of Spain, 60km to the northwest of the City of Barcelona via Manresa, as well as being connected by rail to the Port of Barcelona, where ICL Iberia has a dedicated loading facility. The climate is diverse, but generally feature a Mediterranean climate with temperatures over 30°C in summer but with a colder winter and some snow where the temperature falls below 10°C. Annual rainfall is circa 500mm, falling mostly during September and October. Being long established operations, located in a populated and well serviced region of Spain, the properties are connected to national service providers for electricity, water, and gas. In addition, ICL Iberia is licenced to abstract water from the nearby Cardener River.

1.3.3 Rotem

The Rotem properties are located close to the Israeli national road network with only short distances of connecting roads required for the Oron and Zin properties. It should also be noted that Rotem, Oron and Zin are connected by rail to the port of Ashdod on the Mediterranean and by road to the port at Eilat on the Red Sea. The Rotem, Oron and Zin properties are located in the Central Negev desert which has a typical arid climate and is dry and hot all year round. It is hottest from May through to September with daily temperatures >34°C and coolest from November through February with an average daily temperature <20°C. The total annual rainfall equates to around 500mm and falls mainly from December through March.

1.3.4 DSW

DSW is located approximately 60km east of Beer Sheba and connected by main highway routes. DSW, located within the Dead Sea valley, is hotter and drier than Rotem. Summer temperature rises to 35°C, sometimes +45°C, while the winter is still relatively warm scarcely dropping beneath 10°C. The DSW is situated immediately south of the Dead Sea (northern basin), within the Jordan rift valley, and as such receives very little rainfall, significantly less than 100mm of rain per year. Humidity of the air hardly exceeds 40% and it drops in the summer to an average of 23%. Whilst the Rotem and DSW sites are not in close proximity to any major populations, the city of Beer Sheba and Dimona are only some 40km and 15km respectively from Rotem.

1.3.5 YPH

The YPH operations are located some 60km southwest of the city of Kunming, close to the western side of the Dianchi lake, in the Xishan District of southwest China. The site is fully serviced by sealed roads and the operation has a dedicated railway line and is within 6km of the Xishan Province's main highway. The region has a mild temperate climate with a short dry winter period. The average temperature in the region is 15.4°C, rising to 19.3°C during the warmest period (31.6°C in extreme periods). The average rainfall is 1,010mm mostly falling from May to October. The terrain around YPH is of mid and low mountainous terrain with erosions cutting through, where the mountain peaks are undulating, and the valleys have developed. The lowest elevation is in the northern part of the mine area, with an elevation of 2,070mAasl, rising to 2,482masl towards the southwest.

1.4 History

1.4.1 Boulby

The potash deposits in North Yorkshire were discovered in 1939 by the D'Arcy Exploration Company while drilling near Whitby in search of oil. Between 1948 and 1955 ICI and Fisons separately carried out extensive exploration for potash in the Whitby area but due to the considerable depth to the main potash seams did not proceed further. In 1962 ICI, Fisons and Rio Tinto jointly re-appraised the position taking account of technical advances in the fields of mining and refining since 1955 but again decided not to proceed.

ICI restarted exploration in 1964 some 16km northwest of Whitby, near Staithes, in an area where geological studies indicated the possibility of workable material at a shallower depth than previously encountered. In 1968 Cleveland Potash Ltd, a newly formed company owned jointly by Charter Consolidated Ltd (37.5%), ICI (50%) and Anglo-American Corporation (12.5%) received outline planning permission to construct what became Boulby mine and processing plant. ICI ultimately transferred their interest to Anglo American and De Beers who became the sole operators and following an asset swap Cleveland Potash Ltd was transferred to Minorco SA (a majority owned subsidiary of Anglo American). Anglo-American, through Minorco, remained as operators until ownership was transferred to ICL Boulby in 2002.

1.4.2 Cabanasses and Vilafruns

The existence of salt was known in the Súria area since the 12th century where there was a small medieval salt mine (known from 1185) at Pla de Reguant. Commercial development started in 1920 by Minas de Potasa de Súria, a subsidiary of the Solvay company which still has operations there today. Production has continued, albeit suspended during the Spanish Civil War (1936 – 1939), and expanded with the creation of the Cabanasses mine in 1956 and an addition of a fourth shaft at Súria in 1967. In 1929, the potash deposits at Sallent were developed by Potasas Ibericas who operated the Enrique mine but in 1975 the mine was closed due to water ingress and flooding. At Sallent, the Vilafruns mine was developed in 1948 by La Minera S.A. who sold the operation to Explosivos Rio Tinto in 1961. The Súria and Vilafruns operations were merged into the state-owned company Súria K in 1986 with the group becoming Grupo Potasas in 1992. In 1997, privatisation of the operations commenced, and Grupo Potasas was purchased by ICL Iberia in 1998. In 2001, 100% of the capital became ICL Group Ltd., and in 2008 ICL Iberia was fully instituted within the multinational group.

1.4.3 Rotem

At Rotem, production of phosphate rock commenced in 1952, production of phosphoric acid commenced in 1981, the production of fertilizers was initiated in 1983. In 1989, ICL purchased, Amsterdam Fertilizers ("Amfert") and created a larger group with fertilizers production capacity in Israel, the Netherlands, Germany and Turkey. During 1997, BK Ladenburg and Giulini Chemie – the latter a subsidiary of ICL – transferred ownership to Rotem Amfert Negev Limited and merged to form BK Giulini. BK Giulini is a captive market for the "white" phosphoric acid produced by the Puriphos Division of the Company.

1.4.4 DSW

In early 20th century, the Dead Sea began to attract interest from chemists who deduced the sea was a natural deposit of potash (potassium chloride) and bromine. A concession was granted by the British Mandatory government to the newly formed Palestine Potash Company in 1929. The first plant, on the north shore of the Dead Sea at Kalya, commenced production in 1931 and produced potash by solar evaporation of the brine. The company quickly grew into the largest industrial site in the Middle East, and in 1934 built a second plant on the southwest shore, in the Mount Sodom area, south of the 'Lashon' region of the Dead Sea. Palestine Potash Company supplied half of Britain's potash during World War II. Kalya plant was destroyed by the Jordanians in the 1948 Arab–Israeli War. DSW was founded in 1952 as a state-owned enterprise based on the remnants of the Palestine Potash Company and in 1995 the company (ICL Group Ltd.) was privatised under the Israel Corporation ownership.

1.4.5 YPH

There have been several exploration campaigns, the first was during the 1950s followed up by significant campaigns in 1966, 1973 to 1974 and in the 1980s. The Haikou mine was established in 1966 (with an annual capacity of 0.4Mt) and has been operating continuously since that date. The mine has been expanded through the years and in 2015 ICL Group Ltd. purchased 50% of Haikou. Following technological improvements, the mining capacity increased to 2.3 Mtpa, and in 2017 reached 2.35 Mtpa. The scrubbing plant was shut down in 2016 and will be recommissioned as part of the process plant expansion for 2022.

1.5 Geological Setting and Mineralization

1.5.1 Boulby

The Boulby polyhalite deposit is located within the eastern extents of the Cleveland Sedimentary basin along the south western margin of the North Sea basin. At mine level the basin comprises Permian aged (260Ma) evaporitic chlorides, carbonates and sulphates that host massive polyhalite, sylvinite and carnallite mineralisation. The stratigraphy is dominated by halite, dolomite and anhydrite commonly found in marine evaporite deposits. The region was subject to faulting and re-mineralisation during the later Permian and Mesozioc era.

The Boulby deposit comprises a massive stratiform marine evaporitic deposit dipping gently to the east at an average of 3.1°. The orebody is laterally very extensive and intersections of polyhalite mineralisation extend across much of the company’s offshore leases with lateral extents in the many tens of kilometres to the East and South. The polyhalite thickness ranges from 5m to 20m underlain by stratiform anhydrite and dolomite units and are bounded to the West and North by major fault systems which form a boundary to the westward exploration and development of the orebody.

1.5.2 Cabanasses and Vilafruns

The ICL Iberia deposits of Cabanasses and Vilafruns are located within the east of the Ebro Basin, a foreland basin on the southern flank of the Pyrenees. The Ebro Basin is a Cenozoic Basin and was formed by the uplift of the Pyrenees during the Alpine Orogeny (upper Cretaceous to lower Miocene) due to the collision of the Iberian and European plates. The basin comprised a northwest-southeast trending trough that was connected to the Atlantic Ocean through the Bay of Biscay and was confined by three mountain massifs: the Pyrenees to the north, the Iberian Range to the southwest and the Catalan Coastal Range (“CCR”) to the southeast.

During the Eocene, the Ebro Basin was filled with sea water and in the Catalonia area, this sea was approximately 40km wide and collected sedimentary deposition through rivers and deltaic systems from the surrounding rocky massifs. During the upper Eocene (35 Ma), the Ebro Basin closed and became isolated from the open sea. A period of evaporite formation took place as the basin transitioned from marine to continental conditions. Evaporitic cycles produced by a hot climate resulted in intense evaporation of sea water and eventual precipitation of evaporitic minerals such as gypsums, sodium and potassium salts.

At Cabanasses and Vilafruns, two mineable seams of potash (termed Seam A and B) are present and consist of sylvinite interbedded with halite. Seam A is generally thicker but with lower KCl grades (3-5m thickness and KCl grades of 20-30%) and is located approximately 3 to 6m below Seam B. Seam B is thinner but with higher KCl grades (1-3m thickness and KCl grades of 35-55%). Between the two seams is a horizon of halite ("sal entredos"). Located above Seam B is an alteration rock ("Transformada") enriched in KCl (40-55% KCl) and carnallite. The Transformada is mined with Seam B, however, the carnallite is not mined due to high levels of Mg which affect process recoveries. The Seams exhibit numerous phases of folding.

1.5.3 Rotem

The Negev phosphorite deposits are part of a major belt of sedimentary phosphate deposits that stretch from Morocco and North Africa to Israel, Jordan, Syria, and eastern Turkey. These deposits have strong geological similarities and formed during the Campanian (Upper Cretaceous period) in the Tethys Sea, of which the present Mediterranean is a relic.

There are three major phosphate fields at Negev: Oron and Zin (collectively known as the Zafir Site) and Rotem. Each of these fields has a similar stratigraphy and geological setting with the phosphate preserved as relatively narrow elongated bodies along the margins and within the axes of two NE-SW trending asymmetrical synclines or monoclines. Oron and Rotem lie within a single syncline to the northwest of the Zin syncline.

The three deposits have been proved over extensive strike (length) distances (Rotem 10km, Oron 16km, and Zin 22km), and width (4km). They are all known to extend further along strike but are limited in operational size by the proximity of national nature reserves in which mining is prohibited. The deposits dip steeply to the SE on the north-western flanks of the synclines (up to 60°) but are gently dipping to the NW or sub-horizontal elsewhere in the basin. Faulting is rare, with throws usually of less than a few metres, although phosphate is sometimes preserved in down-faulted grabens that are remote from the main synclinal axes.

1.5.4 DSW

The Dead Sea formed as a result of divergence between the African and Arabian tectonic plates which resulted in the Dead Sea graben depression. This graben was filled with water approximately 3 million years ago and was connected to and formed an extension of the Mediterranean Sea. Approximately 2 million years ago, tectonic activity led to the area between the Mediterranean and the Dead Sea being raised, isolating the Dead Sea basin from the Mediterranean and limiting further influx of water other than from surface run-off and groundwater movement.

DSW is located at the southern end of the Dead Sea and take advantage of the already concentrated brines of the Dead Sea to create a closed-basin potash bearing brine deposit by pumping waters through a series of ponds in which staged precipitation occurs.

1.5.5 YPH

Phosphate deposits of Haikou and Baitacun are part of an extensive marine sedimentary basin, predominantly stratiform argillaceous phosphorite of late Precambrian to early Cambrian age, located on both flanks of a gently folded, east west trending XiangTiachong anticline. The regional structure mainly consists of two main structural systems of near north south striking and near east west striking systems.

Phosphate accumulation in the Haikou area is associated with multi-period strong crustal movement, movement of ocean wave and current, sediments and deposition of organic material. The Haikou phosphate deposit is in the Yuhucun Formation of the Lower Cambrian. XiangTiachong anticline controls the distribution of phosphate rock layers.

Based on the overall orientation of the phosphate layers, the Haikou deposit is divided into four mineralised blocks:

- Block 1 – North central flank;
- Block 2 – North west flank;
- Block 3 – South to south-east flank of the deposit; and
- Block 4 – North eastern flank.

Block 3 is further delineated to three sub-regions, Block 3 with full mining and processing licence, NBTU (Not Belong To Us) as exclusion zone and HOM (Has only Mineral Right). Both the NBTU and HOM regions have appropriate mineral rights but under different surface access conditions. Mining and processing is not restricted by these conditions, only the forestry access permissions. As such there is valid justification for identifying the NBTU and HOM as Mineral Resources or conversion to Mineral Reserves, no reasonable evidence is available that the areas will not be mined.

Block 4 is geologically more complex and is characterised by several local faults with several metres of displacement. There are no restrictions to the mining placed upon any mineralisation within the Block 4 region.

The stratigraphy of the Yuhucun Formation of the Lower Cambrian, where economic grade Phosphate bearing rocks is located, is sequentially divided into overburden of siliceous dolomite, upper phosphate layer of great economic value, interburden of interbedded Phosphate bearing sandy dolomite, the lower Phosphate layer of better than marginal economic value and base rock as dolomite of the Dengying Formation of Upper Sinian.

1.6 Exploration and Drilling

1.6.1 Boulby

Exploration at Boulby has occurred over the 50-year history of the mine. All exploration works up to 1999 conducted in and around the mine were concerned primarily with potash and regional geology with polyhalite exploration only commencing from 1999. Exploration methodology at Boulby is dictated by the depth of the polyhalite, the offshore location of much of the region of interest, and stratigraphic constraints of water bearing strata and lithologies not conducive to drilling. As a result, the polyhalite at Boulby has been explored with a combination of seismic surveys (2D and 3D) and drilling from underground development.

Three types of drilling have been carried out at Boulby:

1. Initial vertical exploration holes drilled from potash workings above the polyhalite;
2. Sub-horizontal, Longhole directional drilling known as Longhole drilling ("LHD"); and
3. Grade control face drilling.

The primary source of information on which the Mineral Resource estimate is based is the longhole drilling. The vertical holes were drilled in two campaigns between 1999 - 2008 and there is uncertainty regarding their surveyed position and some assay results. Grades from samples obtained during this drilling are not used in the Mineral Resource estimate.

The grade control/face drilling provides only a qualitative measure of grade and is primarily used to identify the base of seam in close proximity to the current mining. These bases of seam intersection locations have been used in conjunction with the LHD data to improve the geological model for the structure/surface of the polyhalite seam but grades from this drilling method are not used in the Mineral Resource estimate.

For completion of the Mineral Resource Estimate, a total of 118 intersections from 21 underground branched drill holes for a total of 58,000m both above and within the polyhalite orebody have been completed for a total of approximately 8,100m of sampled core. The drilling has defined a single mineralised orebody within the current mining area and all drilling is by diamond core drilling.

1.6.2 Cabanasses and Vilafruns

Seismic surveys (2D in 1989 and 3D in 2010) are used to interpretate the geometry and depth of the top of the Seam B structure along with associated antinclinal and synclinal structures. The surveys also confirm continuity of mineralisation and are used by ICL Iberia to guide geological interpretation and exploration drill planning. Nearly all drilling has been undertaken from underground with only 12 surface drillholes completed (at Cabanasses) and with all drilling by diamond core methods. To date, a total of 2,325 underground holes (≈800,000m) have been completed at Cabanasses and 425 holes (≈132,000m) at Vilafruns. The underground drilling method is the same as that applied at Boulby (LHD) and applies the 'fan and deflection' drilling techniques. Twelve (12) surface holes (12,063m) have been completed at Cabanasses and this includes two holes completed by ICL Iberia in 2021 (SAG1 and SAG2) at the Agenaise zone located northeast and along strike of the existing underground mine development. At the time of this report, a third surface drillhole (SAG3) had commenced at Agenaise and a further two drillholes are planned by ICL Iberia during 2022.

1.6.3 Rotem

All exploration at Rotem, Oron and Zin is carried out by drilling. No other data is used in the production of Mineral Resource estimates. All surface drilling is carried out using a mobile six wheel drive combination drill rig which has the ability to drill return – air – blast ("RAB") style chip samples, or to drill a 100mm diameter solid core. All holes are drilled vertically down from surface.

Drillhole spacing varies and generally is in the range of 100-150m. Drillhole spacing can be lower with infill holes added as required to provide more detailed data where rapid variation in seam thickness or variable chemistry of samples is expected/seen and drillhole spacing can be as low as 60-70m in places where more supporting information is required.

1.6.4 DSW

The DSW has not undergone a conventional exploration and drilling campaign. Sampling and analysis of the Dead Sea water from the beginning of the 20th century confirmed the presence of potash (potassium chloride) and bromine in sufficient concentrations to be of economic interest. The first plant commenced production in 1931 and the DSW was founded in 1952.

1.6.5 YPH

The Project area has been subject to several historical and recent exploration campaigns targeting phosphate mineralisation's of economic grade. The earliest work was in 1955, with major programmes occurring in 1966, 1973, 1974, and 1980 involving several rounds of mechanical trenching, surface geological mapping, topographic surveys, exploration drilling and geotechnical drilling. Further infill drilling was introduced from 2009 to 2014 to support the ongoing production.

The exploration and drilling information supporting the Mineral Resource model stems from work performed by Yunnan Geological Bureau between 1966 and 1974, followed by additional drilling work carried out by Yunnan Chemical geological team in 1980. Approximately 300 drill holes totalling 23,915m of drilling and containing 5,253 analytical samples for P_2O_5 were completed.

1.7 Sample Preparation, Analysis and Security

1.7.1 Boulby

All samples used in the production of the Mineral Resource estimate were collected by longhole drilling and have been assayed with wet chemical methods by the on-site laboratory owned and operated by ICL Boulby. Samples are crushed to 2.5mm and a 100g representative sample collected through a riffle splitter. The recovered sample is fully dried at 120°C for 20 minutes. The sample is then pulverised to a target of 200 microns. Equipment is regularly cleaned and checked throughout the process. From the 100g sample, a 1g (±0.0001g) sub-sample is collected and analysed for Na+ and K+ content using flame photometry as well as for Ca2+ and Mg2+, and subsequently Cl- content, using automatic titration or if not possible using manual titration. All sample collection, handling, and management is by ICL Boulby staff.

1.7.2 Cabanasses and Vilafruns

Drill core from underground drilling is logged at the drill site and mineralised samples are bagged and brought to the surface for sample preparation and analysis. For underground drilling the whole core of the mineralised samples is taken. Sample preparation is undertaken at the Cabanasses sample preparation facility where samples are crushed to 2.5mm and manually homogenised and split to produce a 350g sample for pulverising. Analysis of samples is undertaken by Atomic Absorption Spectrometry (AAS) for KCl, Ca and $MgCl_2$ at the Cabanasses laboratory. Surface drilled samples are logged at the Vilafruns facility, cut along their long axis and half core samples are sent to ALS Minerals (Sevilla) for sample preparation and XRF analysis. All sample collection, handling, and management is by ICL Iberia staff only, except for surface drill samples that are couriered to ALS Minerals (Sevilla).

1.7.3 Rotem

The rock chip and core samples are sent to a sample preparation facility at Oron. All samples are screened, with one sub-sample being sent for run-of-mine grade analysis. For P_2O_5 analysis, samples are oven dried at 105°C for 3-4 hours, crushed, sieved to 35 mesh and weighed. A 1.2g sub-sample is selected and digested in HNO_3 being boiled for three minutes on a hot plate. The sample is cooled to room temperature and mixed with a reagent in a 250ml flask before analysis for P_2O_5 is carried out using spectrophotometry. For P_2O_5 analysis, samples are taken for every 0.2m and after having the P_2O_5 resalts, builds the layers according these results, for complete elements analysis.

The Oron sample preparation laboratory sends prepared 100g analytical sub- to the Rotem laboratory where a first pass P_2O_5 grade is calculated. Sample tracking through the various process is carried out using LIMS. The sample preparation laboratory aggregates selected samples into a larger composite samples and sends a sub-sample of this composite for more comprehensive analysis including metals and trace elements (P_2O_5, Al_2O_3, Fe_2O_3, Cd and other potentially deleterious elements).

All sampling procedures are conducted by Company personnel (from sample collection through to laboratory analysis) and all samples are kept for six months and composite samples for at least five years.

1.7.4 DSW

ICL conduct continuous and regular sampling of the DSW ponds at various locations within the system to monitor the chemical composition of the brine. Analysis is carried out using ion chromatography and takes place at the DSW in-house laboratory. Each of the 30 samples is analysed for KCl, $MgCl_2$, $CaCl_2$ and NaCl reported as g/kg with a weekly report issued approved by the laboratory manager.

1.7.5 YPH

All core samples were processed, crushed, screened, blended, split, and a sub-sample ground for chemical analysis. The sampling and sample preparation approach follows the China exploration standards of "Sampling rules and methods for geological survey of metal and nonmetal minerals". Samples of the phosphate bearing layers of economic value, as well as few metres of overburden and interburden material immediate to the roof or floor of the phosphate layer, are analysed for P_2O_5% and acid insoluble material (HP). Further analysis is carried for MgO, CaO, CO_2, SiO_2, Al_2O_3, Fe_2O_3, and F using a larger composite sample that generally represents the full length of the mineralised phosphate layer.

1.8 Data Verification

1.8.1 Boulby

The drill holes information is stored in ICL Boulby's bespoke SQL / Microsoft Access database ("Geodata"), and validation and verification of the drill hole database is routinely undertaken. The QP carried out independent verification of the exploration database. The grade control sample dataset contains face samples digitised in Datamine prior to 2015 and face samples collated by the geology department post 2015 from individual excel sheets. Assay results held by the Boulby laboratory are verified by the geology department against data held in the exploration database. QA/QC analysis is limited to internal laboratory control testing. Since 2018, work has been on-going to develop and implement the use of additional QA/QC samples, appropriate for use in assessing polyhalite content, in line with industry best practice. Notwithstanding the above comment, and whilst the QP has not carried out any independent sampling for verification of grade or density data used for the MRE, the drill hole database has robust data verification and error prevention protocols in place and the QP is of the opinion that the database is suitable for use in mineral resource estimation of the polyhalite.

1.8.2 Cabanasses and Vilafruns

Prior to February 2019, no QA/QC samples were submitted by ICL Iberia for either underground drilling or surface drilling. During 2019, ICL Iberia commenced submission of internal and external pulp duplicate samples of the underground drilling to the Cabanasses laboratory and ALS Minerals (Sevilla), respectively. In 2021, an updated QA/QC programme commenced for the underground drilling and included coarse duplicates, pulp duplicates, blank material and three in-house prepared standard reference materials. No formal QA/QC programme for the samples from the surface drilling is currently implemented, however, a re-assaying programme was completed by ICL Iberia in 2021.

To verify the drillhole data which was derived prior to commencing the QA/QC programmes, the following reviews were undertaken by WAI:

- Statistical comparison of KCl assays by drilling year (underground drilling);
- Comparison of resource models with historical mining production data;
- Review of 2021 re-assaying programme for surface drillhole samples; and
- A review of the drillhole databases.

The data verification procedures confirmed the integrity of the data contained in the drillhole databases and, whilst the QP has not carried out any independent sampling for verification of grade or density data used for the MRE, the QP considers these data suitable for the purposes of mineral resource estimation.

Overall, the data verification procedures confirm the integrity of the data contained in the drillhole databases and the QP considers the underground and surface drilling data contained in the databases to be suitable for inclusion in the mineral resource estimate.

1.8.3 Rotem

In 2014, IMC Group Consulting Ltd (IMC) prepared a Competent Person's Report (CPR) for the Rotem, Oron and Zin phosphate operations. IMC prepared the CPR based on observations and data collection during site visits to the operations in February 2014. IMC verified the integrity of the data capture process, as well as the internal data coherence and was satisfied that these were completed to an acceptable industry standard. Further, IMC were satisfied that the methods of exploration, sampling, analysis and estimation of mineral resources and reserves is generally in accordance with international best practice.

Site visits by one of the QP's authoring this report were conducted in January 2022. Surface geology was observed, obvious mineralization was observed in and around open pit exposure which is consistent with the current geologic interpretation of the project. Verification samples were not collected but drilling and sampling conditions were observed to be consistent with industry standards.

The QP considers that the drill data are generally adequate for resource estimation. There are no additional limitations to the exploration data, analysis or exploration database for use in Resource modelling and declaration of mineral resources and reserves.

1.8.4 DSW

Site visits by one of the QP's authoring this report were conducted in January 2022. At the project site, pumping, sampling, and recovery activities were observed which is consistent with the current understanding and interpretation of the project. The QP was not directly involved in the sampling programmes that formed the basis for collecting the data used in the mineral resource estimate; however, the QP's representative was able to observe sample preparation methods while in progress on production samples during the 2022 site visit.

The QP considers that the sampling data are generally adequate for resource estimation. There are no additional limitations to the exploration data, analysis or exploration database for use in Resource modelling and declaration of mineral resources and reserves.

1.8.5 YPH

All available exploration drilling data, including survey information, downhole geological units, sample intervals and analytical results, were compiled by the QP and loaded into centralised Microsoft (MS) Excel based database and completed data validation on the drill hole database records using available underlying data and documentation including but not limited to documented hardcopies.

The data verification procedures confirmed the integrity of the data contained in the drillhole databases and, whilst the QP has not carried out any independent sampling for verification of grade or density data used for the MRE, the QP considers these data suitable for the purposes of mineral resource estimation.

1.9 Mineral Processing and Metallurgical Testing

The properties that are presented in this TRS are mature operations with a long history of processing potash and phosphate mineralisation and therefore no additional mineral processing or metallurgical testing has been undertaken. A description of the recovery methods used at the operations is contained in Sections 1.13 and 14.

1.10 Mineral Resource Estimate

ICL Group Ltd. commissioned WAI and Golder to complete mineral resource estimates for the properties that are the subject of this Technical Report Summary. This Technical Report Summary provides a mineral resource estimate and classification of resources reported in accordance with the New Mining Rules. Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300.

The Mineral Resources presented in this section are not Mineral Reserves and do not reflect demonstrated economic viability. Mineral resources that are not mineral reserves do not meet the threshold for reserve modifying factors, such as estimated economic viability, that would allow for conversion to mineral reserves. The reported Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorised as Mineral Reserves. There is no certainty that all or any part of this Inferred Mineral Resource will be converted into Mineral Reserves. All figures are rounded to reflect the relative accuracy of the estimates and totals may not add correctly.

The estimates of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently practised at the Properties that are the subject of this report.

The drillhole/sample databases, assaying quality, and evaluation completed are sufficient for the determination of Measured, Indicated and Inferred Mineral Resources. Additionally, the geological interpretations, metallurgical assumptions, and spatial drilling densities are sufficient to define, and state Proven and Probable Mineral Reserves.

All of the aforementioned categories are prepared in accordance with the resource classification pursuant to the SEC's new mining rules under subpart 1300 and item 601 (96)(B)(iii) of Regulation S-K (the "New Mining Rules"). Mineral Resources are reported exclusive of Mineral Reserves.

Table 1.1 summarises the ICL Group Ltd. Mineral Resources, exclusive of Mineral Reserves, as of 31st December 2021.

Based on the geological results, supported by the mining method evaluations, metallurgical test work and mineral processing data, and other modifying factors derived from the operations, it is the Qualified Persons (QP)'s opinion that the Mineral Resources have reasonable prospects for eventual economic extraction.

The estimates of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently anticipated. Although the QP's have a reasonable expectation that the majority of Inferred Mineral Resources could be upgraded to Indicated or Measured Resources with continued exploration and sampling, estimates of Inferred Mineral Resources have significant geological uncertainty and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to the Measured or Indicated categories.

Table 1.1: Estimate Mineral Resources as at December 31, 2021								
	Measured Mineral Resources		Indicated Mineral Resources		Measured + Indicated Mineral Resources		Inferred Mineral Resources	
	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities	Amount (Mt)	Grades/ qualities
Commodity A: K_2O								
Geographic area United Kingdom	-	-	*24.0*	*13.7%*	*24.0*	*13.7%*	*17.3*	*13.5%*
Boulby	-	-	24.0	13.7%	24.0	13.7%	17.3	13.5%
Total	**-**	**-**	**24.0**	**13.7%**	**24.0**	**13.7%**	**17.3**	**13.5%**
Commodity B: KCl								
Geographic area Spain	*96.5*	*26.4%*	*60.8*	*24.7%*	*157.3*	*25.7%*	*361.3*	*29.1%*
Cabanasses	83.9	25.7%	51.4	23.3%	135.3	24.8%	330.5	29.1%
Vilafruns	12.6	31.0%	9.4	32.1%	22.0	31.5%	30.7	28.9%
Geographic area Israel	*225.0*	*20.0%*	*1,500.0*	*20.0%*	*1,725.0*	*20.0%*	*445.0*	*20.0%*
Mine/Property DSW	225.0	20.0%	1,500.0	20.0%	1,725.0	20.0%	445.0	20.0%
Total	**321.5**	**21.9%**	**1,560.8**	**20.2%**	**1,882.3**	**20.5%**	**806.3**	**24.1%**
Commodity C: P_2O_5								
Geographic area Israel	*247.7*	*27.5%*	*10.0*	*26.0%*	*257.7*	*27.5%*	-	-
Rotem	247.7	27.5%	10.0	26.0%	257.7	27.5%	-	-
Geographic area China	*3.0*	*22.3%*	*2.3*	*24.0%*	*5.3*	*23.0%*	*0.2*	*20.0*
YPH	3.0	22.3%	2.3	24.0%	5.3	23.0%	0.2	20.0
Total	**250.7**	**27.4%**	**12.3**	**25.6%**	**263.0**	**27.4%**	**0.2**	**20.0%**

1. Mineral Resources are reported in-situ and are exclusive of Mineral Reserves. Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies. Mineral Resources for the Boulby, Cabanasses and Vilafruns deposits are classified in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves [JORC Code (2012)], and the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results for Rotem, DSW and YPH. Mineral Resources are reported in compliance with S-K 1300. Mineral Resources that are not Mineral Reserves do not currently have demonstrated economic viability.

1.11 Mineral Reserve Estimate

Measured Mineral Resources within the mine design and schedule convert to Proven Mineral Resources and Indicated Mineral Resources within the mine design and schedule convert to Probable Mineral Resources. Mineral Reserves have been estimated on technical and operational parameters and costs that are the subject of this technical report. The Mineral Reserve Estimates are not materially affected by any known environmental, permitting, legal, title, taxation, socio-economic, political, or other relevant issues.

Mineral Reserves have been determined by applying current economic criteria that are considered valid for the operations. These criteria limitations have been applied to the resource estimate to determine which part of the Measured and Indicated Mineral Resource is economically extractable.

Table 1.2 summarises the ICL Group Ltd. Mineral Reserves as of 31st December 2021 based on appropriate economic and technical parameters. These have been fully scheduled in a LOM plan and have been shown to demonstrate viable economic extraction. The reference point for these mineral reserves is ore delivered to the process plant.

Table 1.2: Estimated Mineral Reserves as at December 31, 2021

	Proven Mineral Reserves		Probable Mineral Reserves		Total Mineral Reserves	
	Amount (Mt)	**Grades/ qualities**	**Amount (Mt)**	**Grades/ qualities**	**Amount (Mt)**	**Grades/ qualities**
Commodity A: K_2O						
Geographic area United Kingdom	-	-	*8.0*	*13.8%*	*8.0*	*13.8%*
Boulby	-	-	8.0	13.8%	8.0	13.8%
Total	-	-	**8.0**	**13.8%**	**8.0**	**13.8%**
Commodity B: KCl:						
Geographic area Spain	*29.0*	*25.5%*	*61.6*	*26.8%*	*90.6*	*26.3%*
Cabanasses	29.0	25.5%	61.6	26.8%	90.6	26.3%
Vilafruns	-	-	-	-	-	-
Geographic area Israel	*172.0*	*20.0*	-	-	*172.0*	*20.0*
DSW	172.0	20.0	-	-	172.0	20.0
Total	**201.0**	**20.8%**	**61.6**	**26.8%**	**262.6**	**22.2%**
Commodity C: P_2O_5						
Geographic area Israel	*60.2*	*25.4%*	-	-	*60.2*	*25.4%*
Rotem	60.2	25.4%	-	-	60.2	25.4%
Geographic area China	*57.7*	*21.8%*	-	-	*57.7*	*21.8%*
YPH	57.7	21.8%	-	-	57.7	21.8%
Total	**117.9**	**23.6%**	**-**	**-**	**117.9**	**23.6%**

1. The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Mineral Reserves for the Boulby and Cabanasses deposits are classified in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves [JORC Code (2012)], and the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results for Rotem, DSW and YPH. Mineral Reserves are reported in compliance with S-K 1300.

There are no known relevant factors that would materially affect the estimation of Mineral Reserves that are not discussed in this report.

The current base case for the life of mine at Boulby, and geological delineation, continues to nominally 2030. Further work, based on the current Mineral Resource of 24.0Mt is expected to expand the LOM beyond 2030.

At Cabanasses, the current mine schedule is planned to increase to 5.18 Mtpa (hoisted tonnes) by 2024 and continue in steady state until 2039, a total of 17 years.

The life of the mine at Rotem is currently around 4 years, based on reserves of nominally 8.6Mt of low organic/low magnesium phosphate and the annual average production (mining) rate of ≈2 Mtpa. The current life of the mine at the Oron operation is approximately 3 years based on the reserve of 8.5 Mt (White Phosphate) given the current annual mining volume.

The YPH current mine life is in the order of 23 years, based on an annual mining schedule of nominally 2.5Mt.

1.12 Mining Methods

ICL mining operations are a combination of conventional open pit (Rotem and YPH), modified underground room and pillar (Boulby and Cabanasses/Vilafruns), and dredging (DWS). A summary of mine/plant production (2019 – 2021) is presented in Table 1.3.

Table 1.3: Production Data for the Properties (2019 - 2021)

	2019	2020	2021
Boulby			
Polyhalite – Hoisted (t)	**635,602**	**711,368**	**783,895**
Total Polyhalite Production (t)	**631,688**	**708,785**	**789,116**
Cabanasses – Súria Plant			
Ore hoisted from Cabansses mine (t)	1,830,997	1,874,329	2,533,525
Ore hoisted from Vilafruns mine (t)	835,608	483,995	-
Processed (t ore milled)	2,666,605	2,358,324	2,533,525
Head Grade (% KCl)	23.8	24.2	26.4
KCl Produced (t)	569,184	503,007	598,727
Vilafruns – Sallent Plant			
Ore hoisted from Vilafruns mine (t)	1,182,800	276,600	
Processed (t ore milled)	1,182,800	276,600	-
Head Grade (% KCl)	22.5	22.4	-
KCl Produced (t)	234,028	53,851	-
Total Mine Production of raw ore at Negev (Rotem, Oron and Zin)			
Tonnes (Mt)	7	6	5
P_2O_5 % (Before / After Beneficiation)	26 / 32	26 / 32	26 / 32

Table 1.3: Production Data for the Properties (2019 - 2021)			
Product Produced after processing at Negev Operations (Rotem, Oron and Zin)			
Phosphate Rock (kt)	2,807	3,090	2,431
Green Phosphate Rock (kt)	567	544	531
Fertilizers (kt)	1,033	920	1,080
White Phosphoric Acid (kt)	134	171	168
Speciality Fertilizers (kt)	66	70	72
DSW Production (tonnes)			
Potash Division (t)	3,334,135	3,959,712	3,899,708
Compacting plant (t)	1,218,324	1,707,213	1,857,866
Bromine (t)	180,867	171,248	181,645
Chlorine (Br process) (t)	37,442	41,601	47,243
NaCl (t)	136,377	124,724	108,332
Pure KCl (t)	7,663	10,547	10,995
$MgCl_2$ (t)	136,929	109,145	128,914
Cast Mg (t)	22,338	18,211	18,036
Total Mine Production of raw ore at YPH			
Tonnes (Mt)	2.15	2.40	2.66
P_2O_5 % (Before / After Beneficiation)	20.7 / 28.98	20.99 / 28.69	20.91 / 28.44
Product Produced after processing at YPH			
Phosphate Rock* (kt)	1,946	2,044	2,194
Green Phosphate Rock (kt)	637	632	673
Fertilizers (kt)	516	584	612
White Phosphoric Acid (kt)	64	71	83
Speciality Fertilizers (kt)	46	55	76
* including Enriched & Grinding Rock			

1.13 Recovery Methods

1.13.1 Boulby

The processing of polyhalite is conducted on site at Boulby and consists of a suite of crushing and screening infrastructure. Output products are primarily based upon size fraction and product shape and consist of three main products:

- Granular Polysulphate® (2-4mm)
- Standard Polysulphate® (<2m)
- Mini Polysulphate® (1-2mm)

In addition, rolls compaction technology is used with a 50:50 mix of polyhalite powder and imported potash standard (SMOP) to produce a granular product known as PotashpluS®. Some post compaction treatment with wax is used to improve product handling and life.

Boulby does not produce tailings material (solid waste) but does discharge effluent brine from the dewatering of mine workings and surface run-off captured from site via its effluent tunnel. Seawater is used in the PotashpluS® process and subsequently returns to the sea. The tunnel is accessed via the № 3 shaft which is sunk to approximately 143m below surface and is located some 300m East of the mine site. Effluent is discharged at approximately 1,600m offshore from a valve arrangement on the seabed; 2,293,597m³ of brine was dewatered from the mine workings in 2020.

1.13.2 Cabanasses and Vilafruns

Crushing, milling and classified in hydrocyclones before drying where the filtered coarse and fine flotation concentrate is dried in gas-fired fluid bed dryers. The gas from each dryer passes through three dry cyclones in series and is then scrubbed in brine before venting to atmosphere. The dried concentrate from the bed of the dryers forms the standard potash product. The dried concentrate from the cyclones, augmented as necessary by the standard product from the bed, goes to the granular product compaction plant.

The concentrate from the cyclones is fed to a gas-fired rotary kiln where the potash is heated to 160°C to destroy the amine flotation collector, which inhibits compaction, and also heats the potash for compaction. The kiln product is screened to eliminate any oversize material and fed to the compaction rolls, where it is compressed into a flat cake. The cake then passes to a breaker and a hammer mill where the product is screened on a double deck screen. Oversize is crushed in a secondary hammer mill and returned to the screen. The granular product (>2mm <4mm) is taken from the oversize of the lower deck of the screen, while the lower deck undersize is recycled to the rotary kiln discharge. The finished granular product is conveyed to a warehouse where it is permitted to cool before despatch by road or rail.

The combined brine streams from the various clarifier and thickener overflows are further clarified in two stages of clarifiers, with the overflows from the first stage recirculated back to the plant as brine solution for wet grinding and dilution requirements. The clarifier underflow from the second stage reports to a filter press, where the filtered material is disposed with the filtered flotation tails and conveyed to the salt mountain. The second stage clarifier overflow returns to the head of the clarification circuit. Excess brine solution in the circuit reports to the Collector pipe for final disposal to the sea.

1.13.3 Rotem

Two phosphate processing plants receive and process the mined ore from the operating mines. In addition, downstream fertiliser product plants that take product from the concentrators as feed stock for further processing to produce a range of final products. Processing comprises of a suite of crushing/grinding and flotation before being screened and dispatched for beneficiation.

The tailings management facilities (TMF) at Rotem, Zin and Oron are constructed as wet tailings dams. A groundwater monitoring and water management system allows the water to be recycled and minimises the possible impact on groundwater by seepage. The water, used to wash in the slurry, is either recycled into the plant or it evaporates.

In 2020, approximately 6Mt of P_2O_5 was produced grading 26% before beneficiation and 31.3% after beneficiation. After processing, this was made up of 3,090kt of phosphate rock, 544kt of green phosphoric acid, 920kt of fertilizers, 171kt of white phosphoric acid, and 70kt of speciality fertilizers.

1.13.4 DSW

Water from the northern Dead Sea basin is initially pumped into an 80km^2 evaporation pond (Pond 5), called a salt pond, which is used to reduce the level of unwanted precipitates. The unwanted precipitates are the least soluble salts such as NaCl. Therefore, these salts will precipitate out before the carnallite. The brine is then pumped into a smaller carnallite evaporation ponds where the carnallite is precipitated. Each of these evaporation ponds is ≈2.0m deep and around ≈6.0km^2 in area, separated by low dykes with pumping stations and pipelines. The carnallite is harvested, at a higher concentration allowing for easier processing, by floating dredges connected to the shore by a network of cables that allow them to manoeuvre between the various ponds.

The process itself works by suctioning carnallite-rich slurry through an intake valve by the dredge then pumping the slurry into a series of floating pipes that run along the surface of the carnallite ponds to the shore. Two process plants based on cold and hot leach-crystallisation processes decompose the carnallite and turn it into potash. The production process continues 24 hours a day, 365 days a year, and the entire cycle from the harvesting to the actual production takes up to five hours depending on barge location.

Muriate of potash (MOP) is the main product of the Dead Sea Works. MOP is the most common form of potash fertiliser and contains 60% K_2O. In 2020 production was 3,960,000t which accounted for 6% of the global production. MOP is produced from processing carnallite precipitated at the end of the process. Carnallite is a hydrated potassium magnesium chloride with formula $KCl.MgCl_2•6(H_2O)$.

In addition, 18,500t of magnesium metal were produced in 2020 by the Dead Sea Magnesium (DSM). The leading use of magnesium is as a casting alloy in the automotive industry. The DSM produces 2% of the world's metal magnesium, in a market where China dominates.

Bromine is produced from the final brine with 173,000t produced in 2020. Israel is the largest producer of bromine worldwide producing 42%. Notably, neighbouring Jordan produced another 36% primarily from the Dead Sea. The Dead Sea is estimated to contain reserves of 1 billion tonnes of bromine.

1.13.5 YPH

The Haikou mine has two beneficiation plants: flotation and scrubbing. The flotation plant is processing the low-grade phosphate and blends low grade with medium grade from the mine or purchased phosphate. Phosphate as low as 18% P_2O_5 can be enriched to a saleable product. The scrubbing plant can use only medium-high grade phosphate, mined, or purchased. A flotation plant, based on reverse-flotation, where the carbonates (mainly dolomite) are removed (floated) and sent to a tailings pond. The plant can process 2.5Mtpa of feed material. The flotation process does not include de-sliming, meaning there is no fines separation and removal, and all the ground phosphate directly reports to the flotation cells. The only waste material is the flotation froth mainly composed by carbonates rejects. As a result the yield is high achieving 67% for a 22% P_2O_5 feed, and 58% if the feed grade drops to 19% P_2O_5. The target concentrate quality is 28.5% P_2O_5 which the minimum required by the chemical processing plant located at the “3Circle site”. . The fine product at P90 >74 micron is pumped to the acid and fertilizer plant with a 6.5km pipeline. Following the 2021 expansion the process plant will have the capacity to produce up to 2.2Mtpa of concentrate. The mine has recently included an optical sorting process unit enabling lower grade Phosphate to be separated from waste rock ahead of the scrubbing and flotation process. This inclusion has enabled lower grade ore fractions to be included in the ore stream at lower unit costs of beneficiation.

The Three Circle plant (Yunnan Three Circles Chemical Co) is a classic fertilizer plant using traditional technology and produces Sulphuric Acid (1.75Mtpa), Phosphoric Acid, Triple Super Phosphate (TSP), Mono Ammonium Phosphate (MAP), Mono Ammonium Phosphate+ Sulphur (NPS), and lesser amounts of purified phosphoric acid (technical and food grade, Mono Ammonium Phosphate+ Potash (MKP), and Water-soluble Fertilizer (MPK).

1.14 Project Infrastructure

1.14.1 Boulby

Boulby is serviced by high quality state-maintained roads and a reliable high voltage electricity supply from the national grid as well as on site emergency generation and battery storage technology to mitigate against price spikes (during periods of high demand). Telecommunications and operations are supported by a local and national logistics supply chain ensuring highly efficient site activities with minimal site warehousing required. Underground logistics supply hubs and there are 3 main fuel bays, 2 satellite fuel bays, a refuelling bus (NPC-2) and 3 oil stores are present at the base of the shaft and on the polyhalite mining level to enable timely resupply of operations.

1.14.2 Cabanasses and Vilafruns

Cabanasses, and Vilafruns, are well established operations and include underground room and pillar mines, mineral processing plants, waste impoundments, water treatment facilities and site offices and workshops. No tailings storage facility is required by the operations. The operations are connected to national service providers for electricity, water and gas. There is an existing high quality infrastructure network including direct rail to the Port of Barcelona and a dedicated Collector pipe to dispose of a proportion of excess salt (as brine solution) into the Mediterranean. A designated railway line is used for the transport of potash to the port at Barcelona port where most of ICL Iberia's shipments are made via its own dedicated terminal at the port (Trafico de Mercancias – Tramer) which consist of bulk potash and salt storage facilities, comprised of freight-car and rail-truck conveyor unloading facilities and product storage warehouses. The train engine and part of the bulk freight car rolling stock is operated by the owner and operator FGC (Ferrocarrils de la Generalitat de Catalunya).

1.14.3 Rotem

The Rotem operations are well established with good infrastructure and most of the products, whether in solid or liquid state, are transported in bulk from Rotem, Oron and Zin by road and rail to either the Ashdod port or by road to the Eilat port and onwards to markets in the Far East, Europe and South America. ICL Tovala is responsible for transporting phosphate rock from the Oron and Zin processing facilities in road-going rigid trucks and trailers. Within the Rotem site, there is a rail loading facility (the rail line continues to Oron and Zim) that typically loads up to 30 wagons for each delivery. Approximately 1.7Mt of products per year are transported by rail from Rotem and Zin to Ashdod, with a further ≈130kt transported by road to the port of Eilat. The entire electricity requirements for Rotem is self-generated from the Sulphuric Acid plant production, whereby exothermic heat is used to heat water into steam to generate electricity.

1.14.4 DSW

The DSW operation comprises 146.7km^2 of salt ponds, a system of pumps and channels to direct water in from the northern Dead Sea basin, and return water from the process plant, as well as the processing facilities that also includes fuel storage, power plant (old and new), workshop, R&D and storage areas.

The potash is transported by a mixture of conveyor, rail, and trucking. The conveyor was built in the 1980s and transports around 1.4Mtpa, reducing the need for 40,000 trucks each year. The conveyor is 18km in length, rising from 400mbsl to 400masl and finishes at the Tzefa transportation terminal. The potash is then transferred to a cargo train and taken to the port of Ashdod (Mediterranean). The remaining requirement is fulfilled with trucks that take the potash south to the Port of Eilat to be shipped (Red Sea).

The DSW is heavily dependent on electrical power and as such has a dedicated power plant producing up to 263MWh from a Combined Cycle Power Plant utilising both gas and steam turbines (173MWh and 90MWh respectively). The plant produces enough heat and electricity for both the DSW and input into the local electricity grid, and provides both steam and energy to the process plant and facilities on the site. The energy source is natural gas but can run with light fuel oil (LFO).

1.14.5 YPH

The Haikou mining district is linked regionally with good quality roads and highways. A rail network of high-quality links the mine area via a branch line (6.4Km) from Baita village station to the state Kunyu rail lines. The Haikou mine is an established operation that has undergone as series of expansions since mining first commenced in the late 1960s. The access and infrastructure are adequate for the needs with ready access to highways and rail links. The mine and process plant are directly connected to grid electricity and the site has access to sufficient water for processing and mining activities. The site is reasonably close to one of China's larger river systems and has adequate supplies of water available for the processing needs of the operation.

1.15 Market Studies and Contracts

Contracts for major consumables including fuel, consumables, and gas / electricity are in place for the current operations. Transportation contracts are also in place for delivery of these consumable products and are renewed on an annual, biennial, triennial, or quinquennial basis. The general terms and charges of these contracts are considered to be within industry standards.

ICL subscribes to a confidential Potash Market Report and has used the November 2021 report as pricing reference and the QP can confirm that the forward price estimates support the business forecast and Mineral Reserve estimate.

1.16 Environmental Studies, Permitting and Social or Community Impacts

1.16.1 Boulby

In 1998, ICL Boulby secured planning permission from the North York Moors National Park Authority (NYMNPA) to mine and refine Sylvinite, Salt and Polyhalite until 2023. A planning renewal applications was submitted in 2020, which included an Environmental Impact Assessment (EIA), and was granted to 2048.

Boulby operates under UK Legislation and Environmental Regulations, compliance is monitored by environment agency, HSE, NYMNPA, the marine management organisation and local authorities. Boulby ensures compliance with the regulations through an environmental management system.

1.16.2 Cabanasses and Vilafruns

ICL Iberia operates with an approved environmental permit (Environmental Impact Declaration), updated with an EIA submission in 2020 to include the port terminal, mine decline, and the new salt processing plant. ICL Iberia also operates with valid permits for water sources, water discharges, air emissions and waste generation. The EIA did not find significant effect on environmental receptors once mitigation measures are considered. However, without mitigation measures, these impacts range from moderate to severe. The EIA did not consider any adverse effects on social receptors. Mitigation and management programmes have substantial investment and are carefully managed. ICL Iberia is certified with valid sustainability certifications from national and international groups.

A historic environmental liability is the most relevant environmental challenge for ICL Iberia. Brine runoff from the salt deposits have contaminated the local rivers for almost a century since the mine began operations, and ICL Iberia has attempted to manage that impact since the acquisition of the site in 1998. However, due to the accumulated impacts and lack of proper mitigations, operations in Sallent (Vilafruns) were brought to an end by judicial sentences, leading to the increased operations in Súria (Cabanasses). Following a criminal sentence in 2016, ICL Iberia changed its senior management and has designed and implemented a comprehensive transition plan to collect existing brine, reduce salt deposits, process salt, and discharge properly treated wastewater in compliance of the sentence. This included the construction of a 200m long concrete barrier along the Cardener River, adjacent to the Cabanasses operation. The barrier is 9m in depth and collects groundwater containing elevated levels of dissolved salt prior to it entering the river. The collected water is then treated and de-salinised. The project was completed in 2021 at cost of 36M Euros.

Engagement with local communities, undertaken by the Corporate Relations department, and engagement with worker unions are continuous and reportedly effective. ICL Iberia supports community development through different investment and collaboration agreements and public perception has been improving since the transition plan was implemented following the 2016 sentence.

1.16.3 Rotem

Through the review of the information Rotem has disclosed, the evaluation has concluded that Rotem holds the necessary environmental permits and licences to operate and that the Company is compliant with the requirements of the environmental authority (MEP) in terms of environmental monitoring, compliance and disclosure. With the exception of the pollution of the Ashalim Stream in 2017, Rotem has not disclosed any information concerning any other pollution events or environmental infringements that may have occurred, nor any fines, penalties or prosecutions: This includes information to clarify either alleged or substantiated environmental incidents and infringements recorded by MEP's Environmental Impact Index associated with the operation of ICL Rotem. Without full disclosure of records pertaining to environmental incidents that may be recorded by MEP, WAI cannot at this time state whether there are environmental and socio-economic risks and liabilities associated with the operation of ICL Rotem.

1.16.4 DSW

Based on the information provided, the evaluation has concluded that DSW holds the necessary environmental permits and licences to operate and that the Company is compliant with the requirements of the environmental authority (MEP) in terms of environmental monitoring, compliance and disclosure. DSW has disclosed the overall risk and liability associated with the company's continued abstraction of resources from the northern basin and the company is fully aware of the environmental risks its operations present. However, from the information disclosed it is not apparent that the environmental and socio-economic management and the future of the Dead Sea either in its current condition or one resembling its condition prior to the development of the DSW in the mid-20th Century is not a core operating consideration for DSW at this time. In this regard, but at the same time noting that it may be the responsibility of the licensing authority (i.e. the Government) to drive the initiative, it is recommended that environmental and socio-economic initiatives associated with the long term operation of the works should consider developing a strategy for the future decommissioning, abandonment and restoration of the industrial development both in terms of Corporate Responsibility as well as in line with the aims of Government and International objectives for the management of the Dead Sea.

1.16.5 YPH

The Haikou Mine has obtained all operating permits and environmental permissions to operate the assets. A business licence; mining licence; safety production licence etc. are certified for the Xishan district and Jinning County areas. The operation has been awarded several commendations for the progressive rehabilitation of former mined areas, waste dumps and tailings deposits. The tailings dam undergoes regular inspections both by specialist mine staff and external government bodies. The tailings dams are well maintained and fully lined and the disused tailings dam area is progressively revegetated which reduces any potential impact from dust. All mine closure plans are up to date, and the mine undertakes a progressive rehabilitation programme with mined out areas and disused tailings facilities having been revegetated to a high standard.

1.17 Capital and Operating Costs

The operations are considered to be adequately funded with appropriate mining and processing equipment, spares, and access to ongoing replacement of parts and equipment. The operations have a long operational history and there is provision with the budget for ongoing replacement and refurbishment of both mining equipment and processing facility equipment. Sustaining capital is incorporated within the operational budget process.

The operating costs are historically based for the site-based equipment and subject to ongoing negotiations with the mining contractor operator on site as necessary. Direct mining operating costs are developed from known performance and cost measures gathered over the extensive operational experience on the sites. Processing costs are forecast based upon historical costs at the operations, with allowances incorporated for any process changes in quality or material type incorporated into the budget cycle. Total estimated operating costs for the mine and process facility are handled at site with approval from ICL Group Ltd. as required for the annual budget cycle.

1.18 Economic Analysis

Under CRIRSCO guidance, a producing issuer may exclude the information required for Section 19 (Economic Analysis) on properties currently in production, unless the technical report prepared by the issuer includes a material expansion of current production.

1.19 Conclusions and Recommendations

Based on the findings of this study, it has been concluded that the properties that are the subject of this Technical Report are in good standing and that the Mineral Resources and Mineral Reserves presented represent a fair reflection of their current status.

The properties that are presented in this TRS are mature operations with a long history of mining, both underground and open pit methods, and processing (potash and phosphate) mineralisation. Furthermore, they possess a well-supported network of main roads, rail links and services required to operate a safe and efficient mining and processing operation and import/export the products required to maintain operations.

The drillhole/sample database and assaying quality are considered sufficient for the determination of Measured, Indicated and Inferred Mineral Resources. Additionally, the geological interpretations, metallurgical assumptions, and spatial drilling densities are sufficient to define, and state Proven and Probable Mineral Reserves.

All of the aforementioned categories are prepared in accordance with the resource classification pursuant to the SEC's new mining rules under subpart 1300 and item 601 (96)(B)(iii) of Regulation S-K (the "New Mining Rules").

The QPs are confident in the technical and economic assessment presented in this TRS. The QPs also recognise that the results of this TRS are subject to many risks including, but not limited to: commodity and foreign exchange assumptions, unanticipated inflation of capital or operating costs, geotechnical and hydrogeological assumptions in open pit and underground designs, and climatic conditions. Mineral Resource estimates that are not Mineral Reserves do not have demonstrated economic viability.

Notwithstanding the above comments, all of the properties should review data acquisition (drilling and sampling) and database management and give consideration to the adoption of an SQL (Structured Query Language) based secure database system (e.g. acQuire, GeoSpark) for increased data integrity, auditability, ease of validation and transparency. In addition, it would be prudent to review current QA/QC protocol and where deficiencies are identified the company should implement and monitor a robust QA/QC system which incorporates standard or certified reference material, duplicates and blank samples to document sampling and laboratory performance.

Whilst the operations are generally in compliance with environmental studies, permitting and social or community impact, it would be prudent to continue using and improving the environmental management systems in place, and maintain ISO accredited standard, as well as sustained active engagement with local communities and stakeholders through formal and informal projects and outreach. Certain areas of the operational Health and Safety measures should continue to be reviewed and addressed as necessary, such as dust management at the Boulby plant, brine runoff in Sallent and Súria, and monitoring of water levels of the DSW to mitigate any flooding events of hotels and other infrastructure on the west shoreline. Though Rotem is in a constant state of progressive development and reclamation of depleted open pits, and the DSW operation is expected to continue for a prolonged period of time, there is no recognised Mine and Facility Closure Plan in place for either property. It is therefore recommended that such a plan is developed in order to align with accepted international best practice.

2 INTRODUCTION

2.1 Terms or Reference and Purpose of the Report

This Technical Report Summary was prepared and is issued by Wardell Armstrong International (WAI), in association with Golder Associates Pty Ltd (Golder), on behalf of ICL Group Ltd (ICL or the Company). This report is a Technical Report Summary (TRS) which summarises the findings of the study in accordance with Securities Exchange Commission Part 229 Standard Instructions for Filing Forms Regulation S-K subpart 1300 (S-K 1300). The purpose of this TRS is to report mineral resources and mineral reserves, and the operational status of the properties that are the subject of this TRS. The effective date of this report is December 31, 2022.

The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved and based on:

i. Information available at the time of preparation,
ii. Data supplied by the client, and
iii. The assumptions, conditions, and qualifications set forth in this report.

Any opinions, analysis, evaluations, or recommendations issued by WAI and Golder under this report are for the sole use and benefit of ICL Group Ltd. Because there are no intended third-party beneficiaries, WAI (and its affiliates) shall have no liability whatsoever to any third parties for any defect, deficiency, error, omission in any statement contained in or in any way related to its deliverables provided under this Report.

This Technical Report Summary has been prepared to describe the operating properties of ICL Group Ltd. including Boulby (UK), Cabanasses and Vilafruns (Spain), Rotem and DSW (Israel), and YPH (China). Rotem includes the Rotem and Oron mining operations, the Zin operation has closed and is now in the final stages of remediation. Similarly, Vilafruns is currently on care and maintenance. A summary of the properties, and their status, is summarised in Table 2.1.

Table 2.1: ICL Properties Included within this TRS

Asset	Location	Main Product/s	Supplementary Product/s	Notes
Boulby	UK	Polysulphate®	-	Processing of polyhalite
Cabanasses	Spain	Potash	-	
Vilafruns	Spain	No current production	-	Care and Maintenance
Rotem	Israel	Phosphate	Green Phosphate rock, Fertilizers and Speciality Fertilizers, White Phosphate acid	
Oron	Israel	Phosphate		
Zin	Israel	No current production	-	Remediation
DSW	Israel	Potash	Bromine, HBr, E.D.B., Chlorine (Br process), NaCl, Pure KCl, $MgCl_2$, Cast Mg	
YPH	China	Phosphate	Green Phosphate rock, Fertilizers and Speciality Fertilizers, White Phosphate acid,	

As there are a number of separate properties included in this TRS, each main chapter is presented as per the requirements of §§ 229.601(b)(96) Technical report summary, within which each property is presented separately.

All material at the ICL properties have been classified according to, and prepared in accordance with, the resource classification pursuant to the SEC mining rules under subpart 1300 and item 601 (96)(B)(iii) of Regulation S-K (the "New Mining Rules").

2.2 Sources of Information

The scope of this study included a review of pertinent technical reports and data in the possession of ICL and as provided to WAI and Golder relative to the general setting, geology, project history, exploration activities and results, methodology, quality assurance, interpretations, metallurgical test results and operational (processing and mining) data, and Mineral Resources and Mineral Reserves. Observations and interpretations of geostatistics, geology, grade estimation, and determination of mineralisation at the properties that are the subject of this Technical Report have been generated and provided by ICL and subsequently audited by WAI and Golder.

The information, opinions, conclusions, and estimates presented in this report are based on the following:

- Information and technical data provided by ICL;
- Review and assessment of previous investigations;
- Assumptions, conditions, and qualifications as set forth in the report; and
- Review and assessment of data, reports, and conclusions from other consulting organisations.

Information regarding mineral tenement and land tenure for the properties that are the subject of the Technical Resource Summary have been provided by ICL and/or their representatives. The qualified persons are not qualified to verify these matters and have relied upon information provided by ICL, including lease agreements and legal opinions concerning mineral exploration and mineral exploitation rights and surface rights.

Unless otherwise stated, ICL has provided all figures, maps, images etc. These sources of information are presented throughout this report and in the References section. The qualified persons are unaware of any material technical data other than that presented by ICL.

All Project-specific data, observations, and reports, including third party consultant technical reports for the operation, were provided to the qualified persons by ICL, and/or their representatives. A detailed list of references is provided in Section 24 of this Technical Report Summary.

2.3 Qualified Persons and Site Visits

2.3.1 Wardell Armstrong International

Information in this Technical Report Summary has been prepared under the supervision of employees of Wardell Armstrong International (WAI) who were responsible for project management, and review of recovery methods, process plant operating and maintenance costs, capital cost estimate and overall compilation of this report. WAI representatives completed site visits to Boulby (UK), and Cabanasses and Vilafruns (Spain), in November and December 2021 respectively. Previous site visits to Boulby, and Cabanasses and Vilafruns, were completed in October 2019 and January 2019 respectively.

2.3.2 Golder Associates

Information in this Technical Report Summary has been prepared under the supervision of employees of Golder Associates who were responsible for project management, recovery methods, process plant operating and maintenance costs, capital cost estimate and compilation of relevant sections of this report. Golder Associates representatives completed a site visit to YPH (China) in October 2021.

2.3.3 Geo-Prospect

Information in this Technical Report Summary has been prepared under the supervision of employees of Geo-Prospect who were responsible for recovery methods, process plant operating and maintenance costs, capital cost estimate and compilation of relevant sections of this report. Geo-Prospect representatives completed site visits to Rotem and DSW (Israel) in January 2022.

2.3.4 Qualified Person Tabulation

Table 2.2 presents a summary of the Authors and Qualified Persons, and their responsibilities, in preparing this TRS. The site visits were completed in fulfilment of the requirement that the QP(s) perform a current site visit to the projects in support of preparation of the S-K 1300 Mineral Resource and Mineral Reserve statements contained within this TRS.

Table 2.2: List of Main Authors / Qualified Persons

Author	Company	Qualification	QP	Site Visit
Boulby				
Ché Osmond	WAI	CGeol, EurGeol, FGS	Y	No site visit
Alan Clarke	WAI	CGeol, EurGeol, FGS	Y	23 – 24 November 2021
Liam Price	WAI	CEng, MIMMM	Y	
James Turner	WAI	CEng, MIMMM	Y	
Christine Blackmore	WAI	CEnv, CSci, FIMMM	Y	No site visit

Table 2.2: List of Main Authors / Qualified Persons

Cabansses and Vilafruns				
Ché Osmond	WAI	CGeol, EurGeol, FGS	Y	15 – 23 January 2019
Richard Ellis	WAI	CGeol, EurGeol, FGS	Y	16 – 17 November 2021
Colin Davies	WAI	CEng, MIMMM	Y	
James Turner	WAI	CEng, MIMMM	Y	
Alex Cisneros	WAI	BA, MSc	N	
Rotem and DSW				
Ché Osmond	WAI	CGeol, EurGeol, FGS	Y	No site visit
Alan Clarke	WAI	CGeol, EurGeol, FGS	Y	No site visit
Robin Dean	WAI	CEng, FIMMM	Y	No site visit
Phil King	WAI	BSc (Eng)	N	No site visit
Robert Spence	WAI	MSc. IEMA	N	No site visit
Andrew Lyon[1]	Geo Prospect	P.Eng, BSc	Y	03, 10–11 January 2022 (Rotem)
Amir Eyal[1]		MSc. Geology	N	10–11 January 2022 (Rotem)
Doron Braun[1]		MSc. Geology, FGS	N	06 January 2022 (DSW)
Keren Kolodner[1]		PhD Geology	N	
YPH				
Stone Luo[1]	Golder Associates	Registered Engineer in China	N	09 – 11 November 2021
James Wang[1]		M.S., MBA, PE, MMSA	Y	
Sia Khosrowshahi[1]		PhD, MAusIMM, CP (Geol)	Y	No site visit
Glenn Turnbull[1]		Eur.Ing, CEng. FIMMM, MAusIMM, FIQ	Y	No site visit

Notes:

1. Contributing authors overseen by WAI.

2.4 Terms of Reference

In accordance with Article 7.1(1) (b) of Form 43-101F1 (2011) given that the Company has its properties as the subject of this report in a foreign jurisdiction, Mineral Resources and Mineral Reserves are reported according to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves [JORC Code (2012)] and the Pan European Reserves and Resources Reporting Committee (PERC) Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves.

This report is written specifically for ICL Group Ltd.

2.5 Previously Filed Technical Report Summary Reports

This is the first Technical Report Summary filed for the Boulby, Cabanasses and Vilafruns, Rotem and DSW, and YPH operations and the authors are not aware of any other TRS submitted by prior owners or operators of the projects.

2.6 Units and Abbreviations

All units of measurement used in this Technical Report are reported in the Système Internationale d'Unités (SI), as utilised by the Canadian and international mining industries, including: metric tons (tonnes, t), million metric tonnes (Mt), kilograms (kg) and grams (g) for weight; kilometres (km), metres (m), centimetres (cm) or millimetres (mm) for distance; cubic metres (m^3), litres (l), millilitres (ml) or cubic centimetres (cm^3) for volume, square metres (m^2), acres, square kilometres (km^2) or hectares (ha) for area, and tonnes per cubic metre (t/m^3) for density. Elevations are given in metres above sea level (masl).

Unless stated otherwise, all currency amounts are stated in US dollars (US$ or $), GB pounds (£), or Euros (€). The units of measure presented in this report are metric units. Grade of the main elements (K_2O, P_2O_5 and KCl values) are reported in percentage (%). Tonnage is reported as metric tonnes (t), unless otherwise specified.

Units and abbreviations used in this Technical Report are as summarised below:

Acronym / Abbreviation	Definition
°C	Degrees Celsius
2D	Two-dimensional
3C	3C Chemicals owned by YPH (formerly Yunnan Fertiliser Company)
3D	Three-dimensional
AA	Atomic Absorption
AAS	Atomic Absorption Spectrometry
ADT	Articulated Dump Truck (mining class of truck)
AGI	American Geologic Institute
AI	Acid Insoluble assays
Al_2O_3	Aluminium Oxide
ANFO	Ammonium Nitrate Fuel Oil (bulk explosive)
APC	Arab Potash Company
BAT	Best Available Technology or Best Available Techniques
BCM or bcm	Bank Cubic Meter
BGS	British Geological Survey
bhp	Brake Horse Power
BOT	Build-Operate-Transfer
BSI	British Standards Institution
Ca2+	Calcium ions
$CaCl_2$	Calcium chloride
CaO	Calcium Oxide
CAR	Corrective Action Report
Cd	Cadmium
CDP	Carbon Disclosure Project
CEMS	Constant Emissions Monitoring Systems
CO_2	Carbon dioxide

Acronym / Abbreviation	Definition
COG	Cut-off Grade
CORS	Continuously Operating Reference Station
CPL	Cleveland Potash Limited
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
CRM	Certified Reference Materials
CSD	Cutter Suction Dredge
DAP	Diammonium Phosphate
Datamine	3D geological modelling, mine design and production planning software
DST	Dead Sea Transform (geological fault system)
DSW	Dead Sea Works
EA	Environmental Assessment
EDA	Exploratory data analysis
FOB	Free on Board / Freight on Board
EHS&S	Environment, Health, Safety and Sustainability
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPR	Environmental Permitting Regulations
ESG	Economic and environmental, Social, Governance
ESIA	Environmental and Social Impact Assessment
F	Florine
Fe	Iron
Fe_2O_3	Iron Oxide or ferric oxide
FS	Feasibility Study
GHG	Greenhouse Gas
GIS	Geographical Information Services
GPS	Global Positioning System
GRI	Global Reporting Initiative
GSSP	Granular Single Superphosphate
GTSP	Granular Triple Superphosphate
GWh	Gigawatt hour
H&S	Health and Safety
Ha	Hectare (10,000m^2)
HFO	Heavy Fuel Oil
HNO_3	Nitric acid
HOM	'Have only mineral rights' On-mine reference to Resource mineral rights similar to NBTU
HOP	Human and Organizational Performance
HQ	63.5 mm diameter drill core
hr	Hour/s
HSE	Health and Safety Executive (UK)
HSSD	Holland Shallow Seas Dredging
ICL Iberia	ICL Iberia Súria & Sallent
ICL	ICL Group Ltd.
ICMM	International Council on Mining and Metals

Acronym / Abbreviation	Definition
ID	Identification (number or reference)
IEC	Israeli National Grid
IEMA	Institute of Environmental Management and Assessment
ILA	Israel Lands Administration
IPPC	Integrated Pollution Prevention Control
JORC	Joint Ore Reserve Committee (Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves)
JV	Joint Venture
K	Potassium
K_2O	Potassium oxide
KCl	Potash
$KCl.MgCl_2•6(H_2O)$	Carnallite
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt hour
kWh/t	Kilowatt hour per tonne
LFO	Light Fuel Oil
LHD	Longhole drilling
LIMS	Laboratory Information Management System
LOM	Life of Mine
LTA	Lost Time Analysis
M	Million(s)
Ma	Million years
MAP	Mono Ammonium Phosphate
MAPGIS	GIS Mapping Software
mbsl	Metres below sea level
MEP	Ministry of Environmental Protection
MGA	Merchant Grade Acid
$MgCl_2$	Magnesium chloride
MgO	Magnesium Oxide
MKP	Mono Ammonium Phosphate+ Potash
MOP	Muriate of potash
MPK	Water-soluble Fertilizer
MRMR	Mining Rock Mass Rating
MSO	Mineable Shape Optimiser
Mtpa	Million tonnes per annum
MW	Megawatt
MWh	Megawatt hour
NaCl	Sodium Chloride (salt)
NBTU	'Not belong to us' On-mine reference to Resource with surface access constraints
NEGEV	Negev Energy Ashalim Thermo-Solar Ltd. (Israeli Natural Gas Grid Supplier)
NPS	Mono Ammonium Phosphate+ Sulphur
NQ	47.6 mm diameter drill core
NYMNPA	North York Moors National Park Authority
OEE	Overall Equipment Effectiveness
P_2O_5	Phosphorus pentoxide
Pa	Pascal (measurement of vacuum gas pressure)

Acronym / Abbreviation	Definition
PERC	Pan-European Standard for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves Edition October 2021
PFS	Prefeasibility Study
ppm	parts per million
PRC	People's Republic of China
PRC Code	Classification of Resources/Reserves of Solid Fuels and Mineral Commodities, under the National Standard of the People's Republic of C
QA/QC	Quality Assurance and Quality Control
QMS	Quality Management System
QP	Qualified Person
RAB	Rotary Air Blast
RMB	"Renminbi" - official currency of the People's Republic of China
RMR	Rock Mass Rating
ROM	Run of Mine
RPEEE	Reasonable Prospects for Eventual Economic Extraction
rpm	revolutions per minute
SEC	U.S. Securities and Exchange Commission
SiO_2	Silicon Dioxide
SRM	Standard Reference Materials
SSP	Single Superphosphate
t	Tonne metric unit of mass (1,000kg or 2,204.6 lb)
t/a or tpa	Tonnes per annum
t/d or tpd	Tonnes per day
t/h or tph	Tonnes per hour
TMF	Tailings Management Facility
TOC	Total Organic Carbon
TRS	(SK 1300) Technical Report Summary
TSP	Triple Super Phosphate
UK	United Kingdom
UTM	Universal Transverse Mercator
Vulcan	3D geological modelling, mine design and production planning software
WAI	Wardell Armstrong International
XRD	X-ray powder Diffraction
XRF	X-ray powder Fluorescence
YPC	Yunnan Phosphate Chemical Group
YPH	Yunnan Phosphate Haikou
YPH JV (YPH)	YPH JV, a joint venture between ICL and Yunnan Phosphate Chemicals Group ("YPC")
ZOI	Zone of Influence

3 PROPERTY DESCRIPTION AND LOCATION

3.1 Overview

The properties that are the subject of this Technical Report are located in the UK (Boulby), Spain (Cabanasses and Vilafruns), Israel (Rotem and DSW), and China (YPH, Haikou), as shown in Figure 3.1.

Figure 3.1: Location of ICL Properties[1]

3.2 Boulby

3.2.1 Description and Location

Boulby mine is an underground polyhalite operation on the coastline of northeast England, approximately 34km to the southeast of the town of Middlesbrough (Figure 3.2). The mine site and shafts are approximately centred at a latitude and longitude of 54°33'05.4"N and 0°49'32.5"W. The Boulby mine site has a long history of production dating back to 1969 and the mine owns a private rail line spur that connects it with the deep-water port facilities at Teesport in Middlesbrough.

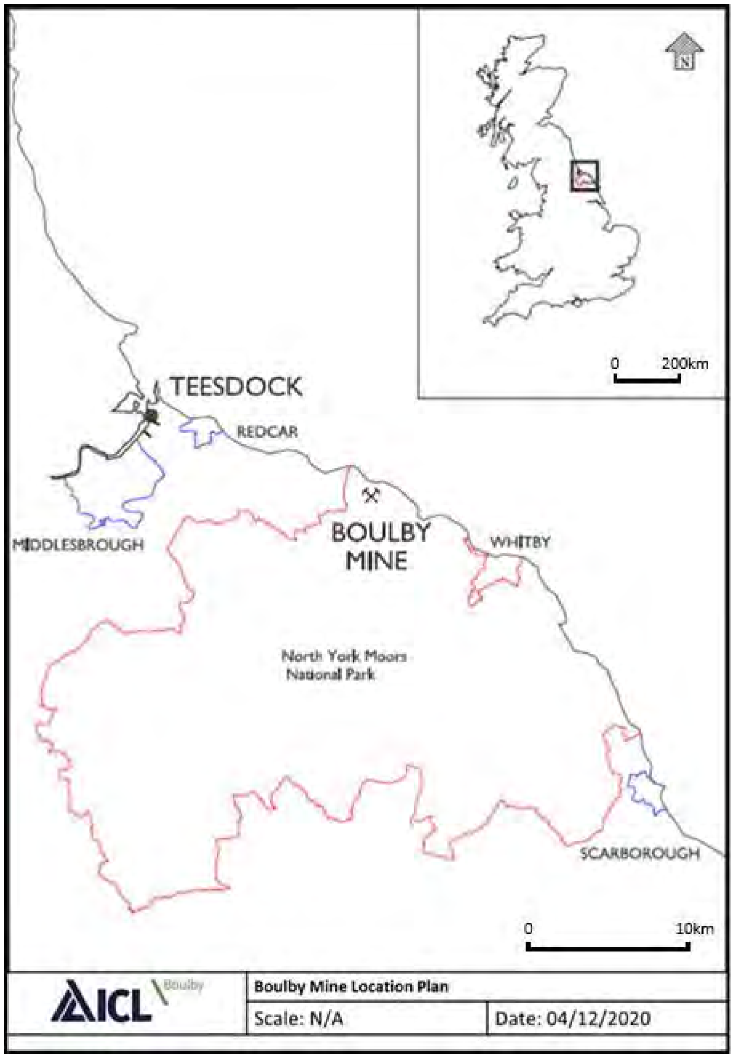

Figure 3.2: Location of Boulby Mine, United Kingdom

3.2.2 Property Status

ICL Boulby owns the Freehold of the entirety of the surface of its Mine Site at Boulby, Saltburn by the Sea, Redcar and Cleveland, extending to approximately 32 hectares. ICL Boulby also owns the freehold of the surface of the fields to the north of the A174 between its Mine site and the North Sea and its Winding House (Number 3 Shaft). The Company also owns the freehold of the surface (bed) of its railway line extending from the Mine Site west to Carlin How, from which point ICL Boulby has legally binding arrangements in place to "run firstly over" Corus railway line to Saltburn by the Sea and from there "Railtrack's" railway line to Teesport (both owned by Network Rail).

All ICL Boulby's land is registered with the UK Government Land Registry as follows:

1. Title Number CE185395 -The Main Mine Site
2. Title Number CE186718 - Railway line from Mine Site to Grinkle Tunnel
3. Title Number CE191842- Railway line from Grinkle to Gaskell Tunnel
4. Title Number CE184721- Railway Gaskell Tunnel to Skinningrove
5. Title Number CE212236 -Red House Farm land
6. Title Number CE186094 - Winding House (Number 3 Shaft)
7. Title Number CE188181 - Winding House (supplementary land)

There are no adverse covenants, conditions or restrictions which prevent ICL Boulby utilising its freehold lands for the purposes for which they are being used. All ICL Boulby's freehold ownerships are held free of mortgage or charge.

3.2.3 Mineral Rights

3.2.3.1 Summary

The Company owns the freehold of most of the mineral field in and around the mine head, extending to approximately 198 hectares. These freehold minerals are in the process of being registered at the Land Registry. The remainder of the mineral fields are held on a leasehold basis.

The mining rights are based on 72 onshore and 2 offshore and tailings leases for extracting various minerals, in addition to numerous easements and rights of way from private owners of land under which ICL Boulby operates, and mining rights under the North Sea granted by the British Crown (Crown Estates). The lease rights with the Crown Estates, include provisions to explore and exploit all Polysulphate® mineral resources of interest to ICL Boulby. The said mineral leases cover a total area of about 822 sqkm (onshore leases totalling around 32 sqkm and the offshore leases around 790 sqkm). As at the date of this report, all the lease periods, licences, easements, and rights of way are effective, some up to 2022 and others up to 2038. The number of leases will continue to reduce (through terminating/serving break notices) and by 2028 ICL Boulby expects to hold only 18 required leases.

3.2.3.2 Onshore leases

The Company originally had approximately 70 "Old Style" Leases, from private Landlords, all of which were granted for terms of 50 years from 1970 onwards. The 50-year terms granted in these leases have now largely expired.

In addition, the Company has around 50 "New Style" Leases again from private Landlords, all granted in the 1990's with 35-year terms.

In the future the company only requires a small number of these minerals' areas for services and access and is already actively engaged in negotiations with approximately 18 private mineral owners in order to extend these lease terms.

Four of the mineral owner's areas are the subject of a Working Mines Facilities Act Application ('the Act'), it is however believed that satisfactory terms will be negotiated with the other 14 minerals owners, without having to have recourse to the Act. Apart from these 18 areas, all remaining Leases will be allowed to expire, either by effluxion of time, or through the service of break notices, as break periods arise.

The Company has already agreed short term extensions on all those leases which it requires for continued operation and which have already expired and is in the process of obtaining extensions to those leases which are due to expire in the future. In addition, the Company has a "permitted trespass" within 2 of its required lease areas.

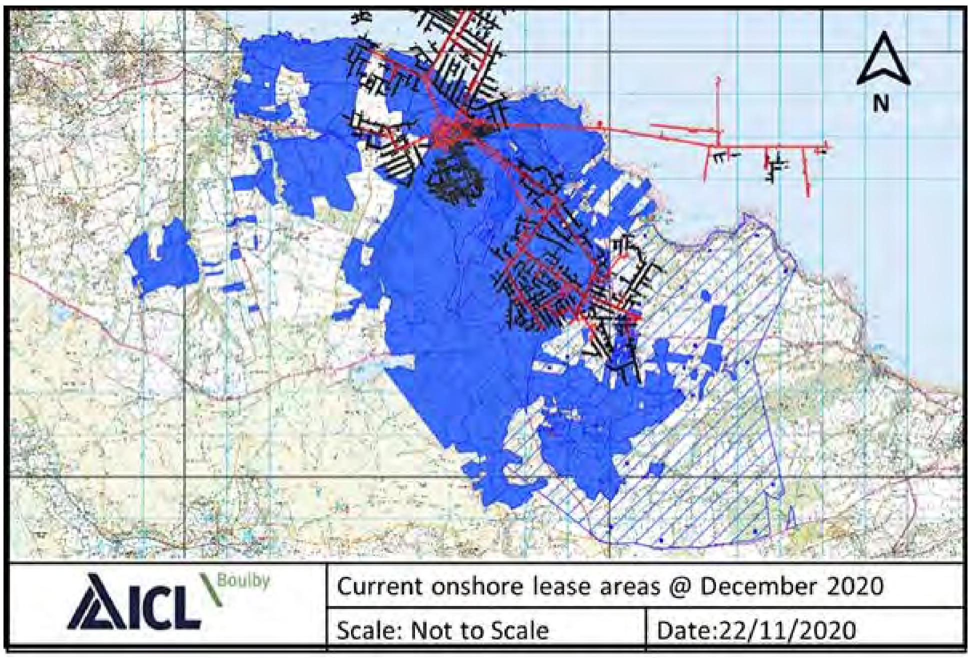

Figure 3.3: ICL Boulby Onshore Leases as at December 2020

3.2.3.3 Offshore Leases

The Company's Lease from the Crown Estate grants it the right to mine for Sylvinite, Polyhalite, Carnallite, Halite and Anhydrite in the offshore areas to the north of Boulby extending to approximately 790 sqkm (see Figure 3.4).

There have been successive Leases in favour of the Company since the 1970's. The current Lease was granted on 1st January 2010 for a term of 26 years and expires on 31st December 2035.

3.2.3.4 Effluent Tunnel Lease

Separately to its minerals Lease with the Crown Estate, the Company has a Lease from the Crown Estate for its Effluent Tunnel. This Lease was granted for a term of 50 years from 2013.

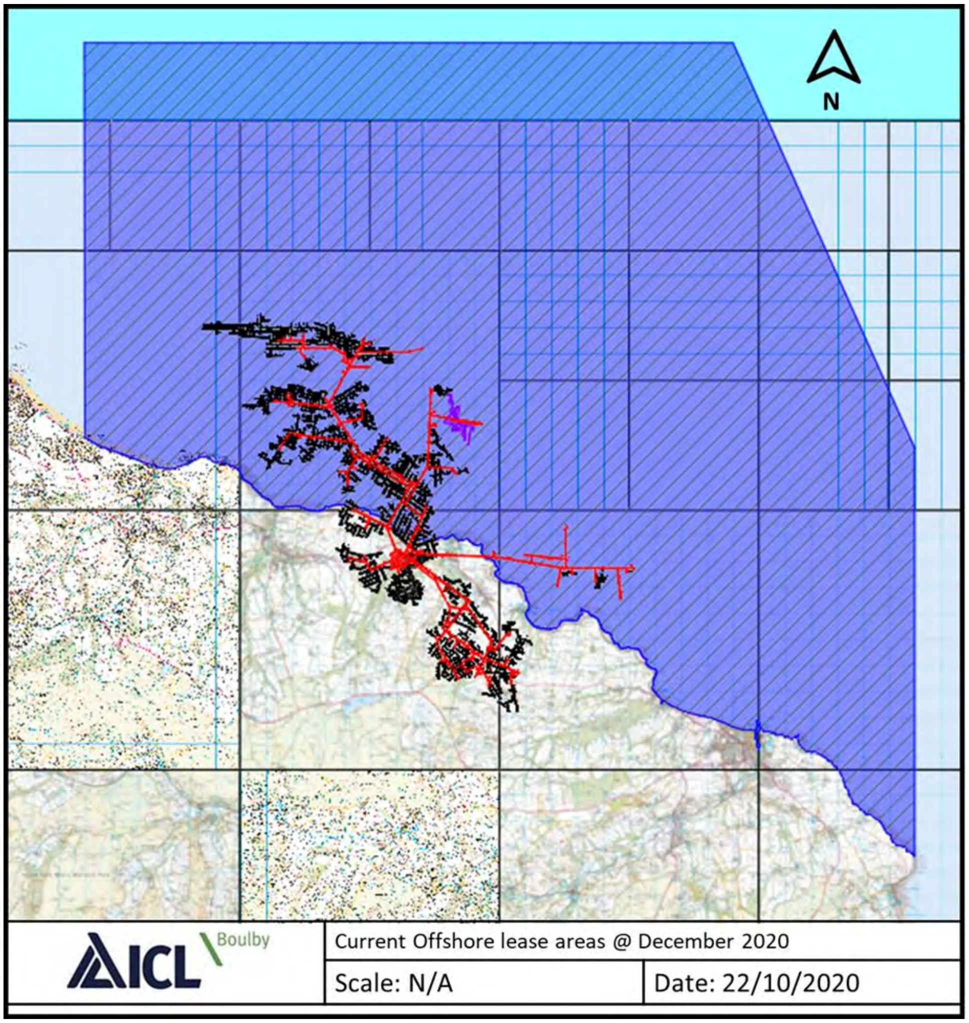

Figure 3.4: ICL Boulby Offshore Lease Boundaries as of December 2020

[1] https://www.surfertoday.com/images/stories/continental-world-map.jpg

3.2.4 Agreements and Royalties

All identified royalties concerning polyhalite relate to ICL Boulby's mining within the offshore domain under lease from the "Crown Estates", this lease agreement is subject to a fee, based on the net realisable value of each product produced from this lease.

3.2.5 Environmental and Social Liabilities

A summary of the valid environmental permits obtained by ICL Boulby are presented in Table 3.1. See section 20 of this report for further details of these permits. Any limits determined by these permits and the systems in place for meeting these requirements are also detailed below.

Table 3.1: Summary of Environmental Permitting

Environmental Permitting Regulations: EPR/BL7973IW	Emissions control
Environmental Permitting Regulations: RCBC/P001/14	Emissions control
NYMNP Planning Permission: NYMR/003/0043B/PA	Site wide Environmental management
IPPC The Environmental Permitting Regulations 2010: EPR/BB3037RC	Effluent discharge
License to Abstract Water: 2/27/29/131	Surface Water management across site
Marine License: L/2016/00111/1	Permission to dredge the seafloor
Greenhouse Gas Emissions Permit: UN-E-IN-11399	Carbon Emissions

A comprehensive conceptual mine closure plan (PN981101) was commissioned in 1998 by ICL Boulby (operating as Cleveland Potash Ltd), using a third-party consulting company Environmental Reclamation Services Ltd (ERS). This covered the site in general, the mine and the effluent tunnel facility.

3.2.6 National Park Planning Permission

ICL Boulby is located within the North York Moors National Park. In 1998 Cleveland Potash Ltd secured planning permission from the North York Moors National Park Authority (NYMNPA) to mine and refine Sylvinite, Salt and Polyhalite. This permission expires in 2023, an application to extend the planning permission for a further 25 was submitted in 2020. The planning permission has been granted (2023-2048).

3.3 Cabanasses and Vilafruns

3.3.1 Description and Location

ICL conducts its potash mining operations in Spain through its subsidiary, ICL Iberia, whose headquarters are located in Catalonia, and is the only producer of potash in Spain. It exports 80% of its production to various countries in the EU, Asia and the Americas.

ICL Iberia operates the Cabanasses underground potash mine that is located within the Bages district of Barcelona and Lérida Provinces in Catalonia, northeast Spain, some 60km northwest of Barcelona. Cabanasses underground mine (located at the town of Súria, approximately 12km north of the district capital of Manresa in the Cardoner river valley) and the Vilafruns mine located at the town of Sallent, approximately 13km east of Súria in the Llobregat river valley. The Cabanasses mine is currently operational while the Vilafruns mine ceased production in 2020 (now on care and maintenance) and all production transferred to Cabanasses.

The Cabanasses mine is approximately centred on the geographic coordinates: latitude 41°50'27"N and longitude 01°45'07"E. UTM (WGS84) coordinates (Zone 31T): 396380E, 4632857N.

The Vilafruns mine is approximately centred on the geographic coordinates: latitude 41°50'25"N and longitude 01°52'39"E and UTM (WGS84) coordinates (Zone 31T): 406804E, 4632652N.

The location of the ICL Iberia projects within northeast Spain is shown in Figure 3.5.

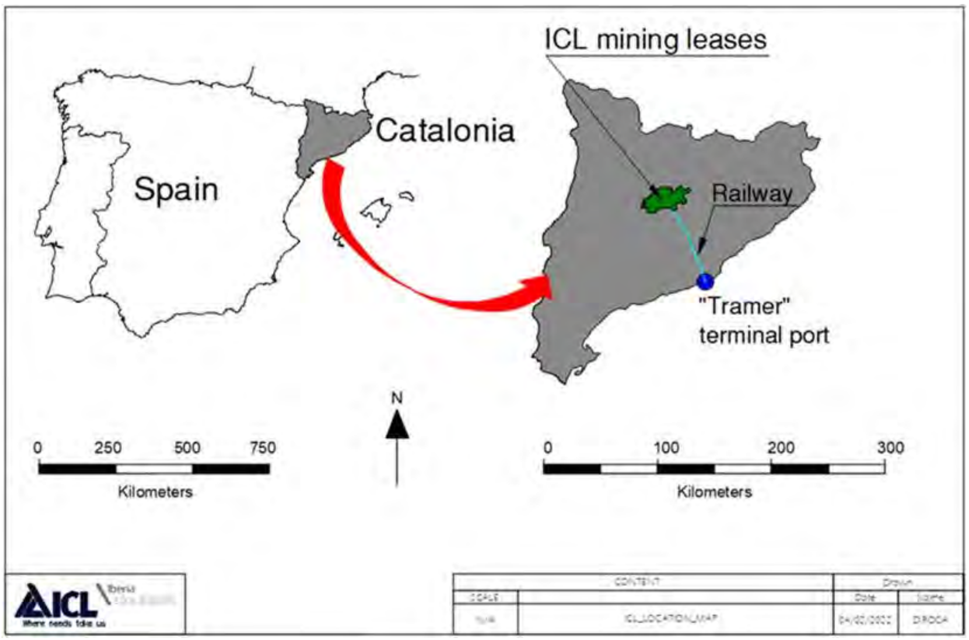

Figure 3.5: Location of Cabanasses and Vilafruns Mines, Northeast Spain

The location of the mines and the ICL Iberia exploration licence area is shown in Figure **3.6**. Mines that are under the ownership of ICL Iberia include: Cabanasses, Súria and Vilafruns (which also includes Balsareny and Sallent Mines). Cabanasses mine is operational while Súria and Vilafruns mines are non-operational and on care and maintenance. The Enrique underground potash mine is closed and flooded and under the ownership of the regional government of Catalonia.

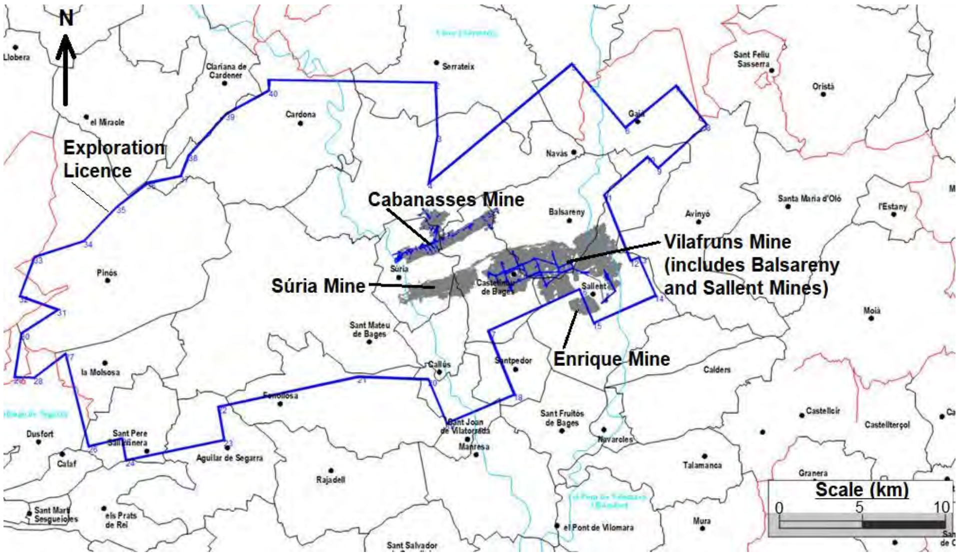

Figure 3.6: Location of Mines and ICL Iberia Exploration Licence Area

3.3.2 Relevant Legislation

The following summary of relevant mining legislation is based on an article by Herrero *et al* (2017). The main regulatory framework in Spain for mining exploration and extraction is determined by:

- The Spanish Constitution (1978), which establishes that the state has exclusive powers over the foundations of mining law. The regions (autonomous communities) can exercise their powers on related areas such as the management of environmental protection, the promotion of regional economic development and the development of basic mining state rules;
- Law 22/1973 of 21 July, of mines, is the main piece of legislation relevant to mining. It governs the different types of mining resources, the authorisations and permits required, and the applicable offences and sanctions;
- Royal Decree 2857/1978 of 25 August, which enacts the General Regulation for the Mining Regime;
- Royal Decree 975/2009 of 12 June, on the management of extractive industries waste and the protection and rehabilitation of areas affected by mining activities, which refers to the main environmental issues arising from the exploitation of a mine;
- Law 21/2013 of 9 December, on environmental assessment, which governs the procedure for the environmental assessment of projects, including certain mining projects;
- Royal Decree 863/1985 of 2 April, approving the General Regulation of Basic Mining Safety Standards and complementary Technical Instructions; and
- Royal Decree 1389/1997 of 5 September, of minimum health and safety provisions to protect workers in extractive industries.

In addition to the above, regional legislation must also be considered. Regional powers are broad in this area and many of the specific norms and requirements originate from the regional government of Catalonia.

3.3.3 Tenure of the Concession

ICL Iberia conducts its mining activities in Spain pursuant to concessions granted to it by the Spanish government. A total of 126 permits for the extraction of rocksalt and potash, awarded to ICL Iberia, cover the Cabanasses and Vilafruns operation covering an area of 42,489Ha (425km^2) in the province of Barcelona and 26,809Ha (268km^2) in the province of Lerida (Figure 3.6). A summary of the permits is presented in Table 3.2 through Table 3.5.

The issuing authority is *"Dirección General de Energía, Minas y Seguridad Industrial"*, as in the Spanish mining law, the mining competences are responsibility of the different autonomies (*Comunidades autónomas*), which for Cabanasses and Vilafruns is Catalonia administration.

Concesión de Explotación (CE) of section C, that is the higher administrative permit in the mining law, allow the exploitation of the resource. The permits are awarded for periods of 30 years, renewable up to 90 years (Ley 22/1973, de 21 de Julio, de Minas).

Table 3.2: ICL Iberia Concessions In Barcelona Province; "Potasas De Llobregat"

Mining ID	Name	Area (Ha)	Date Awarded	Consolidated tenure (years)	Expires
1916	MONTSERRAT	3,276	07-11-77	90	2067
1929	EMERIKA	766	08-11-77	90	2067
1940	NURIA I	555	08-11-77	90	2067
1941	NURIA II	135	08-11-77	90	2067
1943	SILVINA	300	08-11-77	90	2067
1948	NUEVA CARDONA	1,164	17-11-77	90	2067
1949	2ª NUEVA CARDONA	1,667	17-11-77	90	2067
1953	CALAF	942	18-11-77	90	2067
1958	SALINAS VICTORIA	1,914	08-10-79	60	2039
1961	5ª NUEVA CARDONA	263	17-11-77	90	2067
1965	LUIS	1,200	17-11-77	90	2067
1966	ENRIQUE	643	17-11-77	90	2067
1967	SALLENT	935	08-11-77	90	2067
1969	SEGUE	160	18-11-77	90	2067
1970	CASTELLTALLAT	300	18-11-77	90	2067
1975	6ª NUEVA CARDONA	48	17-11-77	90	2067
1976	7ª NUEVA CARDONA	247	17-11-77	90	2067
1979	8ª NUEVA CARDONA	145	17-11-77	90	2067
1980	SALAVINERA	263	22-11-77	90	2067
2233	DEMASÍA A 7ª NUEVA CARDONA	3	17-11-77	90	2067
2234	DEMASÍA A 8ª NUEVA CARDONA	22	18-11-77	90	2067

Table 3.2: ICL Iberia Concessions In Barcelona Province; "Potasas De Llobregat"

2236	DEMASÍA A 6ª NUEVA CARDONA	19	18-11-77	90	2067
2238	1ª DEMASÍA A CALAF	8	22-11-77	90	2067
2239	2ª DEMASÍA A CALAF	7	22-11-77	90	2067
2240	3ª DEMASÍA A CALAF	6	22-11-77	90	2067
2241	4ª DEMASÍA A CALAF	11	22-11-77	90	2067
2242	DEMASÍA A SEGUE	18	22-11-77	90	2067
2243	DEMASÍA A CASTELLTALLAT	37	22-11-77	90	2067
2420	2ª DEMASÍA A NUEVA CARDONA III	52	18-11-77	90	2067
2422	3ª DEMASÍA A NUEVA CARDONA III	58	18-11-77	90	2067
2423	1ª DEMASÍA A NUEVA CARDONA III	30	18-11-77	90	2067
2532	2ª DEMASÍA A NURIA I	10	08-11-77	90	2067
2533	1ª DEMASÍA A NURIA I	6	08-11-77	90	2067
2574	DEMASÍA A SALLENT	21	17-11-77	90	2067
2639	DEMASÍA A NUEVA CARDONA	39	18-11-77	90	2067
2640	DEMASÍA A 2ª NUEVA CARDONA	40	18-11-77	90	2067
2644	3ª DEMASÍA A SALINAS VICTORIA	10	08-10-79	60	2039
2645	4ª DEMASÍA A SALINAS VICTORIA	5	08-10-79	60	2039
2646	5ª DEMASÍA A SALINAS VICTORIA	7	08-10-79	60	2039
2647	6ª DEMASÍA A SALINAS VICTORIA	2	08-10-79	60	2039
2648	7ª DEMASÍA A SALINAS VICTORIA	16	08-10-79	60	2039
Total		***15,350***			

Table 3.3: ICL Iberia Concessions In Barcelona Province; "Súria K"

Mining ID	Name	Area (Ha)	Date Awarded	Consolidated tenure (years)	Expires
1761	ROUMANIE	40	27-04-77	90	2067
1783	NUEVA ROUMANIE	16	27-04-77	90	2067
1800	SALADITA	152	27-04-77	90	2067
1888	NUEVA SALADITA	101	27-04-77	90	2067
1889	SÚRIA	14	27-04-77	90	2067
1895	RESGUARDO	38	27-04-77	90	2067
1896	BORDELAISE	857	27-04-77	90	2067
1908	BARCELONAISE	1,355	27-04-77	90	2067
1912	SAGAZAN	458	27-04-77	90	2067
1913	GERSOISE	2,400	27-04-77	90	2067
1914	AGENAISE	3,280	27-04-77	90	2067
1919	AGENAISE II	2,982	27-04-77	90	2067
1920	ALFA	4,843	07-06-77	90	2067
1921	BETA	2,522	07-06-77	90	2067
1921	BETA-DOS	313	07-06-77	90	2067
1925	KAPPA	3,900	07-06-77	90	2067
1931	XI	3,569	07-06-77	90	2067

Table 3.3: ICL Iberia Concessions In Barcelona Province; "Suria K"					
1938	SAMPASALAS II	144	27-04-77	90	2067
1944	1ª DEMASIA A GERSOISE	29	27-04-77	90	2067
1945	2º DEMASIA A GERSOISE	2	02-05-77	90	2067
1946	DEMASIA A BARCELONAISE Y AGENAISE	33	02-05-77	90	2067
1955	FRONTERIZA	18	07-06-77	90	2067
2424	DEMASIA A SAMPASALAS II	28	02-05-77	90	2067
2535	DEMASIA A BARCELONAISE	4	02-05-77	90	2067
2536	3ª DEMASIA A AGENAISE	1	02-05-77	90	2067
2537	2ª DEMASIA A AGENAISE	3	02-05-77	90	2067
2538	DEMASIA A SAGAZAN	30	02-05-77	90	2067
2539	DEMASIA A GERSOISE	2	02-05-77	90	2067
2540	1ª DEMASIA A AGENAISE	1	02-05-77	90	2067
2634	DEMASIA A XI	5	07-06-77	90	2067
Total		***27,140***			

Table 3.4: ICL Iberia Concessions In Lleida Province; "Potasas De Llobregat"					
Mining ID	**Name**	**Area (Ha)**	**Date Awarded**	**Consolidated tenure (years)**	**Expires**
2318	PINOS I	1,255	17-11-77	60	2037
2343	3ª NUEVA CARDONA	743	11-11-77	60	2037
2344	PINOS	2,021	11-11-77	60	2037
2346	3ª NUEVA CARDONA	107	11-11-77	60	2037
2347	MOLSOSA	98	11-11-77	60	2037
2350	2ª PINOS	661	11-11-77	60	2037
2362	PINOS TERCERA	1,746	11-11-77	60	2037
2367	SELLES	210	11-11-77	60	2037
2368	BASSAS 2ª	41	11-11-77	60	2037
2408	AMPLIACIÓN A MOLSOSA	13	11-11-77	60	2037
2418	DEMASÍA A BASSAS 2ª	4	11-11-77	60	2037
2718	1ª DEMASÍA A 3ª NUEVA CARDONA	6	11-11-77	60	2037
2719	2ª DEMASÍA A 3ª NUEVA CARDONA	7	11-11-77	60	2037
2720	DEMASÍA A PINOS	5	11-11-77	60	2037
2721	2ª DEMASÍA A PINOS	19	15-11-77	60	2037
2722	1ª DEMASÍA A SELLES	4	15-11-77	60	2037
2723	2ª DEMASÍA A SELLES	8	15-11-77	60	2037
2724	DEMASÍA A PINOS III	35	15-11-77	60	2037
2725	2ª DEMASÍA A MOLSOSA	6	15-11-77	60	2037
2726	1ª DEMASÍA A MOLSOSA	10	15-11-77	60	2037
2727	DEMASÍA A MOLSOSA	4	15-11-77	60	2037
2728	DEMASÍA A 3ª NUEVA CARDONA	10	15-11-77	60	2037
2729	DEMASÍA A 2ª PINOS	7	15-11-77	60	2037
2738	DEMASÍA A AMPLIACIÓN A MOLSOSA	2	15-11-77	60	2037

Table 3.4: ICL Iberia Concessions In Lleida Province; "Potasas De Llobregat"					
2739	DEMASÍA A PINOS III	21	16-11-77	60	2037
2740	DEMASÍA A SELLES	3	16-11-77	60	2037
2741	DEMASÍA A PINOS	4	16-11-77	60	2037
2873	DEMASÍA A PINOS III	22	16-11-77	60	2037
2874	2ª DEMASÍA A PINOS	4	16-11-77	60	2037
2876	DEMASÍA A PINOS III	31	16-11-77	60	2037
2877	DEMASÍA A AMPLIACIÓN A MOLSOSA	2	16-11-77	60	2037
2879	1ª DEMASÍA A 3ª NUEVA CARDONA	3	16-11-77	60	2037
2881	2ª DEMASÍA A SELLES	2	16-11-77	60	2037
2883	DEMASÍA A PINOS	5	16-11-77	60	2037
2884	DEMASÍA A PINOS	5	17-11-77	60	2037
2885	2ª DEMASÍA A 3ª NUEVA CARDONA	7	17-11-77	60	2037
2891	DEMASÍA A PINOS	3	17-11-77	60	2037
2892	DEMASÍA A PINOS III	4	17-11-77	60	2037
3070	AMPLIACIÓN A SALINAS VICTORIA	65	17-11-77	60	2037
3073	2ª DEMASÍA A 2º PINOS	6	17-11-77	60	2037
3074	3ª DEMASÍA A 2ª PINOS	4	17-11-77	60	2037
3075	4ª DEMASÍA A 2º PINOS	2	17-11-77	60	2037
3076	DEMASÍA A BASSAS 2ª	10	17-11-77	60	2037
Total		***7,225***			

Table 3.5: ICL Iberia Concessions In Lleida Province; "Súria K"					
Mining ID	**Name**	**Area (Ha)**	**Date Awarded**	**Consolidated tenure (years)**	**Expires**
2294	AGUDA	4,500	27-04-77	60	2037
2295	SAMPASALAS	1,417	27-04-77	60	2037
2302	PI	6,120	04-06-77	60	2037
2303	OMIKRON	6,000	04-06-77	60	2037
2304	RHO	1,117	04-06-77	90	2067
2329	SAMPASALAS III	203	27-04-77	60	2037
2331	RUBIÓ	76	27-04-77	60	2037
2334	PRECISA	132	04-06-77	90	2067
2886	3ª DEMASIA A SAMPASALAS	6	27-04-77	60	2037
2887	2ª DEMASIA A SAMPASALAS	5	27-04-77	60	2037
2889	1ª DEMASIA A SAMPASALAS	2	27-04-77	60	2037
3080	DEMASIA A RHO	5	04-06-77	90	2067
Total		***19,583***			

3.3.4 Access Rights and Surface Land Ownership

The concessions at the potash and salt mines are held under the concession agreements described before. The potash and salt production plants, and the warehouses, as well as the loading and unloading facilities of the Potash segment at Catalonia, are owned by the Company and with certain plots under lease agreement or similar figures for long use period.

3.3.5 Taxes, Royalties and Other Payments

ICL Iberia yearly pays royalties to maintain the right over their mining concessions. Those are around €126,000 per annum.

Additionally, on a yearly basis, the company pays taxation regarding the scheduled mining works in the year (*"Plan de Labores*"), this was around €527,000 in 2021.

Also, the professional mining association (Mining engineers association) is paid to check the projects of the scheduled works (*"Plan de Labores"*). This was around €81,000 in 2020.

3.3.6 Environmental and Social Liabilities

In 2015, in accordance with the provisions of the Spanish Waste Management regulation, ICL Iberia submitted to the Government of Catalonia a mining site restoration plan for its two production sites in Súria and Sallent which included a plan for handling salt deposits and dismantling facilities. The restoration plan for the Súria site is scheduled to extend to 2094 and the Sallent site until 2070. A multi-year programme is also underway to restore the salt deposits, while addressing issues such as wastewater drainage and sludge treatment.

3.3.7 Permitting

A summary of the permits granted to ICL Iberia is shown in Table **3.6**.

Table 3.6: Summary of ICL Iberia Permits

Permit	Description	Granted by	Granted on	Duration	Renewal
SÚRIA					
Mining Concession	Roumanie Mining Concession for the activity of Potash extraction	MAGC	27th April 1977	90 years	-
Environmental Authorisation	Main Environmental Authorisation, for activity of potash mining with Environmental Impact Assessment.	MAGC	11th September 2006	Linked with the Mining Concession	Every four years, or in case of modification of the activity.
	Modification of the Environmental Authorisation, for potash mining with Environmental Impact Assessment	MAGC	4th March 2014	Linked with the Mining Concession	Every four years, or in case of modification of the activity.
	Modification of the environmental authorisation	MAGC	6th June2 016	Linked with the Mining Concession	4 years (or 2 years for waste disposal)
	New modification of the environmental authorisation to increase production capacity	MAGC	19th November 2021	Linked with the Mining Concession	Every four years, or in case of modification of the activity.
Urban & Environmental License for Salt Stockpiling	The current salt deposit in Súria has an authorisation with environmental impact assessment to enlarge the capacity of such deposit.	MAGC	October 2018	Linked with mining concession	-

Table 3.6: Summary of ICL Iberia Permits					
Water Disposal	Water concession for extraction of natural water for industrial process (0.8hm^3)	ACA	9th June 2017	25 years	-
Brine Collector Discharge	Water concession to release wastewater to the environment (53 litres/second)	ACA	12th November 2019	5 years	-
New Water Disposal	Water concession to use treatment water from Manresa SWTP (6.8hm^3)	ACA	9th April 2021	25 years	-
	Water concession to use treatment water from Sallent SWTP (0.8hm^3)	ACA	8th May 2020	50 years	-
Restoration Plan for Súria Activity	Restoration Plan	MAGC	July 2018	5 years	-
Air Emission Concession	Right to emit substances to the atmosphere (Sallent)	DGQA	14th December 2015	8 years	-
GHG Concession	Right to emit GHG to the atmosphere	DGQA	22nd December 2020	8 years	-
PRTR	Declaration of the annual amount of pollution substances released to the environment	ARC	3rd March 2017	Report yearly	-
SALLENT					
Mining Concession EMERIKA	EMERIKA Mining Concession for the activity of Potash extraction	MAGC	11th August 1977	90 years	-
Environmental Authorisation of the Activity	Main Environmental Authorisation, for activity of potash mining with Environmental Impact Assessment.	MAGC	29th April 2008	Linked with the Mining Concession	Reviewed every four years, or in case of modification of the activity.
Water Disposal/Supply	Water concession to use natural water for industrial process (0.8hm3)	ACA	19th April 2017	5 years	-
New Water Disposal/Supply	Water concession that for treatment of water from Sallent SWTP (0.8hm3)	ACA	8th May 2020	50 years	-
Brine Collector Discharge	Water concession to release wastewater to the environment	ACA	27th November 2017	5 years	-
Restoration Plan for Sallent Activity	Restoration Plan	MAGC	July 2018	5 years	-
Air Emission Concession	Right to emit substances to the atmosphere	DGQA	27th November 2018	8 years	-
GHG Concession	Right to emit GHG to the atmosphere	DGQA	22nd December 2020	8 years	-
PRTR	Declaration of the annual amount of pollution substances released to the environment	ARC	3rd March 2017	Report yearly	-
TRAMER, S.A					
TRAMER Port Concession	Concession of the Port Terminal in Port of Barcelona to shipload Salt and Potash, 80,492.99m^2 surface plot	Barcelona Port Authority	-	-	Reviewed every 6 years, or in case of modification of the activity
Environmental License	Environmental License to carry out the Activity of ship loading of Salt and Potash	Town Hall of Barcelona	in process	in process	-

DGQA - Direcció General de Qualitat Ambiental
ACA – Catalonia Water Agency
ARC – Catalonia Waste Agency
MAGC – Mines Agency Generalitat of Catalonia

3.4 Rotem

3.4.1 Description and Location

ICL Rotem retains and operates three phosphate open pit mines (Rotem, Oron, and Zin) in the Negev desert region of southern Israel, together with sulphuric acid plants, a phosphoric acid plant, and a fertilizer production facility. ICL Rotem engages in conventional open pit mining and processing of phosphate rock and production of the following products:

- Phosphoric acid for agricultural applications (Green acid);
- Technical phosphoric acid for food applications (White acid);
- Sulphuric acid;
- Phosphate rock for direct application and production of other products;
- Phosphate fertilisers (GTSP, GSSP);
- Composite fertilisers (mostly phosphate based); and
- Special fertilisers (MKP, MAP).

Currently, mining is occurring at the Rotem and Oron sites, the Zin mine has closed and is now only undertaking remediation works. The Rotem mine, with the Mishor Rotem beneficiation plant is located some 17km to the south of the town of Arad and east of the town of Dimona (Figure 3.7). Oron (and Zin), each with a dedicated beneficiation plant, lie to the southeast of the town of Yeruham. The head office of ICL Rotem is in the town of Be'er Sheva.

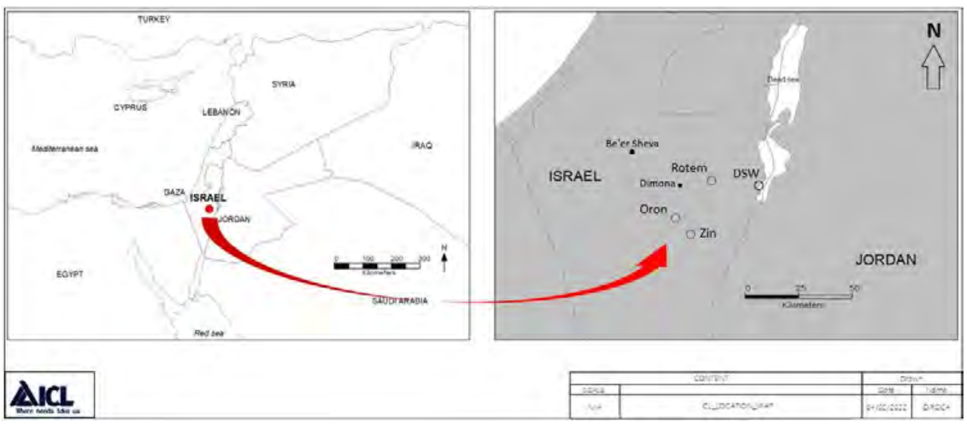

Figure 3.7: Location of Rotem, Oron, Zin and DSW, Israel (ICL)

The Rotem operation is approximately centred on the geographic coordinates: latitude 31°04'00"N and longitude 35°11'50"E. UTM (WGS84) coordinates (Zone 36R): 709638E, 3439065N.

The Oron operation is approximately centred on the geographic coordinates: latitude 30°54'00"N and longitude 35°00'59"E. UTM (WGS84) coordinates (Zone 36R): 692694E, 3421493N.

The Zin operation is approximately centred on the geographic coordinates: latitude 30°50'35"N and longitude 35°05'22"E. UTM (WGS84) coordinates (Zone 36R): 699818E, 3414077N.

3.4.2 Tenure of Concessions

3.4.2.1 Mining Concessions and Lease Agreements

ICL Rotem operates under mining concessions and licences granted by the Israeli Minister of National Infrastructures and by the Israel Lands Administration ("ILA"), and holds mining concessions, valid until end of the year 2024.

Rotem has been mining for more than sixty years and is conducted in accordance with phosphate mining concessions, granted by the Minister of Energy under the Mines Ordinance as necessary, as well as the mining authorisations issued by the Israel Lands Authority. The concessions relate to quarries (phosphate rock), whereas the authorisations cover use of land as active mining areas.

Rotem has the following mining concessions which at the end of 2021 were combined into one concession (see Figure 3.8):

1. Rotem Field (including the Hatrurim Field) covering 53.0km^2 (Hatrurim 15.9km^2); and
2. Zafir Field (Oron-Zin) covering 155.0km^2.

The Oron and Zin concessions were granted in 1952 and 1970 respectively, with the Zin concession as part of the Oron concession and the joint concession was subsequently renamed Zafir. The Zafir concession (consisting of both the Oron and Zin), and Rotem concession, was renewed every 3 years, and in 1995 it was granted for 10 years and thereafter, in 2002, it was granted up to 2021 and then further extended until the end of 2024. In 2011, the Supervisor expanded the Rotem concession area, by joining the Hatrurim site to the area of this concession. The matter was transferred to the Israel Lands Authority in order to treat the expansion of the permissible mining area to the Rotem field, in accordance with expansion of the concession area.

During the fourth quarter of 2020, as part of the Company's actions to extend the validity of the said mining concessions and obtain the necessary approvals, positive recommendations were received from the Ministry of Energy, the Committee for Reducing Concentration and the Competition Authority, to extend the licences for an additional period of three years. In December 2020, the Minister of Energy approached the Chairman of the Finance Committee in the Knesset requesting that the Committee grant final approval to the said extension.

Rotem has two lease agreements in effect until 2024 and 2041 and an additional lease agreement of the Oron plant , which the Company has been working to extend since 2017, by exercising the extension option provided in the agreement .

Figure 3.8: Concession Areas for Rotem, Oron and Zin

3.4.2.2 Mining Royalties

As part of the terms of the concessions in respect of mining of phosphate, Rotem is required to pay the State of Israel royalties based on a calculation as stipulated in the Israeli Mines Ordinance.

In January 2016, in light of a legislative amendment for the implement at ion of the Sheshinski Committee's recommendations, the royalties' rate was increased from 2% to 5% of the value of the quarried material. According to the amendment, the Supervisor has the option to collect royalties at a higher rate, if he decided to grant a mining right in a competitive process wherein one of the selection indices is the royalty rate. Under the terms of the concessions, and in order to continue to hold the concession rights, Rotem is required to comply with reporting requirements as necessary, in addition to the payment of royalties.

3.5 DSW

3.5.1 Description and Location

The DSW, located to the south of the northern Dead Sea basin (Figure 3.7), is a unique operation that involves the collection (pumping) and ponding of mineral rich water from the Dead Sea into large shallow ponds (ponds) that permit the evaporation of the water and precipitation of salt, for the recovery of carnallite using dredges (CSD – Cutter Suction Dredge). The total area of the ponds is 146.7Km^2, comprising salt ponds (salt ponds = 97.4Km^2), carnallite ponds (49.3Km^2). It should be noted that the precipitation, and therefore carnallite production, is dependent on several factors including pond geometry, precipitation time, environment/climatic conditions, and solution properties. The average rate of salt precipitation in Pond 5 is estimated at 16 – 20cm per year, equating to about 16 Mm^3.

The DSW operation (processing facility) is approximately centred on the geographic coordinates: latitude 31°02’18”N and longitude 35°22’15”E. UTM (WGS84) coordinates (Zone 36R): 726274E, 3436265N.

3.5.2 Tenure of Concessions

Pursuant to the Israeli Dead Sea Concession Law, 1961 (hereinafter – the Concession Law), as amended in 1986, and the concession deed attached as an addendum to the Concession Law, DSW was granted a concession to utilize the resources of the Dead Sea and to lease the land required for its plants in Sodom for a period ending on March 31, 2030, accompanied by a priority right to receive the concession after its expiration, should the Government decide to offer a new concession.

In accordance with section 24 (a) of the Supplement to the Concession Law, it is stated, among other things, that at the end of the concession period all the tangible assets at the concession area will be transferred to the government, in exchange for their amortized replacement value – the value of the assets as if they are purchased as new at the end of the concession period, less their technical depreciation based on their maintenance condition and the unique characteristics of the Dead Sea area.

Pursuant to section 24 (b) of the Supplement to the Concession Law, it is stated that capital investments made 10 years before the concession ends (i.e. April 2020) to the end of the concession period require a prior consent of the Government, unless they can be fully deducted for tax purposes before the end of the concession period. However, the Government's consent to any fundamental investment that may be necessary for the proper operation of the plant, will not be unreasonably delayed or suspended. In 2020, a work procedure was signed between the Company and the Israeli Government for the purpose of implementing section 24(b). The procedure determines, among other things, the manner of examining new investments and the consent process. In addition, the procedure determines the Company's commitment to invest in fixed assets, including for preservation and infrastructure, and for ongoing maintenance of the facilities in the concession area (for the period beginning in 2026) and the Company's commitment to continue production of potassium chloride and elemental bromine (for the period commencing 2028), all subject to the conditions specified in the procedure. Such commitments do not change the way the Company currently operates. The Company operates with the Israeli Government in accordance with the procedure and obtains investment approvals from time to time as required.

The concession covers a total area of 652 km^2, including the evaporation ponds that cover an area of 146.7 km^2 (Figure 3.9).

3.5.3 Mining Royalties

In consideration of the concession, DSW pays royalties and lease rentals to the Government of Israel and is subject to the Law for Taxation of Profits from Natural Resources, on top of the regular income tax.

Figure 3.9: DSW Licence Outline (ICL)

3.6 YPH

3.6.1 Description and Location

The Haikou mine and processing facility are located in the Xishan district of China (Figure 3.10). Haikou is located in the west of Dianchi lake and some 30km south of Kunming City. The operation is owned by the Yunnan Phosphate Haikou company with ICL having acquired a 50% controlling stake in the company in 2015. The joint venture name is registered as 'YPH – Yunnan Phosphate Haikou'. The joint venture includes the Haikou mine, processing facility as well as mineral rights and land rights for a second phosphate deposit the Baitacun mine (not within this TRS).

The Haikou mine is approximately centred on the geographic coordinates: latitude 24°46'02"N and longitude 102°33'38"E. UTM (WGS84) coordinates (Zone 48R): 253324E, 2741380N.

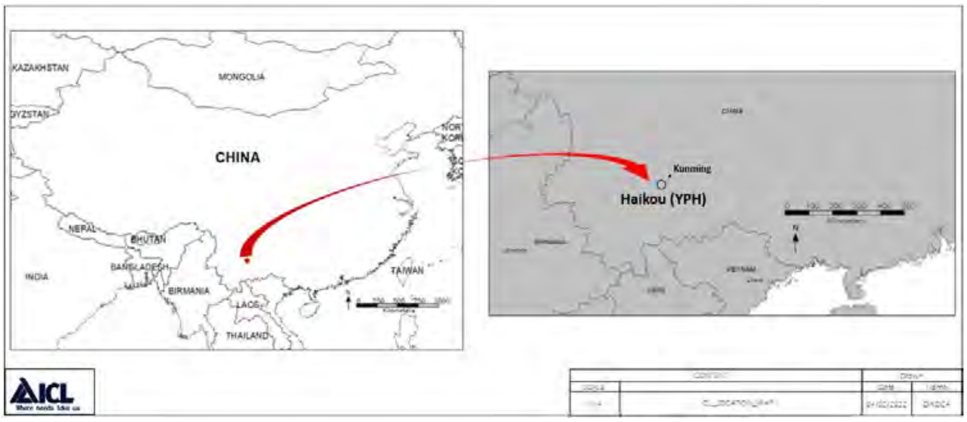

Figure 3.10: Location of Haikou, Xishan District of China

3.6.2 Description of Surface Rights

YPH JV holds two phosphate mining licences that were issued in July 2015, by the Division of Land and Resources of the Yunnan district in China: (1) a mining licence for the Haikou Mine in which the Company runs its operations and which is valid up to January 2043, and (2) a mining licence for the Baitacun Mine which was renewed in 2021 and is valid up to 2023. The Baitacun is located several kilometres from the Haikou mine.

Haikou Phosphate Mine of Yunnan Phosphate Group Haikou Phosphorus Industry Co., Ltd., with the mining licence number: C5300002011016140109850. The Yunnan Phosphate Group Haikou Phosphorus Industry Co., Ltd. Is the registered owner of this mining licence.

The Haikou deposit covers an area of approximately 9.6 Km^2 within the Yuhucun Formation, where economic-grade phosphate-bearing rocks are located. The Mineral Resource plan dimensions, defined by the spatial extent of the lower phosphate unit Mineral Resource limits, are approximately 4,250m north-south by 4,250m east-west. The upper and lower limits of the Mineral Resource span from surface, where the mineralised units outcrop locally, through to a maximum depth of 125m below surface for the base of the lower mineralised layer.

3.6.3 Royalty Payments

With respect to the mining rights, and in accordance with China "Natural Resources Tax Law", YPH pays royalties of 8% on the selling price based on the market price of the rock prior to its processing.

3.7 Significant Encumbrances to the Properties

There are no known encumbrances to the mineral resources or mineral reserves on the Properties.

3.8 Other Significant Factors and Risks Affecting Access Title, or the Right or Ability to Perform Work on the Properties

Beyond the items described above, the QP's are not aware of any other significant factors and risks affecting access, title, or the right or ability to perform work on the properties.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Boulby

4.1.1 Access

Boulby Mine lies approximately 4km East of Loftus. The A174 road lies to the north and beyond this the North Sea. The villages of Easington and Staithes lie approximately 1.2km to the west and 1.8km to the east respectively. There are no residential properties within 500m of the site. There is one Site of Special Scientific Interest (SSSI) within 2km of the facility.

The Boulby Mine property can be reached from Middlesbrough along the coastal A174 at a distance of 37km from the main A19 motorway close to Middlesbrough. The route is paved and well maintained by local councils to a high standard year-round and is suitable for heavy goods traffic along its length. Access from the site to Teesport facilities is also possible via the Boulby rail network which connects the site with Network Rail track at Carlin How and continues to Teesport on Network rail owned infrastructure. The rail link is well maintained by both ICL Boulby and Network rail to allow movement of finished product to ICL Boulby facilities on Teesside some 30.5km to the North West.

The nearest airports to the site are Tees Valley, Leeds Bradford, Newcastle and Durham. Port facilities are located at Teesside, Newcastle, Whitby and Hull/Immingham. Leeds is the largest City within Yorkshire and is approximately 130km from the Mine site.

4.1.2 Climate

Northeast England is characterised by temperate climate. Mean annual temperature vary depending on altitude and proximity to the coast. The local Yorkshire climate is strongly influenced by the relatively high-altitude Pennine mountain range to the west which causes a cool, dull wet environment and provides shelter from westerly winds, and the North Sea to the East which keeps conditions relatively cool in the summer along coastal areas.

Winter temperatures typically vary between -1°C and 10°C while in the summer the temperatures typically vary between 16°C and a maximum of 25°C (Figure 4.1). Sunshine hours are dependent on day length with the shortest days occurring in the winter months, and the longest days occurring in the summer months. Rain occurs at an average of 700 - 1,000mm per year (Figure 4.2). Snow generally falls only when temperature falls below 4°C, typically between November and April. The average number of days with snow falling is about 20 per year on the coast with an average increase of about 5 days of snow falling per year for every 100m increase in altitude.

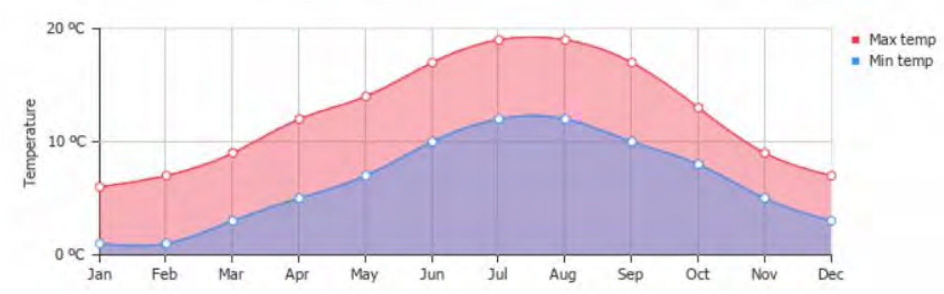

Figure 4.1: Average Monthly Temperature for Staithes[1]

Figure 4.2: Average Precipitation for Staithes[2]

4.1.3 Local Resources and Infrastructure

As with virtually all the UK there is an extensive network of paved highways, rail service, excellent telecommunications facilities, national grid electricity, an ample supply of water and an educated work force.

4.1.3.1 Power

Primary power to the site is provided by the national Grid and is supplemented by emergency generation and battery storage technology to mitigate against price spikes (during periods of high demand). ICL Boulby also has limited provision to provide its own power and steam generation through its own gas fuelled combined heat and power installation.

1 https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,staithes-north-yorkshire-gb,United-Kingdom
2 https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,staithes-north-yorkshire-gb,United-Kingdom

4.1.3.2 Water

Water usage at ICL Boulby is sourced from a combination of mains supplied fresh water (from local utilities), sea water and mine brine which is pumped from various inflows and storage lagoons in the mine workings.

4.1.3.3 Mining Personnel

The largest community of substance is Middlesbrough with a population of 139,000 and the surrounding communities have a combined population of approximately 376,000.

ICL Boulby currently has circa 460 employees working on site, 90% of whom live within a 16km radius of the mine. The majority of the workforce are long term employees of the company with typical service periods in excess of 10 years. Employees in excess of 25 years' service are not uncommon. The availability of experienced mining, processing and technical personnel is not considered a challenge due to the decline of the coal industry in the UK though Boulby is also recruiting 'green labour' with no previous experience into all areas of the business.

4.1.3.4 Tailing Storage Area

There are no applicable tailings materials or resultant tailings storage areas which result from the mining of polyhalite at ICL Boulby.

4.1.3.5 Waste Disposal Areas

Mine brine is produced from dewatering activities within the mine and is collected along with surface waters and pumped to a discharge facility on the North sea coastline approximately 300m north of the mine site.

4.1.3.6 Processing Plant Sites

ICL Boulby has an existing mineral processing facility on site that has been in use throughout the 50-year history of the operation, an additional processing circuit was added to the existing potash plant in 2017 utilising some of the previous plant infrastructure and some new installations to produce potash plus. A bespoke Polyhalite processing plant was commissioned in 2016 and is sited alongside the existing potash plant.

4.1.4 Physiography

Boulby Mine and its associated facilities lies approximately 4km east of Loftus in a rural area within the North York Moors National Park. The site is surrounded by woodland, agricultural grazing land and open land and is situated at ≈80masl with relief across the site no more than 20-30m.

4.2 Cabanasses and Vilafruns

4.2.1 Access

The Cabanasses and Vilafruns mines are located some 60km to the northwest of the City of Barcelona and can be accessed by the A2 motorway to Olesa de Montserrat and the C-55 road to Manresa. Cabanasses is located 15km north-northwest of Manresa and can be accessed by a continuation of the C-55 road to the town of Súria. Vilafruns is located 20km north-northeast of Manresa and can be accessed via the C-25 and C-16 roads through the town of Sallent. The straight-line distance between Cabanasses to the west and Vilafruns to east is approximately 10km, however, the terrain (valleys and hills) prevents straight-line access between the mines. As a result, the mines are connected via the BP-4313 minor road which passes to the north with a travel distance of 17km.

The region has an extensive road network and is also served by national rail links to the rest of Spain as well as north into Andorra and France. International airports are located at Barcelona (60km to the southeast) and Madrid (580km to the west-southwest). The sea port at Barcelona is a major trading route for goods and ICL Iberia has a loading facility at the port that is connected by rail to Cabanasses and Vilafruns.

4.2.2 Climate

The climate of Catalonia is diverse, the populated areas lying by the coast in Tarragona, Barcelona and Girona provinces feature a hot-summer Mediterranean climate whilst the inland part (including the Lleida province and the inner part of Barcelona province) show a mostly Mediterranean climate. The Pyrenean peaks have a continental or even Alpine climate, while the valleys have a maritime or oceanic climate sub-type.

In the Mediterranean area, summers are dry and hot with sea breezes, and the maximum temperature is around 26 - 30°C (Figure 4.3). Rain falls throughout the year, most frequently in September and October (Figure 4.4). Winter is cool or slightly cold depending on the location. It snows frequently in the Pyrenees, typically between December and April, with occasional snow at lower altitudes, even by the coastline. Spring and autumn are typically the rainiest seasons, except for the Pyrenean valleys, where summer is typically stormy. The inland part of Catalonia is hotter and drier in summer where temperatures may reach >35°C, though nights are cooler than at the coast with the temperature of around 14 - 17°C.

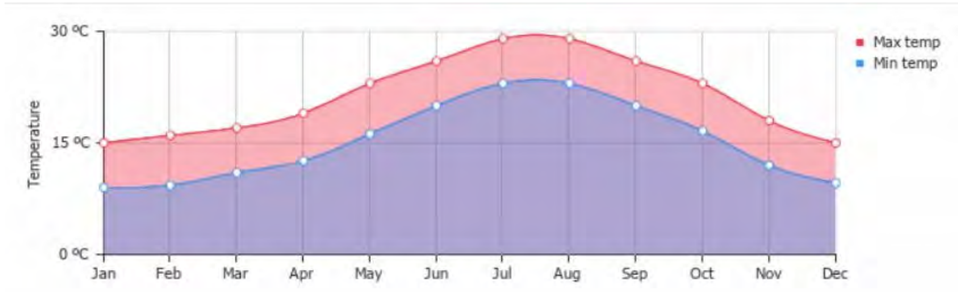

Figure 4.3: Average Monthly Temperatures for Súria (Catalonia), Spain[3]

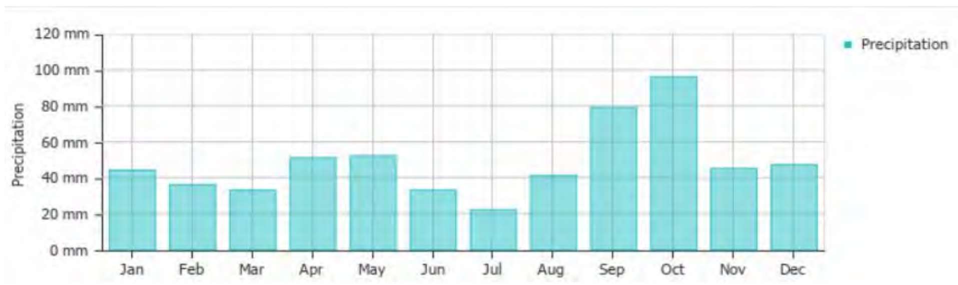

Figure 4.4: Average Monthly Rainfall for Súria, (Catalonia), Spain[4]

4.2.3 Local Resources and Infrastructure

4.2.3.1 Cabanasses

The Cabanasses mine is operational and produces 2.1Mt of (mined) potash per year. Local resources and infrastructure associated with the Cabanasses mine includes the following:

- Cabanasses underground (room and pillar) mine including decline and conveyor, shafts and vent shafts;
- Mineral processing plant including crushing, grinding and flotation;
- High purity pharmaceutical salt plant;
- Waste impoundment consisting of salt removed by flotation. Waste dump comprises two areas old dump (unlined), new dump (lined);
- Water treatment facility including catch pond to collect and process underflow water from new dump area;
- Additional water treatment facility at the Cardener River to collect and process waste dump underflow water (generated by old dump area);
- Site offices and maintenance workshops.

A general site plan of the Cabanasses mine workings is shown in Figure 4.5.

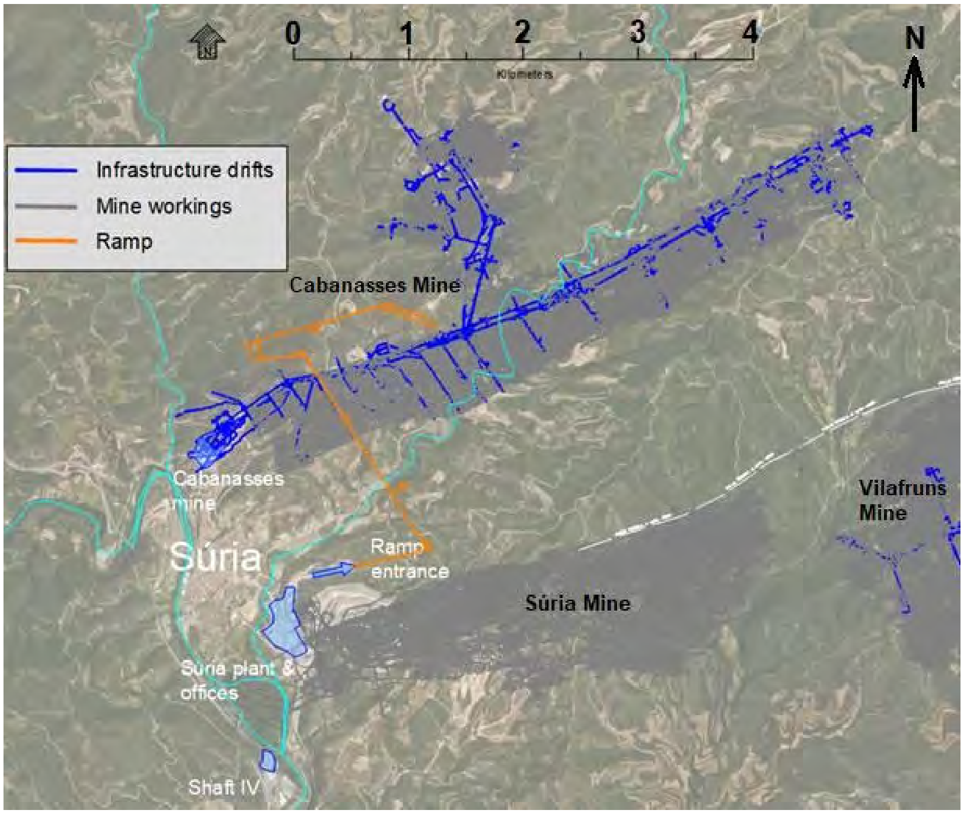

Figure 4.5: General Mine Plan of Cabanasses Mine (scale in km)

4.2.3.2 Vilafruns

The Vilafruns mine is currently non-operational and is on care and maintenance following cessation of mining operations in 2020. Local resources and infrastructure associated with the Vilafruns mine are still in place and includes the following:

- Vilafruns underground (room and pillar) mine including decline, shafts and vent shafts;
- Mineral processing plant including crushing, grinding and flotation;
- Waste dump consisting of salt removed by flotation;
- Site offices and maintenance workshops.

A general site plan of the Vilafruns mine workings is shown in Figure 4.6.

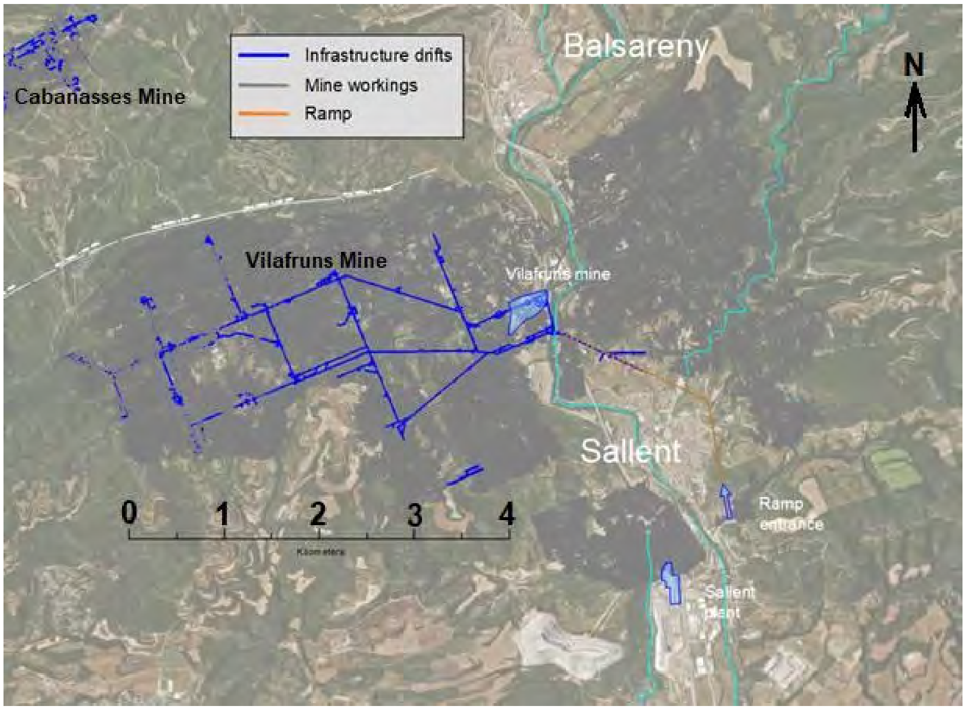

Figure 4.6: General Mine Plan of Vilafruns Mine (scale in km)

4.2.3.3 Mining Personnel

The mines at Cabanasses and Vilafruns, and the Súria area in general, have a prolonged history of mining, and other industries, and so are well serviced with labour and infrastructure. Cabanasses mine is located in the town of Súria with a population of around 6,000 and Vilafruns mine is located immediately to the north of the town of Sallent with a population of around 7,000. The town of Manresa (the capital of the Comarca of Bages) has a population of over 75,000.

4.2.3.4 Tailings Storage

No tailings storage facilities are required by the operations.

4.2.3.5 Waste Disposal

Flotation reject material from the processing plants consists of salt and is dewatered and conveyed to surface impoundments for storage. In addition, an 80km pipeline (“Collector pipe”) is used to transport a proportion of this salt waste (as brine solution) for disposal in the Mediterranean via an outflow located to the south of Barcelona. The location of the pipeline is shown in Figure 4.7.

Figure 4.7: Salt Transportation Pipeline from Catalan Potash Basin to Mediterranean

An additional pipeline (along-side the existing pipeline) is due for completion in 2024. With this second pipeline there will be sufficient capacity for all surplus salt produced by the operation to be transported for disposal in the Mediterranean. As such, no further surface waste disposal at the operation should then be required.

4.2.3.6 Processing Plant Sites

ICL Iberia has existing mineral processing facilities on site that has been in use throughout the history of the operations.

4.2.4 Physiography

Súria, where the Cabanasses mine is located, is situated in the valley of the Cardener river between Manresa and Cardona. Vilafruns is located north of Sallent, in the valley of the Llobregat river. Both rivers flow southwards into the Mediterranean, south of the city of Barcelona. The broadly north-south valley floors are at an elevation of around 280masl and the surrounding hills rise steeply to almost 600masl. Most of the infrastructure is focused along the valleys, hence why Cabanasses and Vilafruns are only around 10km apart in an east-west direction but over 30km via the main highways or 17.5km via smaller roads over the hills.

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[3] https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,suria-catalonia-es,Spain
[4] https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,suria-catalonia-es,Spain

4.3 Rotem

4.3.1 Access

The Rotem, Oron, and Zin properties are located in the Negev desert, the region's largest city and administrative capital, Beersheba (pop. 209,687) is located in the north. At its southern end is the Gulf of Aqaba and the resort city and port of Eilat. The region contains several development towns, including Dimona, Arad and Mitzpe Ramon, as well as a number of small Bedouin towns, including Rahat and Tel as-Sabi and Lakyah.

Israel has a well-established and high quality road network making travel and access within the country, and to the ICL properties, relatively straightforward and efficient. Rotem is 150km by road from Ashdod (Mediterranean port) via Route 258 and Highways 25 and 40.

The Zin mine is located at the end of the current rail network in the Negev desert. It is approximately 150km north of Eilat and 125km South East of Ashdod. It is linked via an internal private haul road to the Oron mine which is 10km from Zin.

Oron has very good road links to the main road network of Israel. It is 2½ hours by road (total distance of 210 km by road) from Oron to the Port of Eilat (northern tip of the Red Sea). Oron is a short distance from Route 206 which then links to Route 225 which passes through Yeruham. Continuing west the route joins Route 204 for a short distance before joining Highway 40 one of the main arterial links within Israel.

Oron is linked to Rotem via Route 206 which joins Highway 25 further north. Rotem is located a short distance east off Highway 25. Rotem is approximately 30km north east of Oron and 17km east of Dimona.

It should also be noted that all three Rotem production areas are connected by rail to the port of Ashdod on the Mediterranean and by road to Eilat on the Red Sea. Though exports are mainly handled via Ashdod – where ICL has its own dedicated facilities. Exports to the Far East, Australia and India can be handled via Eilat.

4.3.2 Climate

The Rotem, Oron and Zin properties are located in the Central Negev desert which has a typical arid climate and is dry and hot all year round. Over the course of a year, the temperature typically varies from 6°C to 38°C and is rarely below 0°C or above 40°C. The warm season lasts from May through to September with an average daily high temperature above 34°C. The cold season lasts from November through to February with an average daily high temperature below 21°C.

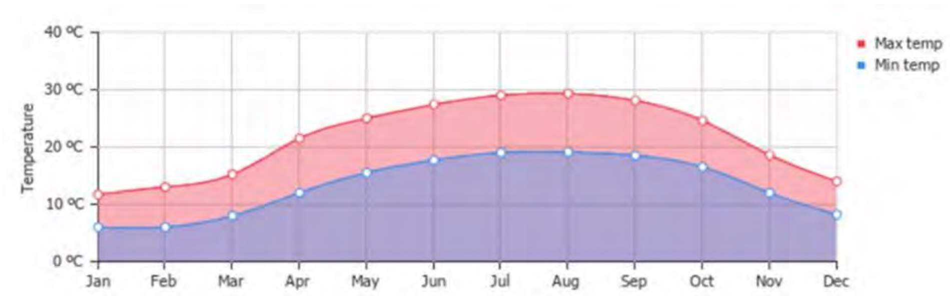


Figure 4.8: Average Monthly Temperature for Beersheba (South District Israel)[5]

The probability that precipitation will be observed varies throughout the year though is most likely in January, and least likely in June through August. The total annual rainfall equates to around 500mm.

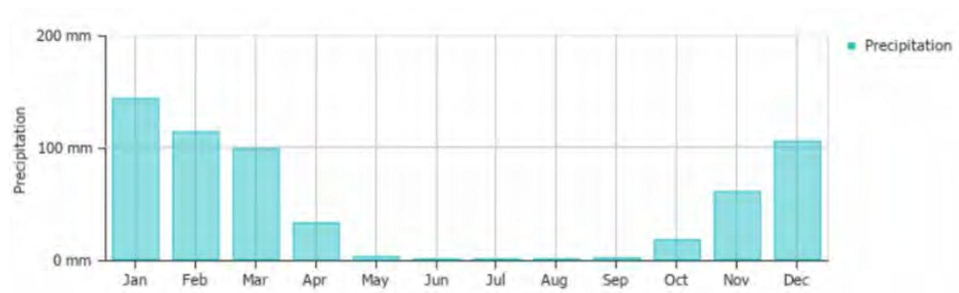


Figure 4.9: Average Monthly Precipitation for Beersheba (South District Israel)[6]

Over the course of the year typical wind speeds vary from 0 m/s to 6 m/s (light air to moderate breeze), rarely exceeding 19 m/s (gale). The highest average wind speed (light breeze) typically occurs around mid-June with the lowest average wind speed (light breeze) typically occurs around late November.

4.3.3 Local Resources and Infrastructure

Israel has a well-developed road network covering the whole country. The road network used by ICL for the transportation of their products is maintained by the Israeli National Roads Authority. Oron is accessed via a regional road Route 206 which is a single carriageway before linking with Highway 25. ICL utilise Routes 204, 206, 225 and 258 which are classified as Regional roads and are all of a high standard single carriageway construction. The main arterial links throughout the country are classified as Inter-City roads. These are denoted by double figure categorisation. Highways 25, 40 and 90 are the main ones used to link the ports of Ashdod and Eilat with the ICL sites.

[5] https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,beer-sheva-south-district-israel-il,Israel
[6] https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,beer-sheva-south-district-israel-il,Israel

The current rail line is of standard 1,435mm gauge and is not electrified, although there are plans to upgrade the section to Beersheba in the future. The existing railway between Dimona and Zin will need to be double tracked and electrified to facilitate the overall plans for the whole network to be upgraded and extended.

4.3.3.1 Power

The Rotem complex has five separate sources of electrical power:

- Two primary electrical feeds from the Israeli National Grid (IEC); and
- Three feeds from the refinery on site generation stations TG1, TG2, and Pama project power station.

The entire electricity requirements for Rotem is self-generated from the Sulphuric Acid plant production, whereby exothermic heat is used to heat water into steam to generate electricity.

At Oron, the electrical supply to the mine complex is obtained from the IEC, and comprises one overhead incoming power line operating on an 110kV, 3-phase, 50 Hz system, that is more than adequate capacity to deal with the expected maximum demand of 3.8 MW

The Zin electrical supply is obtained from the IEC. The mine complex intake transmission and distribution substation comprises of one 110 kV incoming switchgear and two, 110/3.3 kV step-down supply transformers, each of 18MVA capacity, that is more than adequate installed capacity to deal with the mine's expected maximum demand of 5.7MVA, with a normal operating load of 4MW.

4.3.3.2 Gas / Fuel Supply

Rotem's processing refinery is supplied with natural gas from INGL (Israeli National Gas Ltd) which originates from Israeli Mediterranean Sea offshore gas fields. The gas station is owned and operated by INGL and is securely locked and protected from unauthorised access. Total plant gas consumption amounts to 5,000 m^3/h.

ICL future plans are for the introduction of a natural gas supply at both Zin and Oron mine sites in order to fuel and power the rotary kiln dryers. This will involve the conversion of the HFO burners to natural gas in the white acid drying plants.

At Rotem, Maastrichtian age oil shale, containing 10-22% organic matter, was mined as an energy source for the nearby Rotem power station. The power station used around half a million tonnes of oil shale annually, which was mined and transported from the mining operation. In 2022 the plant switched to natural gas and the concession for oil shale ended in May 2021 and was not renewed.

4.3.3.3 *Water*

The state-owned National Water Company (Mekorot) is responsible for bulk water supply through the national water grid and supplies all water required for the operations.

4.3.3.4 *Mining Personnel*

Being long and well established operations the personnel at each site are well serviced with labour and infrastructure of the region.

4.3.3.5 *Tailings Storage Area*

The tailings management facilities (TMF) at Rotem, Zin and Oron are constructed as wet tailings dams. Reportedly the TMF have no base sealing as the slurry itself forms the seal, however their impact on groundwater is unknown. A groundwater monitoring and water management system allows the water to be recycled and minimises the possible impact on groundwater by seepage. The water, used to wash in the slurry, is either recycled into the plant or it evaporates.

4.3.3.6 *Processing Plant Sites*

Rotem, Oron and Zin all have processing facilities. Phosphate rock mined at the Rotem mine and beneficiated at the Mishor Rotem plant was used 'in-house' for the production of phosphoric acid and fertilisers. The Oron plant supplies washed and/or dry phosphate rock to the acid plant at Rotem, complementing the production from the Rotem mine and the Mishor Rotem beneficiation plant.

4.3.4 Physiography

The Rotem, Oron and Zin properties are located in the Central Negev rocky desert. The Negev region covers more than half of Israel, some 13,000km² of the country's land area. It forms an inverted triangle shape whose western side is contiguous with the desert of the Sinai Peninsula, and whose eastern border is the Arabah valley. The Negev has a number of interesting cultural and geological features including three enormous, craterlike makhteshim (box canyons), which are unique to the region.

The Negev is a melange of brown, rocky mountains interrupted by wadis (dry riverbeds that bloom briefly after rain) and deep craters. The topography is characterised by rocky desert, interrupted by wadis and rocky slopes. The central Negev is characterised by impervious soil, known as loess, allowing minimum penetration of water with greater soil erosion and water runoff. The high plateau area of Ramat HaNegev (The Negev Heights) stands between 370 and 520masl with extreme temperatures in summer and winter. The area gets very low levels of rain per year (≈100mm), with inferior and partially salty soils.

Vegetation in the Negev is sparse, but certain trees and plants thrive there, among them Acacia, Pistacia, Retama, Urginea maritima and Thymelaea. Hyphaene thebaica or doum palm can be found in the Southern Negev. Carnivora found in the Negev are the caracal, the striped hyena, the Arabian wolf, the golden jackal and the marbled polecat. The Arabah mountain gazelle survives with a few individuals in the Negev. The dorcas gazelle is more numerous with some 1,000–1,500 individuals in the Negev and Nubian ibex live in the Negev Highlands and in the Eilat Mountains. The Negev shrew is a species of mammal of the family Soricidae that is found only in Israel. A population of the critically endangered Kleinmann's tortoise (formerly known as the Negev tortoise) survives in the sands of the western and central Negev Desert. Animals that were reintroduced after their extinction in the wild or localised extinction respectively are the Arabian oryx and the Persian fallow deer.

4.4 DSW

4.4.1 Access

Israel has a well-established and high quality road network making travel and access within the country, and to the ICL properties, relatively straightforward and efficient. The DSW are located alongside Highway 90 which runs broadly north – south from the port of Eliat in the south, northwards alongside the Dead Sea and onwards through Tiberias on the Sea of Galilee in the north of the country.

Products from the DSW are transferred to either the port of Ashdod (Mediterranean) or port of Eilat (Red Sea). For Ashdod, an 18 km conveyor transfers potash product from the DSW to a terminal at Tsafa and then onwards by train or road truck. For transport to Eilat, road trucks are used for the entire journey.

4.4.2 Climate

At the DSW, the summer temperature rises to +35°C, and can sometimes reach +45°C, while the winter is still relatively warm. The temperature scarcely drops beneath 10°C and the average in January is around 13°C. The humidity of the air hardly exceeds 40% and it drops in the summer to an average of 23%.

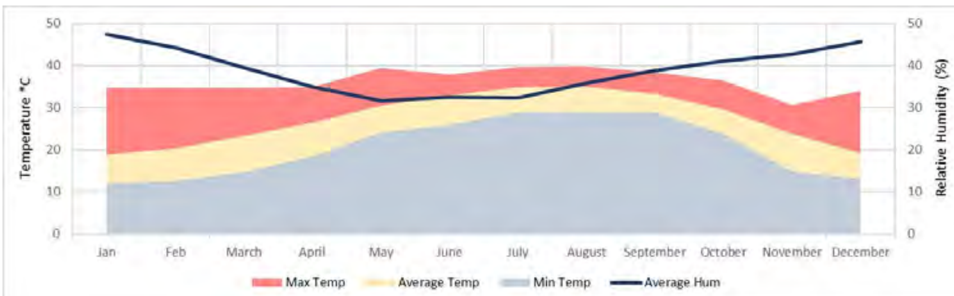


Figure 4.10: Average Monthly Temperature for the DSW (ICL)

The Dead Sea area is in a "rain-shadow", this is a unique phenomenon of desert areas evolving next to rainy areas. Clouds form over the Mediterranean Sea and are blown eastward, climbing over the Judean Mountain range (average 800masl) they get cooler and the barometric pressure drops resulting in rainfall over the mountains. The clouds continue onto the Jordanian mountain range, over 1,600masl, which receives a greater rainfall than the Judean Mountain range. As a result, the Dead Sea receives very little rainfall, considerably less than 100mm of rain per year, while its neighbouring mountains get over 800mm on average.

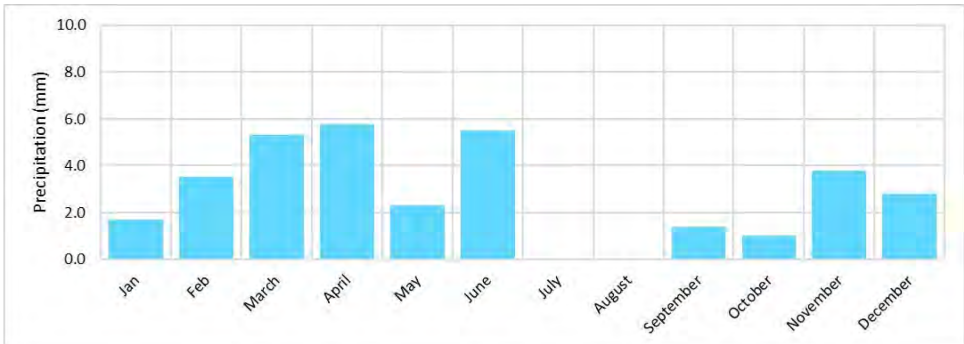


Figure 4.11: Average Monthly Precipitation for DSW (ICL: 2016 - 2021)

4.4.3 Local Resources and Infrastructure

Israel has a well-developed road network covering the whole country. The road network used by ICL for the transportation of their products is maintained by the Israeli National Roads Authority. The main arterial links throughout the country are classified as Inter-City roads. These are denoted by double figure categorisation. Highways 25, 40 and 90 are the main ones used to link the ports of Ashdod and Eilat with the ICL sites.

4.4.3.1 Power

The DSW has its own dedicated gas fired power stations, with 90MWh steam turbines and a 153 – 173MWh gas turbine. Gas is piped into the facility directly from the national grid.

4.4.3.2 Gas / Fuel Supply

The DSW uses natural gas piped in from the national grid in order to fuel the power station.

4.4.3.3 Operational Personnel

Being a mature and well established operations the personnel at each site are well serviced with labour and infrastructure of the region.

4.4.3.4 Tailings and Waste Disposal

There are no tailings facilities as such for the DSW. However there is a salt/brine dump deposited on the pond sides and allowed to desiccate. Future plans include returning the salt back to the northern Dead Sea basin. Return water is recycled back into the northern Dead Sea basin via the Arava stream.

4.4.3.5 Processing Plant Sites

The DSW Salts (DSS) uses salts from various production streams to produce magnesium chloride, potassium chloride, salt and bath plants. In addition, the DSW comprise a further two (2) plants producing chlorine and bromine, and a further three (3) plants producing chlorine (by product) and magnesium from carnallite.

4.4.4 Physiography

DSW is located immediately south of the Dead Sea (northern basin), within the Jordan rift valley, and comprises a series of ponds covering an area of 146.7km^2. Significantly the Dead Sea is at an elevation of 430.5m below sea level (the level of the DSW ponds are around 400m below sea level), is currently some 304m deep, and measures 50km north-south and 15km east-west (at its widest point) for a total area of 605km^2. The eastern boundary of the DSW demarks the border between Israel and Jordan and forms a raised levee.

4.5 YPH

4.5.1 Access

Haikou phosphate mine is located in the south and west of Dianchi lake and Kunming City. The site is fully serviced by sealed roads. The operation has a dedicated railway line and is within 6km of the Xishan Province’s main highway.

About 7km east of the mine is the Kunming-ZhongYicun-Yuxi railroad station at Baitacun, and to the north is the Reading Shop station. It is connected with Chengkun Railway and can reach Kunming and Guiyang to the east and Dadu to the west, and Baitalcun railway station to Haikou.

The Haikou phosphate mine has a dedicated railway line into the mine area. About 6km east of the mine is the provincial main highway Jin'an Expressway, which leads to Anning and Jinning, and about 10km east there is the provincial main highway Gaohai Expressway leading to Kunming.

The secondary roads in the mine area are intertwined into a network. The traffic access is extensive.

4.5.2 Climate

The Kunming region has a mild temperate climate with a short dry winter period.

The average temperature in the region is 15.4°C, the average temperature of the hottest month is 19.3°C, and the extreme maximum temperature is 31.6°C. The average rainfall is 1,010mm, the rainy season is from May to October each year, accounting for 86% of the annual rainfall. The average evaporation is 1,863mm, with the maximum evaporation at 2,126mm and the minimum evaporation at 484mm. The average wind speed is recorded at 2.5m/s, with the most frequent wind direction being south and south-south-west. The maximum wind speed is 19m/s. The average relative humidity is described at 72.3%, with the maximum relative humidity of 84% and the minimum relative humidity of 58%.

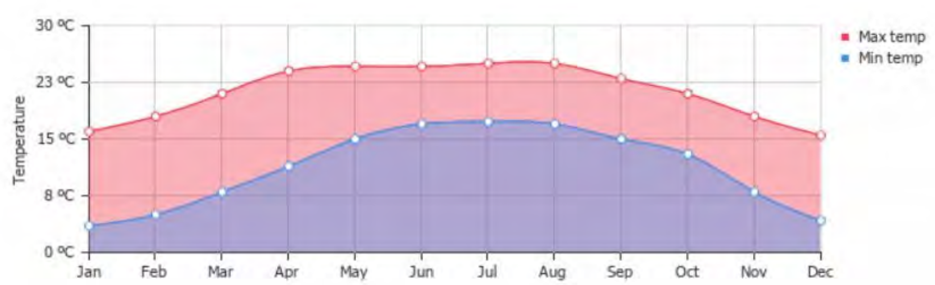


Figure 4.12: Average Monthly Temperature for Kunming (Yunnan), China[7]

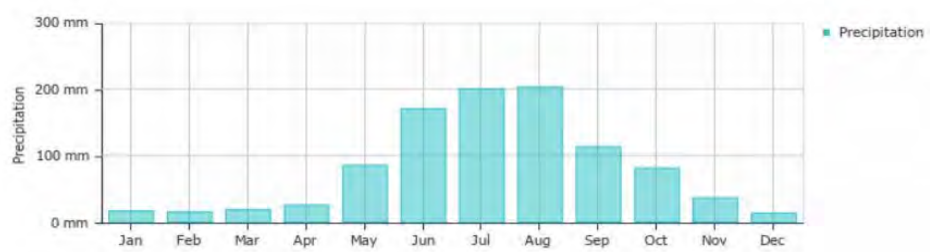


Figure 4.13: Average Monthly Precipitation for Kunming (Yunnan), China[8]

4.5.3 Local Resources and Infrastructure

As an established operation, the Haikou mine and process plant has all the required infrastructure and services required to continue the operation for the duration of the planned life of mine. The mine has been in operation since the late 1960's and the process plant has undergone a series of expansions over the years with the current infrastructure being adequate to cater for the plant and mine capacity.

[7] https://weather-and-climate.com/average-monthly-min-max-Temperature,kunming,China
[8] https://weather-and-climate.com/average-monthly-precipitation-Rainfall,kunming,China

4.5.3.1 Power

The mine and process plant are directly connected to the main electricity grid with the region being a major supplier of hydroelectric power. All power requirements are met for the operations at YPH by this source with power distributed from the main transfer station around the site as required.

4.5.3.2 Water

The site has access to sufficient water for processing and mining activities. The site is reasonably close to one of China's larger river systems and has adequate supplies of water available for the processing needs of the operation.

4.5.3.3 Mining Personnel

Being long and well established operations the personnel requirements at the YPH operation are well serviced with labour and well-developed infrastructure of the region.

4.5.3.4 Tailings Storage Area

The tailings at YPH is a conventional wet disposal into a lined facility that undergoes regular inspections both by specialist mine staff and external government bodies. The disused tailings dam area is progressively revegetated which reduces any potential impact from dust.

4.5.3.5 Phosphate Beneficiation Plants

The Haikou mine has two beneficiation plants for flotation and scrubbing. The flotation plant processes low-grade phosphate and blends low grade with medium grade from the mine or purchased phosphate, based on reverse-flotation where the carbonates (mainly dolomite) are being removed (floated) and sent to a tailings pond.

The scrubbing plant can use only medium-high grade phosphate, mined, or purchased. The process is based only on removal of the fine materials after crushing, washing, and separating.

The target concentrate quality is 28.5% P_2O_5 which the minimum required by the chemical processing plant located at the "3Circle site". The annually concentrate from the flotation plant is 1.5 -1.6Mtpa and the fine product is pumped to the acid and fertilizer plant via a 6.5km pipeline.

4.5.4 Physiography

The YPH Haikou mining area is situated within the Xishan district of China. The mine is located some 60km south-west of the city of Kunming close to the western side of the Dianchi lake.

The area around the Haikou mine in Kunming and Jinning is a basin-shaped terrain, and the terrain around the mine is of mid and low mountainous terrain with erosions cutting through, where the mountain peaks are undulating, and the valleys have developed. The mountain range extends from northwest to southeast in the shape of a long snake. The terrain is generally high in the southwest and low in the north and east; the north-east slope of the mountain ridge is gentle, and the south-west slope is steep. Photo 4.1 provides typical landscape at Haikou deposit site.

The highest elevation of the mine area is at the south-central part of the mine area, with an elevation of 2,482masl. The lowest elevation is in the northern part of the mine area, with an elevation of 2,070masl.

The Haikou open pit mining and soil drainage conditions are good.

Photo 4.1: Typical Landscape and Vegetation at Haikou - Block 4 (looking North) [Golder November 2021]

5 HISTORY

5.1 Boulby

5.1.1 Property History

The potash deposits in North Yorkshire were discovered in 1939 by the D'Arcy Exploration Company while drilling near Whitby in search of oil. Between 1948 and 1955 Imperial Chemical Industries ("ICI") and Fisons separately carried out extensive exploration for potash in the Whitby area. Although this work established the existence of substantial deposits of potash and provided the initial indications of the polyhalite mineralisation that is currently the focus of mining, the two companies decided not to proceed with a mining project because of the considerable depth of the main potash seam and other uncertain technical factors.

In 1962 ICI, Fisons and Rio Tinto jointly re-appraised the position taking account of technical advances in the fields of mining and refining since 1955. Again, it was decided not to proceed.

ICI restarted exploration in 1964 some 16km North West of Whitby near Staithes in an area where geological studies indicated the possibility of workable material at a shallower depth than previously encountered. In 1968 Cleveland Potash Ltd, a newly formed company owned jointly by Charter Consolidated Ltd (37.5%), ICI (50%) and Anglo-American Corporation (12.5%), received outline planning permission to construct what became Boulby mine and processing plant. ICI ultimately transferred their interest to Anglo American and De Beers who became the sole operators and following an asset swap Cleveland Potash Ltd was transferred to Minorco SA (a majority owned subsidiary of Anglo American). Anglo-American, through Minorco, remained as operators until ownership was transferred to ICL in 2002.

Today ICL Boulby (trading as Cleveland Potash Limited) is a wholly owned subsidiary of the ICL Group Ltd. ICL Boulby comprises of the underground mine, processing plant and surface infrastructure at the Boulby site. ICL Boulby also owns the railway line from the mine site to Carlin How (at which point the remaining line to Teesside is owned by Network Rail) and hold the lease for the 22-acre port facility at Teesport.

5.1.2 Exploration History

The first discovery of potash, and the associated polyhalite mineralisation within the Zechstein evaporites in the area around Boulby, was made by D'Arcy Exploration in 1939. The potash seam lies at a depth of 1,100 – 1,300m below the surface and beneath thick water bearing Triassic Strata (mainly the Bunter Sandstone) with the polyhalite seam being some 150 - 350m deeper than this. Initial exploration for polyhalite was carried out in 2 programmes in 1999 and 2008.

The first polyhalite exploration programme was conducted in 1999 when a total of 12 NQ holes were drilled for a total of 1,874m. This exploration programme was conducted with sub-vertical and vertical holes from the Z3 halite horizon some 150m above the polyhalite seam. The programme focussed on defining the limits of the polyhalite mineralisation and a broad scale of stratigraphic change of the polyhalite horizons across the extents of the existing mine workings of the day.

The second drilling programme for polyhalite was conducted in 2008 and consisted of a total of five sub-vertical and vertical holes for a total of 897m. This exploration was again conducted from approximately 150m above the polyhalite seam. The data and hole positioning were used to define the stratigraphy for the sinking of a pair of declines into the orebody for the collection of a test sample of approximately 20,000t.

5.1.3 Production History

ICL Boulby switched to sole production of polyhalite during 2018 with the cessation of potash mining. Production of polyhalite material from ICL Boulby is summarised in Figure 5.1 and based on figures from the mine hoist. Production of potash and halite since 1970 at ICL Boulby are not included as they are not material to the extraction of polyhalite.

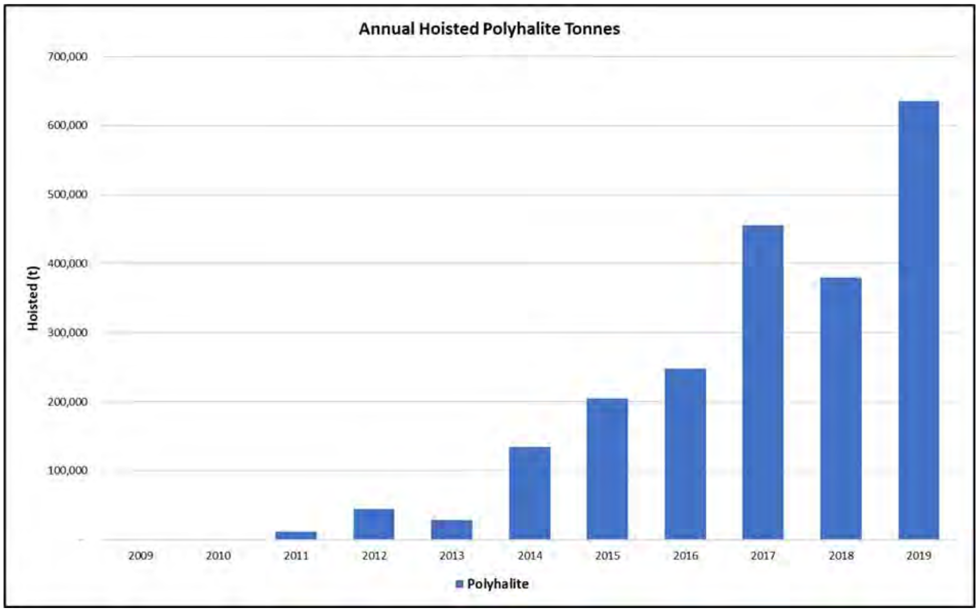


Figure 5.1: ICL Boulby Production of Polyhalite by Year from 2009

5.2 Cabanasses and Vilafruns

5.2.1 Property History

The existence of salt was known in the Súria area since the 12th century where there was a small medieval salt mine (known from 1185) at Pla de Reguant.

Commercial development started in 1920 by Minas de Potasa de Súria, a subsidiary of the Solvay company which still has operations there today. In 1922, production in Mina Súria began by exploiting carnallite, recovering potash by dissolution/crystallization method. In 1933, because of the difficulties and costs of obtaining potash from the carnallite, sylvinite began to be exploited and in 1936 carnallite extraction ceased. In 1940, following a short break in production due to Civil War, production resumed and from 1944 the company entered a period of profitability that was maintained until 1979. Operations were expanded with the creation of the Cabanasses mine in 1960 and an addition of a fourth shaft at Súria in 1967.

In 1929, the potash deposits at Sallent were developed by Potasas Ibericas who operated the Enrique mine but in 1975 the mine was closed due to water ingress and flooding. At Sallent, the Vilafruns mine was developed in 1948 by La Minera S.A. who sold the operation to Explosivos Rio Tinto in 1961.

The Súria and Vilafruns operations were merged into the state-owned company Súria K in 1986 with the group becoming Grupo Potasas in 1992. In 1997, privatisation of the operations commenced, and Grupo Potasas was purchased by ICL Iberia (part of ICL) in 1998. In 2001, 100% of the capital became ICL, and in 2008 ICL Iberia was fully instituted within the multinational group. The Cabanasses and Vilafruns mines have been in continued ownership by ICL since this time. In 2020, the Vilafruns mine ceased operations and was placed on care and maintenance. All production from Vilafruns was transferred to Cabanasses.

5.2.2 Exploration History

Exploration undertaken at Cabanasses and Vilafruns is detailed in Section 7.2.

5.2.3 Production History

A summary of the production history of the Súria and Sallent processing plants is shown in Table 5.1. Up to 2006, ore feed for the Súria processing plant was sourced from the Súria mine (Shaft 4) and from 2004 Cabanasses mine ramped up production (to feed the Súria plant). In 2006, Súria mine ceased operations and production from here transferred to Cabanasses. Ore feed for the Sallent processing plant was sourced from Vilafruns. The Sallent processing plant is currently non-operational following cessation of operations at Vilafruns in 2020.

Table 5.1: Summary of Plant Production History

Year	Súria Processing Plant			Sallent Processing Plant		
	Ore Milled (kt)	Head Grade KCl (%)	Product (kt)	Ore Milled (kt)	Head Grade KCl (%)	Product (kt)
1995	2,206.7	24.6	486.8	1,976.5	22.5	383.7
1996	2,179.7	24.4	455.8	2,647.8	21.9	468.6
1997	2,271.7	23.7	469.4	2,837.9	21.4	513.4
1998	1,937.6	22.5	373.4	2,519.5	20.2	431.1
1999	2,108.4	22.0	390.2	2,820.6	20.8	499.7
2000	2,189.0	22.8	428.5	2,571.7	20.0	441.5
2001	1,741.3	26.1	396.7	1,923.9	23.2	388.2
2002	1,526.6	28.0	382.6	1,420.1	23.5	295.2

Table 5.1: Summary of Plant Production History

2003	1,827.5	26.7	437.7	1,988.2	22.9	404.8
2004	2,076.9	25.3	473.0	2,209.3	22.9	449.0
2005	1,905.0	25.3	438.6	1,896.7	22.9	385.7
2006	1,493.2	25.9	352.1	1,901.9	22.3	376.9
2007	1,489.7	27.2	377.6	2,123.8	21.9	413.2
2008	1,469.7	27.2	373.1	1,872.0	22.2	367.6
2009	978.5	28.3	258.8	1,630.9	21.7	317.3
2010	697.0	27.9	182.2	1,203.9	21.4	228.9
2011	1,669.3	26.4	408.4	1,945.1	22.4	388.0
2012	1,949.9	27.4	492.8	2,331.7	22.7	461.3
2013	1,922.1	27.1	480.3	2,308.0	23.5	481.6
2014	1,953.5	25.4	456.1	2,479.8	23.4	516.0
2015	1,925.7	26.1	461.7	2,525.9	22.9	515.0
2016	2,071.8	26.0	489.5	2,371.4	23.1	487.6
2017	2,329.4	23.7	492.4	1,816.8	23.2	371.6
2018	2,521.3	24.8	561.9	1,811.8	22.9	362.8
2019	2,666.6	23.8	569.2	1,182.8	22.5	234.0
2020	2,358.3	24.2	503.0	277.2	22.4	54.0
2021	2,533.5	26.4	598.7	-	-	-

Notes:
1. Feed to the Súria processing plant included ore from both Súria mine and Cabanasses mine up to 2006 (Production from Súria mine ceased in 2006. From 2006 onwards, all production from Súria mine was transferred to Cabanasses);
2. The 2018, 2019 and 2020 figures include some ore transported from Vilafruns to Súria plant for processing; and
3. From mid-2020 production from Vilafruns mine ceased and the Sallent processing plant is currently not operating).

5.3 Rotem

In 1952 the Negev Phosphate Corp. was formed at Oron with production of phosphoric rock commencing in 1956. In 1975, Rotem Fertilizers Corp. was established in Mishor Rotem. The Zin mine and plant followed in 1977. Production of phosphoric acid commenced in 1981, the production of fertilizers was initiated in 1983. In 1982, Amsterdam Fertilizers (Amfert) was acquired that created a larger group with fertilizers production capacity in Israel, the Netherlands, Germany, and Turkey. Amfert was then merged with Rotem Fertilizers in 1989 which in turn was merged with Negev Phosphates in 1991.

In 2001, the management of Rotem Amfert Negev and Dead Sea Works (DSW) created the ICL Fertilizer division.

5.4 DSW

In the early part of the 20th century, the Dead Sea began to attract interest from chemists who deduced the sea was a natural deposit of potash (potassium chloride) and bromine. A concession was granted by the British Mandatory government to the newly formed Palestine Potash Company in 1929. Its founder, Siberian Jewish engineer and pioneer of Lake Baikal exploitation, Moses Novomeysky, had worked for the charter for over ten years having first visited the area in 1911. The first plant, on the north shore of the Dead Sea at Kalya, commenced production in 1931 and produced potash by solar evaporation of the brine. The company quickly grew into the largest industrial site in the Middle East, and in 1934 built a second plant on the southwest shore, in the Mount Sodom area, south of the 'Lashon' region of the Dead Sea. Palestine Potash Company supplied half of Britain's potash during World War II. The Kalya plant was destroyed by the Jordanians in the 1948 Arab–Israeli War.

The DSW was founded in 1952 as a state-owned enterprise based on the remnants of the Palestine Potash Company and in 1995 the company ICL Group Ltd. (ICL) and other affiliates were privatised.

5.5 YPH

5.5.1 Exploration and Ownership History

Prior to ICL's 50% acquisition of the Project in 2015, there were several previous exploration campaigns targeting Phosphate at the Project site. The first was during the 1950s followed up by significant campaigns in 1966, 1973 to 1974 and in the 1980s. Table 5.2 provides a summary of the exploration and development on the Haikou deposit.

5.5.2 Development and Production History

Haikou mine was established in 1966 with an annual capacity of 0.4Mt, producing a phosphate rock concentrate of 0.1Mt. The actual concentrate capacity reached 0.2Mtpa in 1972. Yunnan Provincial Planned Economy Commission mandated an expanded capacity to 1.5Mtpa and submitted the planned task report to Ministry of Fuel Chemical Industry, which was approved in May 1974. However due to state adjusted economics of the Project, the expansion to 1.5Mtpa was postponed.

In 1978 Haikou mine submitted a design and additional production scheme of 0.3Mtpa (expanding in the north area of Block 2 mining area). Thereafter, the State decided to restore the construction of Haikou mine and approved the building of a mining project producing 0.6Mtpa. The Mine Design & Research Institute of the Chemical Ministry submitted the preliminary design to the ministry in August 1987, and the Chemical Ministry approved the design in November 1987.

YPH built the current 2.0Mtpa beneficiation project of Haikou mine in 2005 and it was commissioned in 2007. The mine processing capacity is currently ≈3.0Mtpa of which the scrubbing capacity is 1.0Mtpa, and the flotation capacity is 2.0Mtpa.

In 2015 ICL purchased 50% of Haikou. Following some technological improvements, the mining capacity increased to 2.4Mtpa, and it reached to 2.5Mtpa in 2017. The scrubbing plant was shut down in 2016 and it was re-opened in 2021.

Table 5.2: Exploration and Development History		
Year	**Group Engaged**	**Activity**
1939	Kunming Copper Refinery	While searching for refractory copper, intersected phosphate rock interlayers in Zhongyi .
1955	528 geological team of Southwest Geological Bureau	Carried out exploration and evaluation of Kunyang Phosphate rocks. Carried out 1:50000 geological mapping and mineral survey and evaluation on the peripheral areas from Jinning (Kunyang) in the south, Fumin in the north, Yimen and Bajie in the West and Jincheng in the East.
1966	Team 9 of Yunnan Geological Bureau	Made a preliminary exploration and evaluation of Haikou phosphate mine on the north wing of xiangtiaochong anticline with 1:5000 geological mapping.
1973	13th geological team of Yunnan Geological Bureau	Completed the supplementary exploration work in mining areas I and II of Haikou Phosphate Mine and submitted the supplementary detailed exploration report phase I (mining areas I and II) of taoshuqing phosphate rock deposit in Haikou, Kunming City, Yunnan Province. The main physical workload completed includes 1:2000 geological survey over 4km^2, drilling 3166.87 m, shallow wells 424.90 m and trenching 10999.89 m^3.
1974	13th geological team of Yunnan Geological Bureau	Completed the supplementary exploration work in the third mining area of Haikou. Including 1:2000 geological survey over 4 km^2, drilling 1421.08 m, shallow well 99m and trenching 1,135 m^3.
1980	Yunnan Chemical geological team	Completed the exploration of Haikou Phosphate Mine № 4 mining area. Including 1:2000 geological survey of 1.8 km^2, drilling of 2160.87 m, shallow well 82.64 m and trenching of 7,491 m^3.
1991	Provincial Bureau of Geology and Mineral Resources	Approved the issuance of Haikou phosphate mine mining licence with Dian Cai Zheng Hua Zi [1991] № 011.
2008	Yunnan Geological Exploration Institute of Sinochem General Administration of Geology and mines	Completed the verification of resource reserves in four mining areas I, II, III and IV of Haikou phosphate mine. Including 1:2000 geological survey and 1:1000 exploration line revision survey.
2009	Ministry of land and resources of the people's Republic of China	Approved the Mineral Resource reserve review and Filing Certificate of the verification report of Haikou phosphate rock resource reserves in Kunming City, Yunnan Province in the form of gtzbz (2009) № 69.
2010	Yunnan Geological Exploration Institute of Sinochem General Administration of Geology and mines	Completed the field geological work of resource reserves verification within the mining area of Haikou phosphate mine. Including 6.38 km^2 geological survey and 17.7 km^2 1:1000 exploration line revision survey and establishment of 18 GPS E-class network. Report was submitted in Feb 2011.
2011	Yunnan phosphating group	Applied to the Provincial Department of land and resources for expanding the mining area and production scale. Approval was granted for expansion from 9.3118 km^2 to 9.6022 km^2, The minimum mining elevation is reduced from 2,200m to 2,140m, and the production scale is expanded from 600,000 tpa to 2.0Mtpa.

Table 5.2: Exploration and Development History		
2012	Yunnan Geological Exploration Institute of Sinochem Geology and Mines Bureau	Completed Verification Report on Phosphate Resources Reserves in Haikou and submitted to The Beijing China Mining Federation Consulting Centre for review and mining rights approval. The report and reported resources and reserves were approved accordingly.
2013	Yunnan Geological Survey Institute of Sinochem Geology and Mine Administration	was commissioned by Yunnan Phosphate Group Haikou Phosphate Co., Ltd. to carry out the 2013 dynamic measurement of the mine reserves of Haikou Phosphate Mine. A 2013 annual report on Dynamic Measurement of Mine Reserves was completed. This involved 2010 to 2013 mining periods.
2014	Yunnan Phosphate Group Engineering Construction Co., Ltd.	Carried out the 2014 annual report on Dynamic Measurement of Mine Reserves.
2015	Yunnan Phosphate Group Engineering Construction Co., Ltd	Carried out the 2015 annual report on Dynamic Measurement of Mine Reserves.
2016	Yunnan Phosphate Group Engineering Construction Co., Ltd	Carried out the 2016 annual report on Dynamic Measurement of Mine Reserves.
2017	Yunnan Phosphate Group Engineering Construction Co., Ltd	Carried out the 2016 annual report on Dynamic Measurement of Mine Reserves.
2020	Yunnan Phosphate Group Engineering Construction Co., Ltd	Carried out the 2018-2020 annual report on Dynamic Measurement of Mine Reserves.

6 GEOLOGICAL SETTING AND MINERALIZATION

6.1 Boulby

6.1.1 Geological Setting

6.1.1.1 Regional Geology

The polyhalite deposit mined at Boulby is located within the eastern extents of the Cleveland Sedimentary Basin which forms a sub-basin along the south western margin of the North Sea Basin as shown in Figure 6.1.

The Stratigraphy of the Cleveland Sedimentary Basin is like other areas of the North Sea Basin and can be separated into four major packages:

- Pre-Permian Basement, this sequence is not exposed or dealt with directly within the mine workings or exploration. The upper contact of the Carboniferous is a major and well-studied regional unconformity that can be seen on seismic data across the mine site and is associated with Variscan uplift.
- The Permian age Zechstein Group overlies this basement material and consist of 4 major cyclic carbonate-evaporite sequences. The Zechstein deposits outcrop for some 230km northward to the River Tyne from an inferred shoreline near Nottingham. The regional dip of the Zechstein strata is gently to the East. Thicknesses of 580m onshore and within the lease boundaries, thickening up to 1,200m offshore eastwards beneath the North Sea has been identified in various boreholes. This cyclical package consists predominantly of evaporitic chlorides, carbonates and sulphate rocks (Halite, anhydrite, dolomite, potash and most pertinent to this report polyhalite) subordinate occurrences of siltstones, mudstones also occur within this package.
- Above the Zechstein lies a significant package of Mesozoic Sediments. These are primarily composed of sandstones, mudstones, siltstone, shales and lesser dolomitic intervals. Units to note are the Sherwood Sandstone's which constitute a major regional scale aquifer with a thickness of approximately 270m and poses a hazard to disturbance by subsidence and fracturing from mine workings below.
- The surface stratigraphy is dominated by a thin capping of Cenozoic glacial till. This material is present across the mine site and its thickness varies dramatically with the existing surface topography of the region.

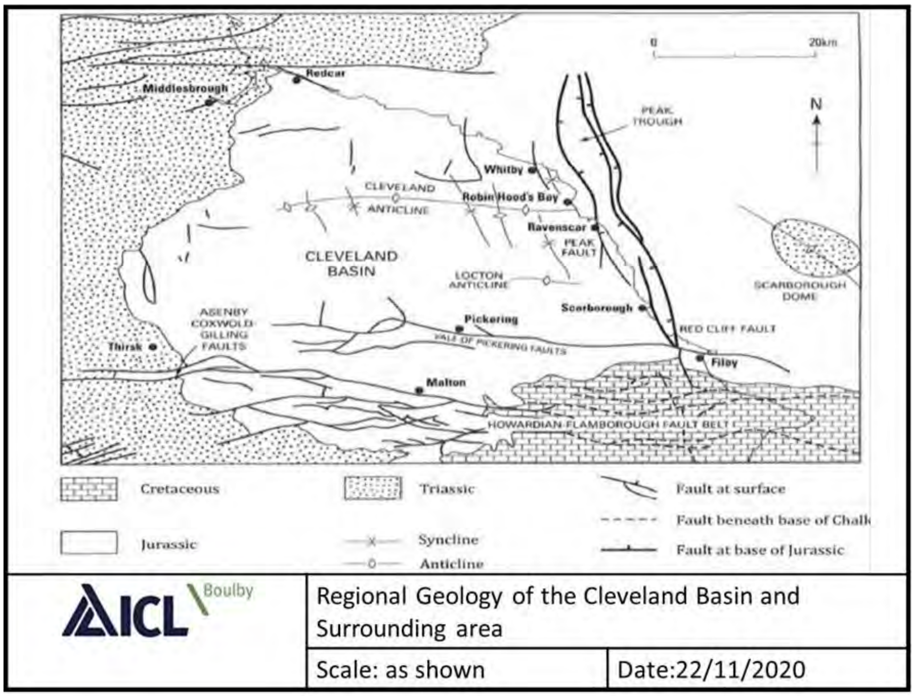


Figure 6.1: Regional Geology of the Cleveland Basin and Surrounding Area (after Powell, 2010)

6.1.1.2 Regional Structure

The Boulby Mine is situated in a location that has undergone several distinct structural deformation events since Precambrian times. Pertinent aspects of the occurrence and impacts of these events are outlined below with reference to the region and stratigraphy of interest.

- Pre-Zechstein: Prior to the late Carboniferous (circa 650 Ma) a significant number of major deformation events affected the region and included the Cadomain, Acadian, Caledonian and Variscan orogenies. The impact of these events was the development of a number of major structural trends covering a range of orientations. These trends do not directly impact the Zechstein strata and the polyhalite however the resultant structures and faulting form weak zones that show signs of reactivation during Mesozoic and Tertiary and act to partially control and localise deformation during these periods.
- Syn-Zechstein: The Zechstein sequence within the AOI is typically described as falling within the Southern North Sea area and within this context there is no published data suggesting active faulting during the deposition of the Zechstein in this region (Simon A. Stewart, 1995). Elsewhere in in the Central Graben (further to the North East) for example there is evidence of significant fault related extension during the Permian period (Hodgson, et al., 1992).
- Post-Zechstein: The Mesozoic and Tertiary eras within the AOI represent a structurally significant range for the stratigraphy within the Boulby Mine. Significant E-W extension occurred from the late Permian through to the early Cretaceous resulting in the formation of the North Sea Basin. Along the southern margins of the larger central North Sea grabens (Viking, Central) a number of sub-basins were formed and separated by local topographic highs. Several of these are orientated obliquely to the regional extension direction which is inferred to be the result of local trans-tensional deformation resulting from the re-activation of the pre-Permian structures. During the late Cretaceous and early-middle Tertiary, the tectonic regime in the North Sea became contractional and resulted in the reactivation of some Mesozioc normal faults as reverse faults. The Cleveland Dyke was also emplaced in the region at some stage during the Tertiary.

6.1.1.3 Local Geology

The rocks of the Zechstein evaporites are the host package for both the Potash and Polyhalite horizons that were formerly and currently mined by ICL Boulby. The various lithologies were deposited within the extents of the Zechstein basin, a large inland depression that existed within the supercontinent of Pangea and covered large parts of what is now northern Europe and the East coast of the UK.

It is generally accepted that most of the Zechstein deposits were formed as a result of the cyclic evaporation and recharge of significant shallow bodies of water within the basin centre areas and saline groundwaters in extensive and diachronous sabkhas in marginal areas. The supersaturated brines that formed and migrated as a result of these cycles and the complex topography present in the area at that time have led to the formation of significant and often repeated sequences that include dolomite, anhydrite polyhalite, halite, carnallite and potash horizons. The Zechstein deposits are characterised by at least four major cycles of evaporite rocks labelled in relevant literature as:

- Z1 (the Don Group)
- Z2 (the Aislaby Group)
- Z3 (the Teesside Group): and
- Z4 (the Staintondale Group).

The stratigraphy of each evaporitic cycle follows a well understood sequence. The primary unit of formation consisting of Carbonate materials (e.g. the dolomites of the Kirkham Abbey Formation) followed by a cycle of sulphate deposition (typically gypsum and selenite). Finally, the top of each cycle is characterised by the appearance and formation of potassium and magnesium salts minerals (e.g. Sylvinite or Carnallite). On a local scale there are both lateral variations and smaller scale sub cycles which can be identified. A general view of the overall stratigraphy at the location of the Boulby mine shafts is shown in Figure 6.2 and a schematic interpretation of the variation in stratigraphy over the mine and lease area is shown in Figure 6.3.

Most of the primary deposits of the Zechstein basin have been strongly reworked both by tectonic forces and chemical alterations during burial and lithification as well as due to complex brine interactions in the subsurface. These have led to the formation of extensive secondary and tertiary assemblages and structures with the rocks of the Z1 and Z2 including the target polyhalite horizons. Significant lateral variation is present within the Z1 and Z2 groups and is thought to result from distinct paleotopographic changes present across the AOI. Evidence also exists for localised epithermal style alteration effects on the mineral assemblage in sections of the basin.

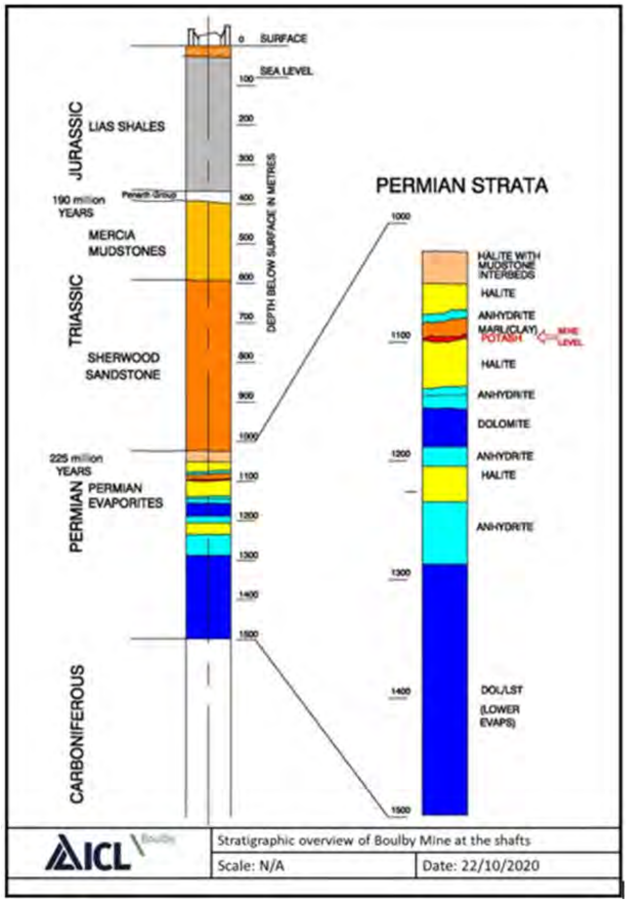


Figure 6.2: Stratigraphic Overview of the Boulby Mine at the Shafts

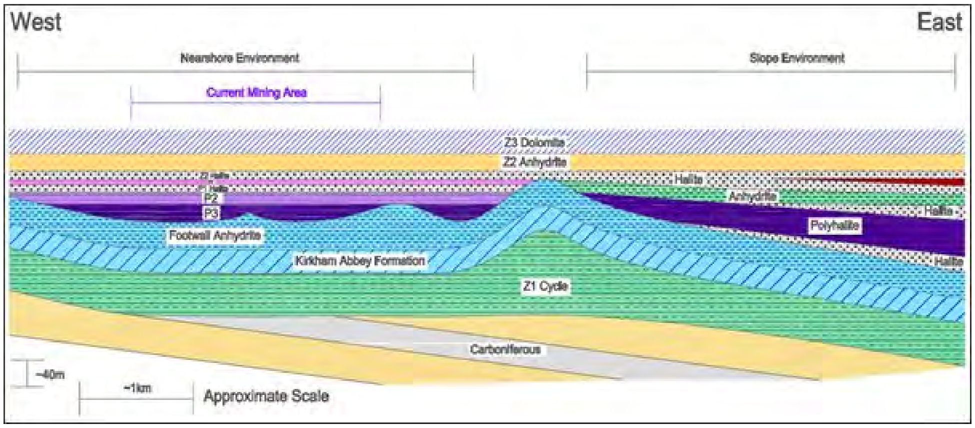


Figure 6.3: Schematic Cross Section Showing Interpretation of Stratigraphic Changes Across the Mine and Lease Area

The polyhalite mineralisation at ICL Boulby is hosted within the Fordon Evaporites within the Z2 Aislaby Group. Across the lease area the thickness of the Fordon and the contained polyhalite beds increases dramatically in an easterly direction from an average of 15m of polyhalite in the extreme west to >40m in the East. A typical stratigraphic sequence through the Fordon evaporites is presented in Figure 6.4, but there is significant local and deposit scale variation due to the location of Boulby within the transitional zone between thinned shelf style sequence and the thickened basinal facies to the East.

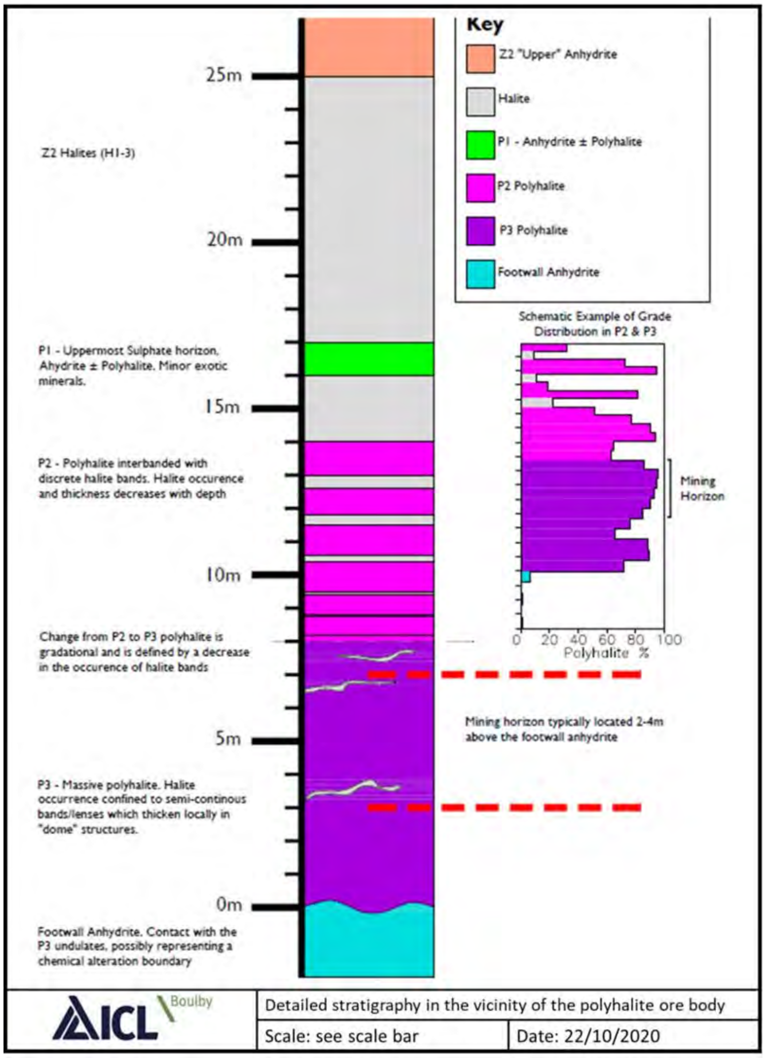


Figure 6.4: Mine Stratigraphy in the Zone 1 Polyhalite Mining Area

6.1.1.4 Local Structure

Within the Boulby AOI there are several faults and local scale "horst" style blocks (interpreted to be primarily associated with paleotopographic features). Most of the faults identified are inferred to be of Mesozoic age and follow the trend of the regional trans-tensional environment displaying normal displacements. There are also a number of faults formed during or reactivated as Cretaceous-Tertiary reverse faults during contractional movements of this period. A significant strike slip fault striking to the NNE is also present and marks the eastern boundary of the first zone (Zone 1) of polyhalite to be explored and developed at Boulby.

The current mineral resource and reserves as well as current development within the polyhalite is contained exclusively within Zone 1 with a detailed geology of Zone 1 described in the following sections. Zone 2 is at the time of writing still at under exploration and not material to the resources and reserves declared here which are for Zone 1 only.

The polyhalite is concentrated in a number of structurally isolated basin like areas defined for the sake of reporting, exploration and development from herein as “Zone 1” and “Zone 2”. These “Zones” are bounded by two distinct major faulting trends as shown in Figure 6.5.

Large scale basin bounding extensional faults exist to the North of the deposit and extend on an East-West trend across both the potash and polyhalite deposits with the Zechstein evaporite horizons downthrown to the South and thinned in the immediate hanging walls. The second main trend that is observed consists of a suite of NNW-SSE trending extensional faults. These faults are associated with, and mirror on a small scale the graben style extensional faulting of the Mesozoic era seen at the Western extents of the lease area in the Peak Trough system.

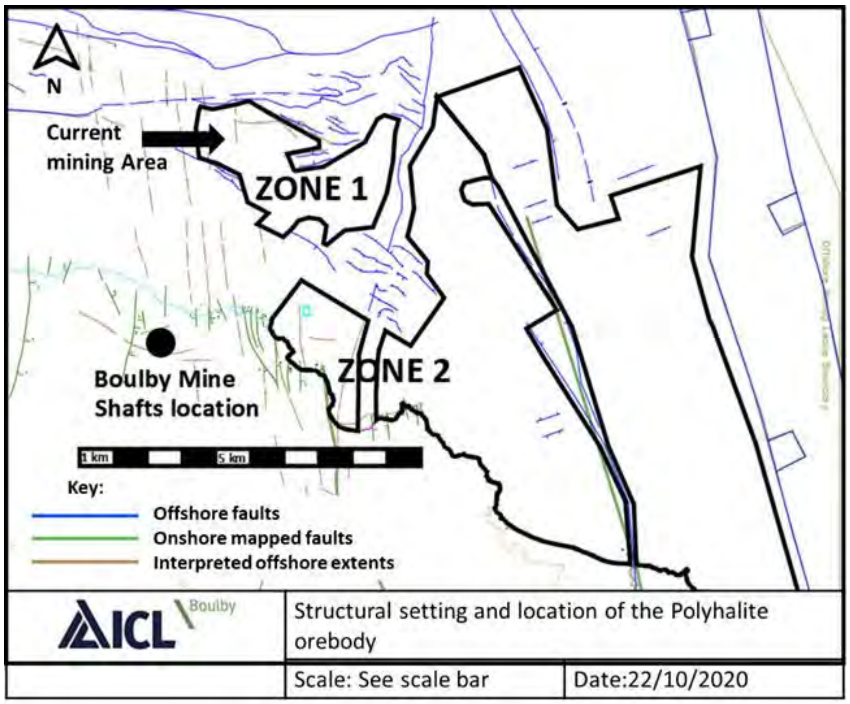


Figure 6.5: Structural Setting and Location of the Polyhalite

Faulting in and around the mine has been mapped and interpreted using data from a range of sources including; underground and surface potash exploration drilling, British Geological Survey maps, purchased 2D Seismic lines and seismic reflection data shot in 2011 by ICL Boulby. Using this approach, the faults in the AOI have been divided into 3 groups; high displacement faults (throw ≥60m), low displacement faults (throw ≤60m) and strike slip faults.

High displacement faults show significantly greater lateral extent and as such can be delineated with higher confidence as they cross multiple seismic lines and volumes as well as being intersected in numerous exploration drill holes. They are also typically associated with significant halokinesis (salt flow) resulting in significant changes to the thickness and some overfolding of the stratigraphic sequence within the Fordon Evaporites. These larger fault structures also typically have a large enough vertical extent that they commonly penetrate the overlying Triassic-Jurassic Bunter and Sherwood sediments. Such faults pose significant risk of inrush to mine development and exploration drilling where not subsequently healed by halokinesis and are therefore used to form a "bounding box" in many areas of Zone 1 ensuring that polyhalite material in these areas do not form part of the mineral resource. The exploration of Zone 2 has also been constrained by these high displacement faults, in particular the Whitby Fault and Peak Faults which shape the eastern portions of the exploration area.

Low displacement faults have also been observed and delineated within the mine workings and exploration drilling and seismic datasets. In contrast to the high displacement faults these structures typically do not show significant salt thickening and most appear to terminate at varying levels within the Zechstein deposits. Drilling and seismic data from Zone 1 have shown these low displacement faults can produce passive monoclines within the polyhalite and adjacent strata rather than brittle offsets, in these scenarios polyhalite appears to drape over offsets in the top of the Kirkham Abbey Fm. Associated small scale fracturing and the presence of small hydrocarbon shows in the vicinity of these structures points towards an unsealed but limited connectivity between the polyhalite horizons and the Kirkham Abbey FM below.

Whilst some low displacement faults have been delineated within and surrounding Zone 1 it is not clear that all of these structures have been identified to this point due to commonly low lateral continuity and limited drilling information to the East of Zone 1.

Strike slip faulting appears to be the least common or perhaps the hardest to identify within the various datasets available for the AOI. The major example of this type can be found marking the far eastern limits of Zone 1 and trending to the NNW. Data from existing developments in other horizons of the Zechstein and some exploration to polyhalite in the vicinity of this structure show that polyhalite is present on both sides of this structure but also highlight the presence of numerous and sometimes significant hydrocarbon shows, collapse breccias and halite "pipe" structures cross-cutting other stratigraphy and present at various levels within the Zechstein strata. These features suggest that this particular fault and possibly others of this type or trend have significant potential to connect the various stratigraphy including the polyhalite with major fluid reservoirs such as the Sherwood Sandstones and Brotherton FM and Kirkham Abbey FM Dolomites.

Faults with throws of <15m are below the resolution of the seismic data and can only be identified with direct contact in exploration drilling or mining developments in the polyhalite and therefore the number of these structures within Zone 1 is not known. Given the complex history of deformation across the AOI it is likely that there are significantly higher numbers of these faults than there are with throws between 15 and 60m. These faults will most likely form clustered distributions around high displacement faults and to a lesser degree low displacement structures.

The effects of low displacement faulting on the polyhalite quality, seam thickness and continuity are not yet fully understood. The zone bounding faults are major high displacement features, the fault system to the north of Zone 1, known as the North 1 Fault, has resulted in significant plastic flow of the potash and halite units, displacing and thinning the potash seam immediately above the main faults whilst producing a series of overfolds and thickening of the potash seam on the downthrown side. In seam exploration drilling of polyhalite approx. some 150m below the potash indicate comparable trends in the footwall polyhalite sequence approaching this fault.

The full effects of the faulting on polyhalite remain poorly understood given the lack of exploration drilling into and beyond these bounding systems. Currently drilling in these areas is not undertaken due to the potential risk of gas and oil inrush should the faulting connect the polyhalite mining horizon to the Kirkham Abbey Formation, a dolomite which is a known hydrocarbon reservoir both locally and regionally within the North Sea Basin.

It is noted that while the faulting has a negative impact on the local (≈km scale) continuity of the polyhalite seam it is not significantly affected on a regional scale (≈10s km scale) as shown by the presence of significant polyhalite seams in both near mine exploration drill holes in Zone 2 and in adjacent properties as well as numerous onshore and offshore historic hydrocarbon drill holes.

The polyhalite within Zone 1 is defined for the purposes of this report as only the material contained within the S2/P2 and S3/P3 Polyhalite Horizons.

6.1.2 Mineralisation

6.1.2.1 Summary

Zone 1 is currently the sole focus of both mining and exploration within Boulby for polyhalite. The polyhalite mineralisation in Zone 1 is hosted within the Z2 cycle stratigraphy and consists of a zone of stratified massive and interbanded sulphate mineralisation (primarily polyhalite) hosted between an upper and lower bounding unit of Anhydrite, the full sequence of stratigraphy is shown in Figure 6.6. The sequence has been intercepted in several boreholes, both vertical and sub-horizontal predominantly in the western extents of the Zone 1 area.

Three separate polyhalite horizons are identified in the boreholes from Zone 1 these have been termed P1, P2 and P3 respectively.

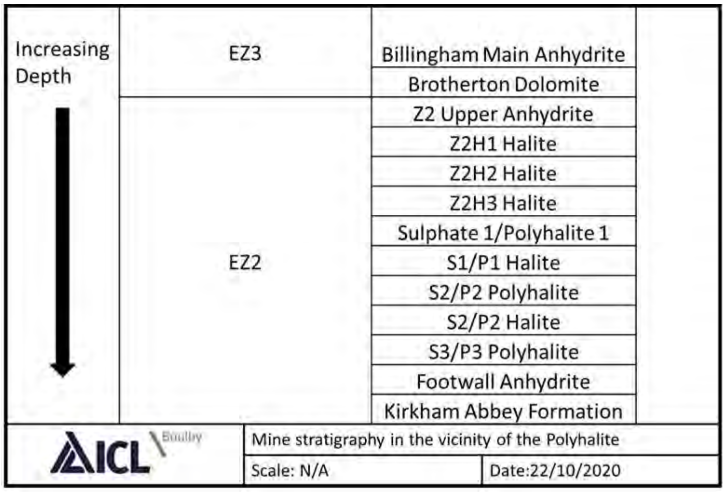


Figure 6.6: Mine Stratigraphy in the Vicinity of the Polyhalite

6.1.2.2 P1 Polyhalite

The P1 polyhalite horizon represents the first (chronostratigraphically the last) horizon of polyhalite representing a final period of polyhalite sulphate deposition, it is also observed to be a somewhat variable horizon with complex mineralogy and occasionally high numbers of trace minerals present. The predominant minerals present in this horizon are polyhalite (30 - 80%), anhydrite (6 - 40%), and halite (20 - 45%) data from Cleveland Potash Limited (CPL) and British Geological Survey (BGS) assays by wet chemistry and XRD (Hards, V. L., 1999). Noticeable undissolved residue was generated during wet chemistry tests and this was further assayed by the British Geological Survey ("BGS") using XRD (Wagner. D., 2009) and shown to be composed of Magnesite, $MgCO3$, Szaibelyite, $MgBO2(OH)$ and minor amounts of talc and some form of mica as well as traces of gypsum and halite. The P1 and is typically developed in the drill core samples as a package of thinly bedded (1 - 5cm) finely crystalline anhydrite/polyhalite dominated massive material (<1mm) displaying elements of saccharoidal and vitreous texture respectively. Well-developed and pervasive halite pseudomorphs after gypsum are present throughout the lower portions of the P1 horizon and typically aligned perpendicular to the bedding with distinct upward growth textures visible (D.Hovorka, 1992).

The massive pseudomorphs of the lower portions transition upwards into much thinner and seemingly more continuous beds of 2-5cm thickness with smaller but still well-developed pseudomorphs growing from each darker silty horizon (Figure 6.7).

The P1 horizon is present across the explored extents of Zone 1 with no evidence of significant changes to thickness. The P1 horizon is not considered within the reserve or resource estimation as its thickness is typically no more than 3 - 5m and the ratio between polyhalite, anhydrite and halite can vary dramatically.

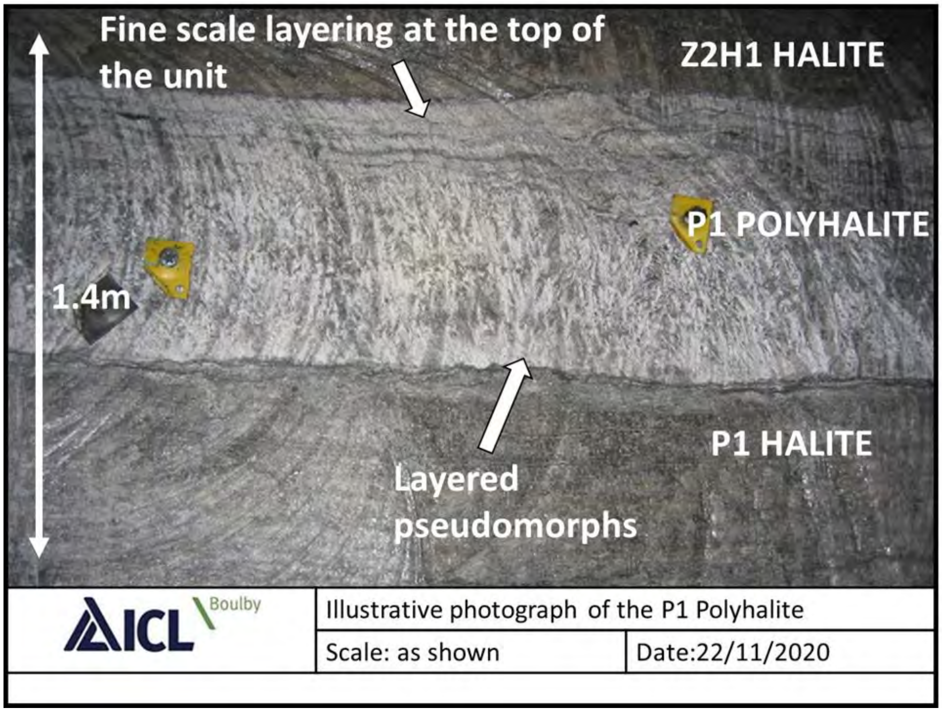


Figure 6.7: Illustrative Photograph of the features of the P1 Polyhalite in section in a Mining Roadway

6.1.2.3 P1 Halite

Below the P1 horizon, a further halite unit is present and described herein as the "P1/Halite". This unit is distinct in its relatively featureless appearance; the halite is a pale even grey colour with little or no included silty/clay material visible. The P1 halite is comparable to the EZ2 halite in that there is currently no detailed analysis of trace element data for this horizon. Geological logging of this horizon has shown major mineral chemistry is near constant with halite as the primary mineral (>85%) with supporting minor amounts of anhydrite, sylvite, kieserite, carnallite and silt possible. No trace element analysis of the silts or the remainder of this horizon are currently available.

6.1.2.4 P2 Polyhalite

The "P2" polyhalite is a complex mixture of interbedded halite and polyhalite horizons often with thin silty boundary layers and with alteration textures and mineralogy varying from location to location.

The main constituents identified in the sampling are halite and polyhalite with the levels of halite reducing with depth and polyhalite increasing to become the dominant mineral. Accessory minerals include anhydrite (in rare situations this may dominate the assemblage), magnesite, carnallite, sylvite, glauberite, kieserite, ettringite. The P2 is strongly bedded and banded throughout with both sharp and diffuse bedding contacts frequently present at all depths. Discontinuous halite lenses are also a common feature within the P2 horizon making correlation of specific bands and position within the unit difficult. The texture is a combination of equigranular cubic halite, void fill halite and the pale translucent and strongly vitreous texture of high purity polyhalite. A well-developed conchoidal fracture is a further feature observed throughout the polyhalite beds within the P2. The beds of polyhalite range from massive and uniform to broken and intermixed bands where interstitial halite and void filling halite serve to separate moderate sized (2 - 20cm) angular blocks/fragments of polyhalite. Frequent minor (0 - 10%) occurrences of magnesite and anhydrite are often present and give a cloudy appearance to the otherwise translucent polyhalite beds. Texturally the appearance of minor constituents often highlights an underlying pseudomorphic texture (as seen more clearly in the P1) suggesting that alteration to polyhalite within the P2 horizons is responsible for a strong degree of overprinting and obfuscation of the former textures and mineral assemblages.

Polyhalite grade of the P2 horizon broadly increases with depth as the halite present in distinct beds reduces, associated with gradual transition in formation conditions to a more stable (postulated to be deeper water) situation where deposition of primarily monomineralic beds was more likely. Trace elements appear to be present throughout the unit and appear to have some connection to the conditions and formation of the P3 horizon below where cloudy disseminations and even bands of minerals such as magnesite are often present where the P2 measures above contain elevated levels of these minerals.

6.1.2.7 P3 Polyhalite

The P3 is typically a massive unit of polyhalite with individual beds separated by halite filled bedding planes all of which have a silt rich margin. Alteration of the polyhalite to a range of other minerals is common and significant bands of Magnesite and Anhydrite are not uncommon as well as large bodies/domes and fracture fillings of halite. The mineralogy of the P3 horizon is dominated by polyhalite with contents averaging >85% polyhalite, ≈4-8% halite, ≈5% anhydrite and ≈2-5% other minor minerals such as magnesite, ettringite, glauberite. Frequent areas of very high purity polyhalite are present particularly in the West of Zone 1 where polyhalite content frequently exceeds 90% over a 4m height. A key series of mineralogical and textural features occur across the P3 and their presence typically constitute the largest material impact on the quality and extraction of the ore as outlined below.

The first and most pervasive features of the P3 polyhalite horizon are the halite bands. Halite is present throughout the P3 as locked crystals dispersed within the polyhalite layers and typically representing less than 2% of a given mass of rock. However, halite is also present as linear and laterally extensive bands (some bands have been traced continuously for over 100m in multiple directions through workings). These halite bands are parallel to bedding within the polyhalite which although not always obvious is visible in any thin section of the P3 with suitable lighting. These halite bands range in thickness from <1mm and barely visible except for the break in the otherwise smooth vitreous surface of the polyhalite up to tens of centimetres thick with some of the largest examples seen over 50cm in thickness. The thickness of these halite bands is far from constant with pinching and swelling of each individual band occurring at the centimetre scale laterally. The halite is always of a glass like transparency and with well-developed cubic crystals 2 - 8cm across. The crystals display void filling growth textures with uninterrupted cubic forms that grow outward from the silty boundaries.

These halite bands appear to be present at many, but not all the relict bedding surfaces within the P3. Associated with these halite bands are thin (typically <1mm) grey silt partings at both the upper and lower contacts with the polyhalite. These partings and the boundaries with the polyhalite are somewhat irregular on a centimetre scale but typically a smooth and sometimes graphitic appearance that gives the impression of having been draped or settling sediment over the pre-existing mineral surface below before later lithification. Some limited evidence of shrinkage cracks has also been observed to be preserved within these silts at levels near the top of the P3 horizon. The material reasons for discussing these halite bands is that they present a significant deleterious element that can easily reduce the run of mine grade from a given mining heading to below that which is acceptable for blending into a suitable ROM for hoisting. It takes little more than a 30 - 40cm halite band across a single 4 x 8m heading to reduce the average polyhalite content of the ore produced to below 89.6%. As such quantification of halite in the headings and representative sampling of these bands is critical to the modelling and scheduling of a suitable ROM to produce in specification products.

6.1.3 Deposit Types

The Boulby polyhalite mine sits within a significant SO_4 and Ca rich evaporite deposit. Evaporites are defined by the AGI (American Geologic Institute) as water-soluble mineral sediment that have formed from concentration and crystallization by evaporation from an aqueous solution. There are two types of evaporite deposits with most identified deposits classified as marine type. Non-marine type deposits are also known globally and are found in standing bodies of water such as lakes. Evaporites are considered important sources of Potassium in the form of sylvite, carnallite and other potassium minerals for a range of uses from fertilizers to chemical production. Salt for various purposes is also a major product of the global evaporite inventory.

Within the United Kingdom Permian stratigraphy, marine type evaporites were formed episodically within a cyclical succession of marine sediments (dolomite, limestone, evaporites, red mudstone and siltstones) between 272.3 Ma and 252.2 Ma forming a sequence known as the “Zechstein Group”, these lithologies were developed across the limits of the Zechstein basin and sub-basins, covering Northern England, the North Sea, Holland and Germany.

The formation in the Boulby area of a local shallow sub basin structure with a barred margin was coincident with the Z2 cycle of evaporitic deposition and resulted in the formation of a partially isolated and shallow body of brine within which primary gypsum/selenite deposition dominated and subject to cyclical repetition for much of the period. Later diagenesis related changes and brine flows across the region led to the alteration of much of this cyclic package to polyhalite with associated anhydrite. Examples of this conversion process can be seen when analysing polyhalite material at microscopic scales.

The deposit at Boulby is typical of a massive stratiform evaporitic deposit and in this location has been subject to only minor tectonic reworking after diagenesis and burial. The resultant polyhalite deposit is regionally flat lying and with lateral extents far exceeding its vertical thickness. Major economic mineralisation is constrained between halite’s and other sulphate horizons.

It has been shown that a major controlling influence on mineralisation in the Southern Portion of the Zechstein basin was the paleoenvironmental conditions and topography present in and around the local sub-basin during the formation/deposition period of the Z2 cycle of evaporites. The major constraints on the lateral extents of polyhalite ore are typically larger scale fault structures and former “high ground” and barrier ridge areas. Ore grade and thickness are also controlled to some extent by these large structures but also on a more local scale by the existing sulphate mineral framework in existence before conversion to polyhalite took place, with some areas of Zone 1 apparently undergoing more complete conversion to polyhalite with resultantly higher purity and destruction/obfuscation of early textures.

Similar occurrences can be seen around the margins of the former Zechstein basin although none have been shown to be as extensive as those in the Boulby sub basin.

It is believed that these often-contemporaneous deposits are constrained in their ultimate extents by the local paleotopography present at the time of formation, structural complications in those specific areas and the conditions within the diagenetic environment post burial.

The stratiform and laterally extensive nature of the deposits at ICL Boulby would in a typical situation lend themselves to exploration in a grid like manner from surface at an initial wide (250 - 750m) scale followed by infill of prospective resources to sufficient detail (10 - 50m) to enable planning and scheduling of detailed designs.

However, the offshore location of much of the Boulby Mine and its pre-existing infrastructure means that exploration of the polyhalite has had to adapt to generate similar data from a position at depth within the polyhalite seam in most cases. As such the exploration model relies upon a detailed understanding of the paleogeography of the Zechstein strata at the local and regional scales whilst also relying heavily on 3D and 2D seismic information to map and investigate paleotopographic trends and faulting related structures. The stratiform nature then relies upon collecting as much of a regular grid of information from low-angle sub-vertical (underground) boreholes as possible. Where knowledge and infrastructure allow, intersection of the seam with vertical boreholes from workings in the Z3 halite above are carried out to assist in assessing the true vertical extent of ore body features.

Ultimately knowledge of genesis and subsequent chemical and structural events are key to creating an exploration model for targeting polyhalite in Boulby type settings.

6.2 Cabanasses and Vilafruns

6.2.1 Geological Setting

6.2.1.1 Regional Geology

The ICL Iberia deposits of Cabanasses and Vilafruns are located within the east of the Ebro Basin, a foreland basin on the southern flank of the Pyrenees. The Ebro Basin is a Cenozoic Basin and was formed by the uplift of the Pyrenees during the Alpine Orogeny (upper Cretaceous to lower Miocene) due to the collision of the Iberian and European plates which resulted in a partial subduction of the Iberian lithosphere to the north.

The basin consisted of a northwest-southeast trending trough that was connected to the Atlantic Ocean through the Bay of Biscay and was confined by three mountain massifs: the Pyrenees to the north, the Iberian Range to the southwest and the Catalan Coastal Range ("CCR") to the southeast. The basin is wedge shaped, thickening towards the north with an overall basin depth of up to 3km. The location of the ICL Iberia deposits within the Ebro Basin is shown in Figure 6.8.

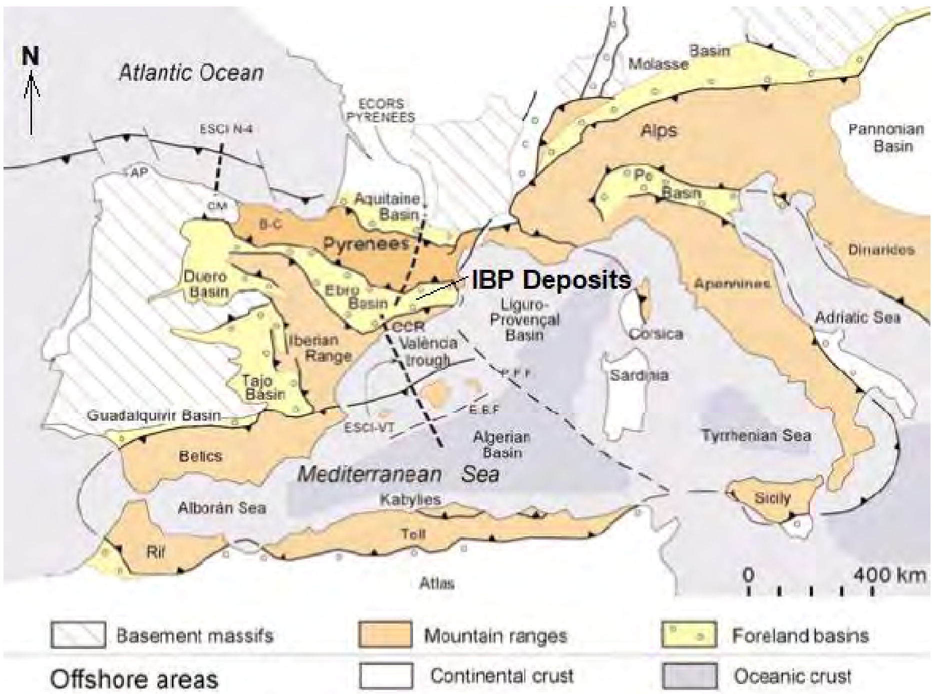


Figure 6.8: Location of the ICL Iberia Deposits within the Ebro Basin of the Iberian Peninsula (Vergés *et al*, (2002))

The Ebro basin developed as a marine basin during the Eocene (from 55 to 37Ma). The ICL Iberia deposits are located within the northeast of the Ebro basin within a sub-basin termed the Catalan Potash Basin ("CPB"). During this time, the CPB was filled with sea water and in the Catalonia area, this sea was approximately 40km wide and collected sedimentary deposition through rivers and deltaic systems of Sant Llorenç del Munt and Montserrat to the south, and Busa to the north with sediments derived from the surrounding rocky massifs of the Pyrenees and the CCR

During the upper Eocene, uplift of the Western Pyrenees triggered the closure of the Ebro basin, and it became isolated from the open sea. Evaporitic cycles produced by a hot climate resulted in intense evaporation of sea water. The decreasing volume of water within the basin resulted in increased concentrations of dissolved salts and eventual precipitation of evaporitic minerals such as gypsums, sodium and potassium salts which accumulated on the deltaic marine sediments of the seabed. The overall evaporite sequence within the Catalonia depocenter of the CPB can be up to 300-500m in thickness and is termed the Cardona Formation. The deposition of the Cardona Formation (37 Ma) marked then end of marine deposition within the basin and the beginning of continental deposition.

As the foreland basin stage ended, an intermontane basin stage commenced and was limited by the Pyrenees, the CCR and the Iberian Range. During the Upper Eocene and Oligocene, an internal fluvial network delivered sediments to the Ebro Basin which was characterised by a large central lake. These fluvio-lacustrine deposits were deposited on top of the evaporite sequences and mark the transition to continental conditions.

The regional geology of the Pyrenees and associated foreland Ebro Basin is shown in Figure 6.9. A simplified geological cross section along the highlighted profile is shown in Figure 6.10.

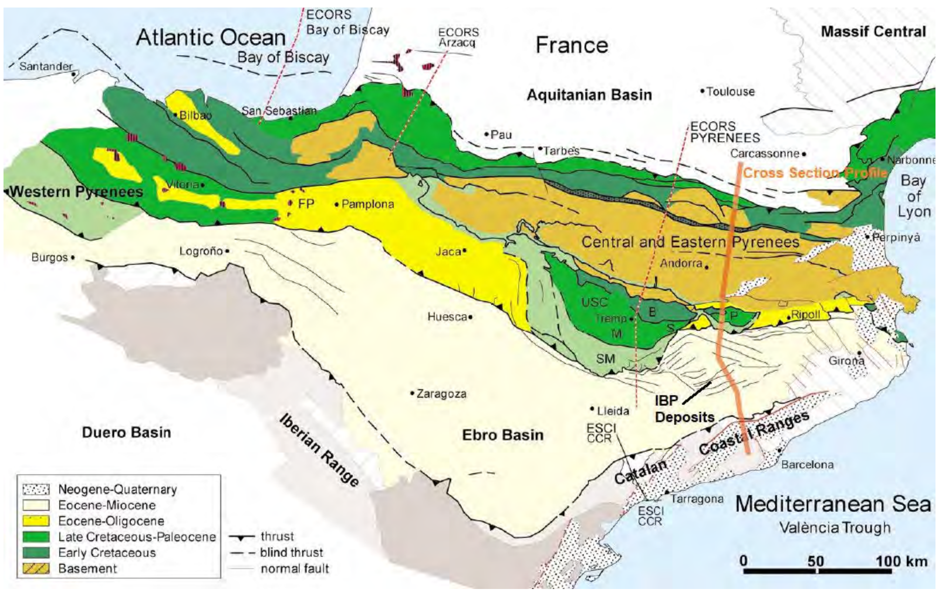


Figure 6.9: Regional Geology of the Pyrenees and Ebro Basin (Vergés *et al*, (2002))

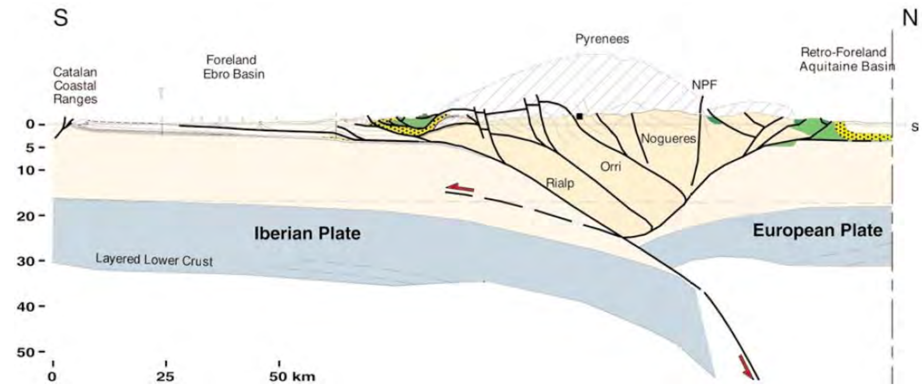


Figure 6.10: Simplified Cross Section of the Pyrenees and Ebro Basin (Vergés *et al*, (2002))

6.2.1.2 Local Geology

Stratigraphy

The Ebro basin is underlain by Triassic to Late Cretaceous syn-and post-rift sediments related to the opening of the Atlantic and Tethys Oceans and the Bay of Biscay. Major sedimentary basins developed along the margins of the area that is presently occupied by the Ebro basin, which remained as a relatively stable block during most of the Mesozoic until the Late Cretaceous, prior to the onset of north-south convergence of the Iberian and European plates. Marine sedimentation within the developing Ebro foreland occurred during the Eocene. In the upper Eocene, sedimentation changed from marine to continental during emplacement of the thrust sheets. Marine infill of the basin ended after deposition of the evaporites of the Cardona Formation. At Cabanasses and Vilafruns, the Cardona Formation includes the following lithologies (stratigraphic youngest to oldest):

- Hangingwall package (90m) of carnallite and halite;
- Mine package (15m) of halite and potash;
- Footwall package of:
  - Massive halite (100-500m);
  - Semi-massive halite in the upper 20m;
- Marker horizon of basal anhydrite (5m).

Overlying the Cardona Formation are continental sediments that include alluvial and fluvial sediments prograding over a lacustrine system. The lacustrine deposits are represented by the Barbastro and Castelltallat Formations of late Eocene to Oligocene age. The Barbastro Formation consists of 30m of gypsum and interbedded lutities and the Castelltallat Formation is represented by 100-200m of marls and interbedded limestones.

The deposits of the Barbastro and Castelltallat formations are interbedded with and grade southward and northward into alluvial and fluvial sediments of the Súria, Solsona and Artés Formations. The Solsona and Artés Formations are fine to coarse grained red sediments interpreted as alluvial fan deposits. The Solsona Formation washed from the Pyrenees and grades into the Súria Formation sandstones. The Artés Formation originates in the Catalan Coastal ranges. The upper most deposits in the eastern Ebro foreland basin are assigned to the upper part of the lower Oligocene.

A summary of the stratigraphy of the main formations of the Eastern Pyrenean foreland basin is shown in Figure 6.11 and a detailed stratigraphy of Cabanasses and Vilafruns is shown in in Table 6.1.

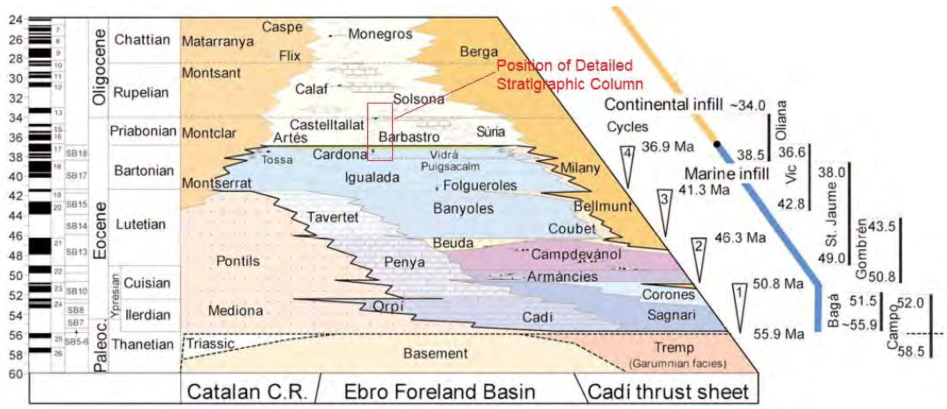


Figure 6.11: Main Formations of the Eastern Pyrenean Foreland Basin (Vergés *et al*, (2002))

Table 6.1: Detailed Stratigraphic Column for Cabanasses Area

Epoch	Formation	Unit	Series	Description	Thickness
Oligocene	Solsona	U17	Upper Series	Sandstones, conglomerates, lutites and marls	?
		U16	Intermediate Series	Sandstones, lutites and marls	?
		U15	Transition Series	Red mudstone, sandstones and limestones	250-300m
Eocene	Artés	U14	Marker Horizon	Limestones	5m
		U13	Súria Beds	Limonites and sandstones with interbedded limestones	150-200m
		U12	Marker Horizon	Microconglomeritic sandstone	5m
		U11b	Marker Horizon	Limestones - "Calizas del Castillo o del Tossal"	5m
		U11a	Marker Horizon	Limestones - "Calizas del Mas Torquer"	5m
		U10	"Capas de Súria"	Limonites and sandstones with interbedded limestones	100m
		U9	Marker Horizon	Limestone - "Calizas del Cogullo"	5m
		U8	"Capas de Súria"	Limonites and sandstones with interbedded limestones	150m
		U7	Marker Horizon	Massive gypsum, lutite and halite - "Yesos de la Estacion"	20-50m
	Castelltallat / Súria	U6	"Unidad Lacustre del Tordell"	Limonites, marls and layers of limestone	150-200m
	Barbastro	U5	"Miembro Arcilloso-Evaporitico Superior"	Limonites and marls, centimetric layers of gypsum, halite, thin layers of limestone	30-40m
	Cardona	U4	Hangingwall Package	Halite (with clay partings)	30-50m
		U4		Carnallite interbedded with halite ("CAPA C")	5-20m
		U4		Halite	5-15m
		U4		Carnallite	3-7m
		U4	Mine Package	Transformada (altered carnallite)	1-2m
		U3		Seam B ("CAPA B")	2-3m
		U3		Sal Entrados (middle halite)	3-6m
		U3		Seam A ("Capa A")	4-5m
		U2	Footwall Package	Semi-massive halite	10-20m
		U2		Massive halite	100-500m
		U1	Marker Horizon	Basal Anhydrite	10-15m
	Igualada	U0	"Margas de Igualada"	Grey-blue marls with beds of limestone	>1000m

A cross section profile through the Cabanasses Mine is shown in Figure 6.12 and the stratigraphy through this section is shown in Figure 6.13. The underground drillholes within the halite and potash seams of the Cardona Formation are also shown. The stratigraphic units are the same as those described in Table 6.1.

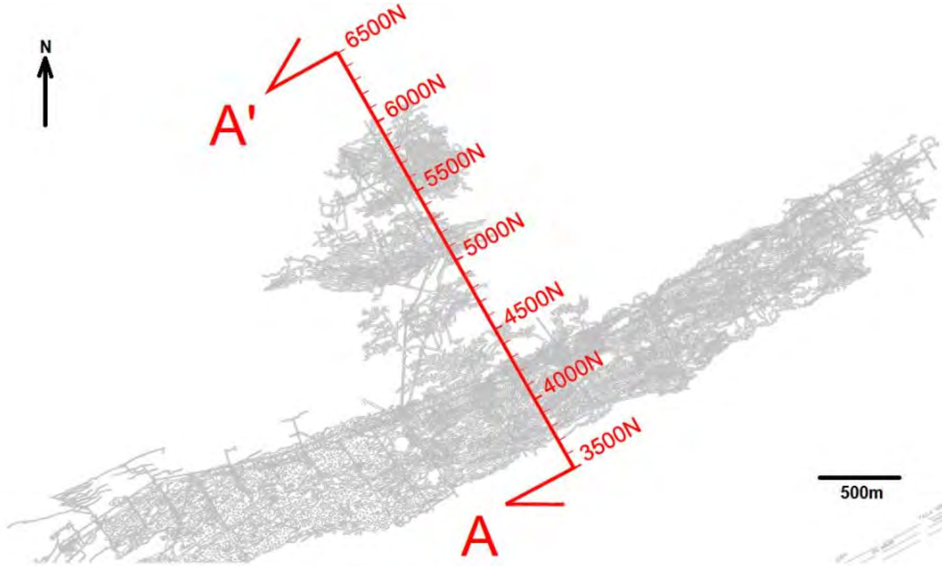


Figure 6.12: Location of Stratigraphic Cross Section Through Cabanasses Mine

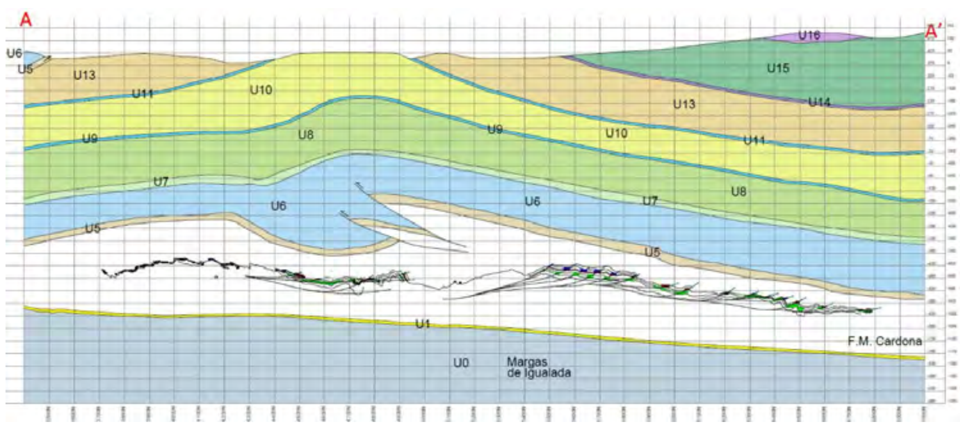


Figure 6.13: Cross Section Showing Stratigraphy of Cabanasses

Structural Geology

The south-eastern Pyrenean fold and thrust belt, within the northeast of the Ebro Basin, exhibits a series of detached and thrusted anticlines associated with detachment of the Cardona Formation evaporites. Contractional structures are extensive and include wide synclines separating narrow anticlines and are characteristic of fold belts developed above salt. Within the local area of the ICL Iberia deposits, the Oló, Súria and Cardona anticlines are the most significant. A plan showing an inset of the northeast of the Ebro Basin is shown in Figure 6.14 and the associated anticlinal structures are shown in Figure 6.15.

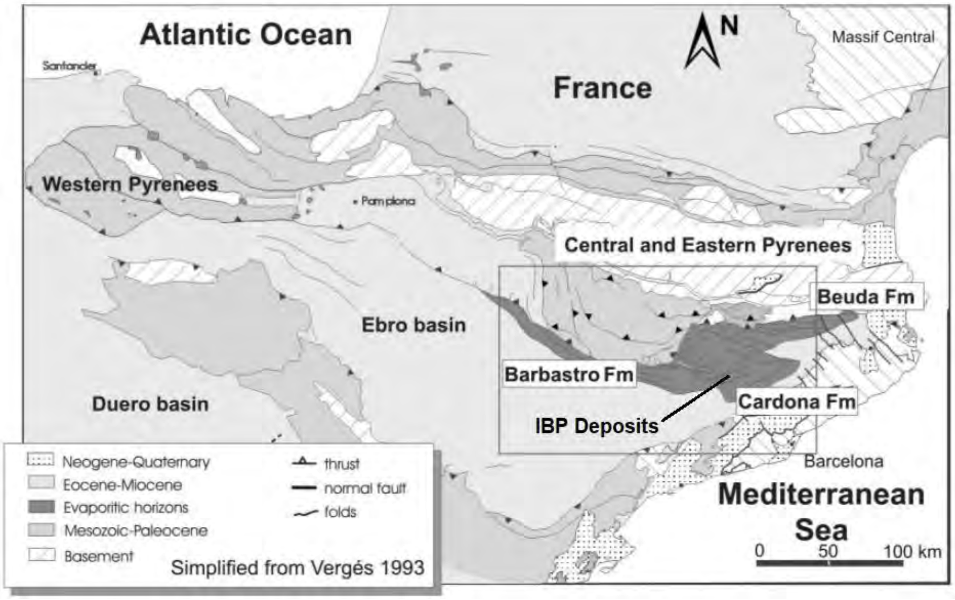


Figure 6.14: Plan Showing Inset of Northeast of Ebro Basin

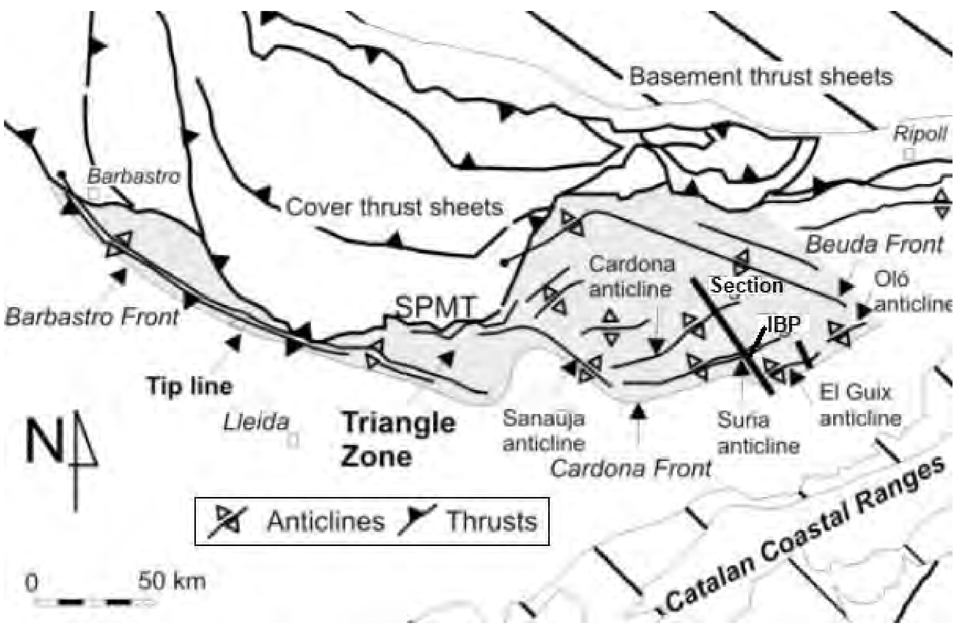


Figure 6.15: Inset of Figure 6.14 Showing Main Anticlinal Structures of the Northeast Ebro Basin (Sans (2003)) [SPMT – South Pyrenean Main Thrust]

A cross section through the El Guix, Súria and Cardona anticlines along the section line (shown in Figure 6.15) is shown in Figure 6.16.

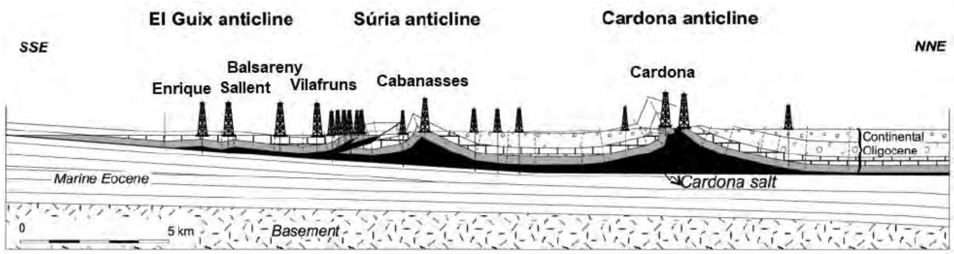


Figure 6.16: Cross Section through El Guix, Súria and Cardona Anticlines (Sans (2003))
[location of mines is shown as larger well symbols and location of surface drillholes as smaller wells]

El Guix Anticline

The south verging El Guix anticline extends for more than 20km northeast. The structure comprises a long north-dipping limb and short subvertical southern limb with an interlimb angle of 110°. The anticline is cut by a set of thrusts with opposing vergence, their geometry is constrained by field exposures and potash exploration drillholes. Both groups of thrusts dip from 27° to 40°. Anticlines and thrusts are clearly related, and thrusts cut through different segments of the fold. North and south trending thrusts intersect one another, suggesting that both groups were developed at the same time.

In the northeast the El Guix anticline merges with the Santa Maria d'Oló ("Oló") anticline which extends for approximately 15km. It is differentiated from the El Guix anticline by its opposite vergence (northward). In the northeast segment, the structure is formed by a simple, slightly asymmetric fold with and interlimb angle of 97°. The anticline opens and ends towards the east with a gentle plunge of 2-3°. The central segment is modified by thrusting and the fold opens with increasing depth with salt asymmetrically distributed under the fold.

Súria Anticline

The Súria anticline is located northwest of the El Guix anticline and the two anticlines are separated by a broad syncline. The Súria anticline is a complex structure represented at the surface by two structures of opposite vergence: a south verging anticline in the north and a north directed thrust (Tordell thrust) in the south.

The northern anticline can be mapped for at least 35km along strike and the structure of the anticline is observed to change in the along strike direction. In the east, the northern anticline is symmetric and cored by small north-directed thrusts. In the central section, the northern fold is south-verging and cored by a complex array of thrusts. Example cross sections from east to west along the Súria Anticline is shown in Figure 6.17.

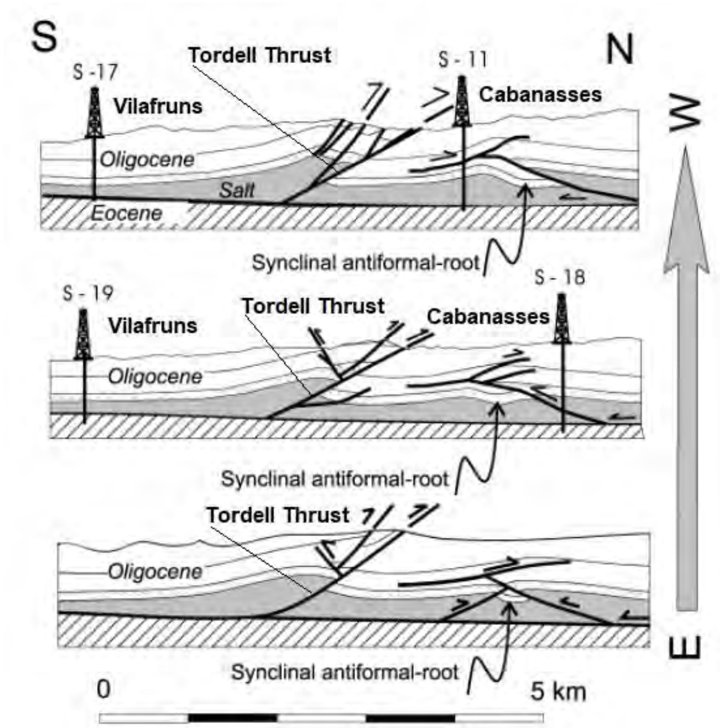


Figure 6.17: Example North-South Cross Sections Showing Along Strike Change in Structure of the Súria Anticline from East (bottom) to West (top) (Sans (2003))

The southern structure of the Súria anticline is a north directed backthrust (Tordell thrust) with related imbricates in its hangingwall. The thrust fault dips at 30-50° and in the footwall a smooth syncline shows an increase in dip near the thrust fault in the lower layers. The Tordell thrust separates the mines of Cabanasses and Vilafruns and is a major structure. To the north and below the plane of the thrust is Cabanasses, while to the south and above the plane of the thrust is Vilafruns. As is common in “fault zones” within the Cardona Formation, as the fault zone is approached, folds become tighter and the presence of minor shear bands at high angles to the bedding increases. There is also a spatial coincidence between the areas of possible maximum deformation with areas of barren bodies known as “estèrils” suggesting that during deformation there is migration of brines undersaturated in potassium through the shear zones.

A cross section showing the structural geology of the Tordell thrust fault is shown in Figure 6.18.

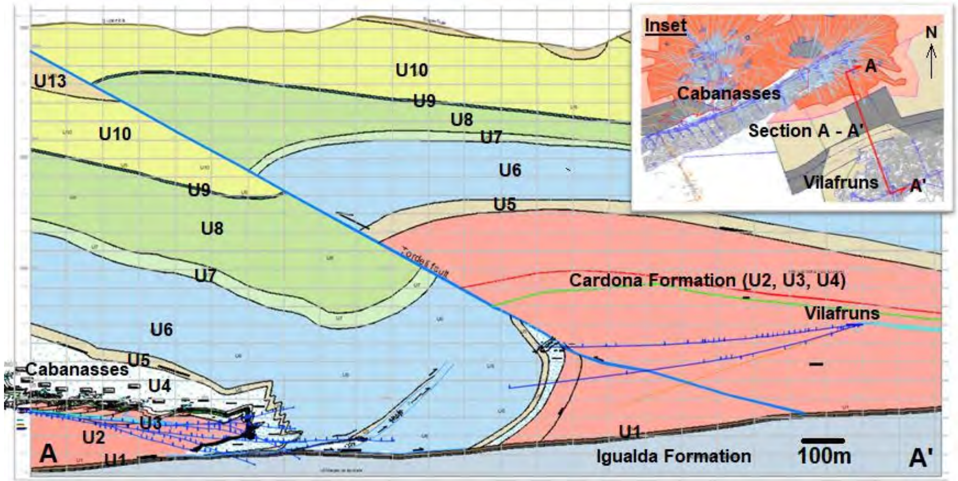


Figure 6.18: Cross Section Showing Structural Geology of the Tordell Thrust

Cardona Anticline

The Cardona anticline is located 10km northwest of the Súria anticline and is the only anticline which has been pierced by a salt diapir resulting in the Cardona Formation being exposed at surface. The hinge of the Cardona anticline is well defined in the western and central parts of the anticline and becomes broader towards the east. The Cardona diapir is located close to the eastern termination of the anticline and marks the transition between the narrow and wide hinge zones. The overburden in the diapir area consists of 100m of grey marls at the bottom of the Barbastro Formation, 450m of sandstones and marls from the Súria Formation and 1500m of sandstones and conglomerates from the Solsona Formation that at the base of the unit are interbedded with thin limestones from the Castelltallat Formation. The contact between the overburden and the diapir corresponds to a 2-6 m thick external shear zone formed by a melange of country rock and sheared salt.

Mineralisation

Two mineable seams of potash (termed Seam's A and B) are present at Cabanasses and Vilafruns. The Seams consist of sylvinite interbedded with halite in beds of a few centimetres thickness with occasional thin clay partings. The sylvinite is orange to red in colour with high grades of KCl and very low levels of insoluble material. Grain sizes in the halite and sylvinite are typically 1 - 3 mm and 2 - 4 mm, respectively, and because the grains form an interlocking mosaic without dispersed clays both rock types, tend to be reasonably competent.

Seam A (“Capa A”) is generally thicker but with lower KCl grades and is located just below Seam B. Seam B (“Capa B”) is thinner but with higher KCl grades.

A comparison of Seam's A and B at Cabanasses and Vilafruns is given below:

Seam B

- Average thickness of Seam B (including the Transformada [see below for description]) at Cabanasses is 2.3m, compared with an average thickness of 1 - 1.5m at Vilafruns;
- Average KCl grade at Cabanasses is 42% KCl and 45% KCl at Vilafruns.

Seam A

- Average thickness of Seam A at Cabanasses is 4 - 5m. In the northern part of the Vilafruns Deposit, the average thickness of the seam is 5.5m while in the southern part the average thickness reduces to 2.4 – 3.5m.
- Average KCl grade at Cabanasses is 22 - 23% KCl. In the northern part of the Vilafruns Deposit, the average grade is 29% KCl while in the southern part the average grade reduces to 22 - 23% KCl.

Located above Seam B is a layer of carnallite (3m thickness) which is orange in colour, lacking insoluble material and is coarser grained (grain size of up to 10mm). In some areas the carnallite has been altered to sylvinite and the alteration rock is termed "Transformada". Where it is present, the Transformada is coarse grained (again up to 10mm) but lacks clay partings or any other visible insolubles. It has a greater halite than sylvanite content, but the KCl grade remains high. The Transformada is mined with Seam B. Carnallite is not mined due to high levels of Mg which affect process recoveries, however, its presence invariably results in dilution of Seam B and/or the Transformada due to overcut during mining.

Between the two seams is a horizon of halite ("sal entredos") and is pale buff to pale orange in colour and comprised of a series of thin (2 – 6cm beds separated by grey clay partings (1 – 3mm)). The thickness of the sal entredos is greatest at Cabanasses (3 - 6m thickness) while at Vilafruns it is thinner (2 – 2.5m thickness). Halite also forms the footwall of Seam A and is found above the carnallite (above Seam B).

Sylvinite and carnallite occur towards the top of the Cardona Halite at depths which vary considerably as a result of deformation events potash seams (when seen underground) can, in places, be contorted on a local scale due to this deformation of the area.

The Seams exhibit numerous phases of deformation (folding, intense ductile deformation and widespread development of shear zones) associated with the Pyrenean fold and thrust belt. On a large scale this results in the depths of the Seams from surface varying considerably. In addition, small scale (1 - 2m) folding of the Seams can also be significant and is observed in underground exposures. The Cabanasses deposit extends some 11.5km in a northeast-southwest direction and is 6.0km wide (northwest-southeast).

6.2.2 Deposit Types

The Cabanasses and Vilafruns deposits are stratiform (lesser amount of halokinetic) potash-bearing salt deposits that have been significantly structurally disturbed through extensive folding and faulting. Stratabound potash-bearing salt is associated with thick sections of evaporitic salt (halite) that form laterally continuous strata in marine evaporite basins. Deposits are extremely soluble and thus easily altered or destroyed over geologic time.

Stratabound potash-bearing salt deposits may contain millions to billions of tonnes of mineralised rock and are typically amenable to relatively low cost, bulk underground mining methods. Approximately 75% of the world's potash production is from stratabound potash-bearing salt deposits.

Potash-bearing halite represents a chemically deposited sedimentary rock made up of fine- to coarse-grained, potassium- and magnesium-chloride and sulphate minerals intergrown with halite. Beds of laterally continuous stratabound potash-bearing halite occur within thick sections of halite-dominant evaporite deposits. Potash-bearing strata range from centimetres to meters in thickness, and potash-bearing intervals may consist of one bed or numerous thin layers.

These deposits are commonly attributed to evaporation of large volumes of seawater in hydrographically restricted or isolated basins under hyper-arid climatic conditions. Progressive evaporation of saline water (usually seawater) and salt precipitation contribute to increasingly hyper-saline conditions, formation of bitterns, and eventual deposition of potassium- and magnesium-bearing minerals. Multiple episodes of saline water inflow result in cyclic deposition of potash minerals and yield deposits that are many tens of meters thick.

In an evaporite basin, near-shore, shallow clastic facies rocks grade to carbonate-, then sulphate-, then halide-rich rocks towards the central part of a basin or parts more distal from may have facies representing shallow water to deeper water. The resulting stratigraphic sequence begins with minor clastic red beds, followed by carbonate rocks, anhydrite or gypsum, salt, and ends with potash-bearing salt. Multiple episodes of evaporite mineral precipitation may be recorded in cyclic sequences of rock layers, with individual cyclic units from a few centimetres to hundreds of meters thick.

Host rocks are typically evaporitic sedimentary rocks, such as rock salt, sylvinite, carnallite, kainitite, anhydrite, and gypsum. The mineralised rock strata consist of potash salt minerals, including chlorides, sulphates, and halite, in evaporite sequences.

Stratabound potash-bearing salt deposits are composed of one or more layers or beds of potash-bearing salt. The beds or layers or groups of layers are commonly laterally continuous (several kilometres) across large areas of a basin. Individual potash beds or layers typically range in thickness from less than a meter to several tens of meters, rarely a hundred meters and a sequence of potash-bearing salt beds may range from tens of meters to a few hundred meters thick. The areal extent of potash mineralisation is ultimately limited by the basin size at the time of deposition though typical volumes of stratabound potash-bearing salt can be hundreds to thousands of cubic kilometres.

6.3 Rotem

6.3.1 Geological Setting

6.3.1.1 Regional Geology

The Negev phosphorite deposits are part of a major belt of sedimentary phosphate deposits that stretch from Morocco and North Africa to Israel, Jordan, Syria and eastern Turkey. These deposits have strong geological similarities and account for some 30% of the world's supply of phosphate rock. The deposits formed during the Campanian (Upper Cretaceous period) in the Tethys Sea, of which, the present Mediterranean is a relic.

There are three major phosphate fields in the concession at Negev: Oron and Zin (collectively known as the Zafir Site) and Rotem.

The three deposits have been proved over extensive strike distances (Rotem 10 km, Oron 16 km, Zin 22 km) and width (4 km). They are all known to extend further along strike but are limited in operational size by the proximity of national nature reserves where mining is prohibited. The deposits dip steeply to the SE on the north-western flanks of the synclines (up to 60°) but are gently dipping to the NW or sub-horizontal elsewhere.

The phosphate is found as the mineral carbonate-fluorapatite or francolite in a series of beds typically 1-4m thick deposited below a hard, sometimes phosphatic, limestone caprock. Total phosphate thickness is typically in the range 5 – 7m. The phosphate beds are often separated by thin bands of marl and limestone called interburden, each up to about 1m thick. These frequently contain large calcareous concretions. Chert is also developed as thin, continuous bands, particularly in marls and limestone below the principal phosphate horizon. The phosphatic sequence rests on a basal Main Chert. Maastrichtian marls overlie the Caprock limestone and there is an overlying cemented overburden of Miocene-Recent alluvium.

6.3.1.2 Regional structure

Each of the phosphate fields has a similar stratigraphy and geological setting with then phosphate preserved as relatively narrow elongated bodies along the margins and within the axes of two NE-SW trending asymmetrical synclines or monoclines. Oron and Rotem lie within a single syncline to the northwest of the Zin syncline. Faulting is rare, with throws usually of less than a few metres, although phosphate is sometimes preserved in down-faulted graben remote from the main synclinal axes.

6.3.1.3 Local Geology

The phosphate sequence is simplest at Rotem, where three phosphate horizons are developed over a sequence of marls, limestone, and chert (Figure 6.20). At Oron, the principal phosphate horizon has split into three units that are inter-bedded with marl and limestone, while the basal phosphate is less well developed than it is at Rotem (Figure 6.19 and Figure 6.21). At Zin, the principal phosphate horizon is split into five horizons, inter-bedded with marl and limestone. A phosphate is also developed within the underlying marl-limestone-chert-porcelanite sequence and a basal phosphate is developed on the Main Chert pavement (Figure 6.22).

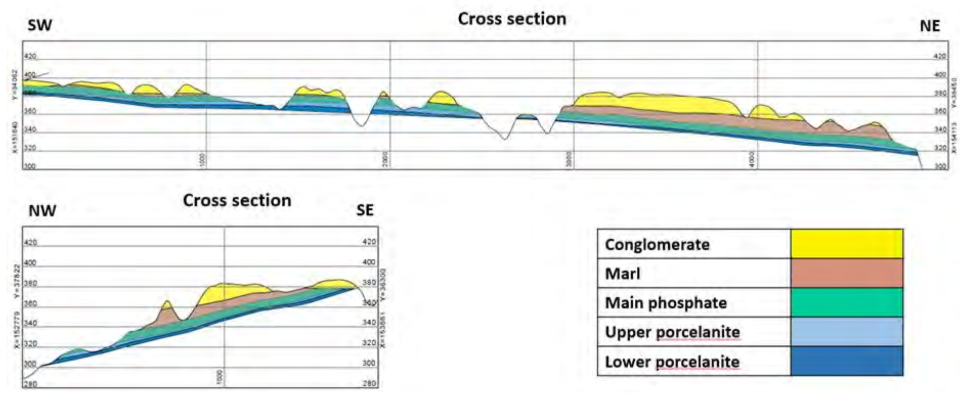


Figure 6.19: Example of a Geological Cross-sections at Oron

In these Negev deposits, the phosphate interburden frequently thins towards the syncline margins, suggesting that they were active during the time of phosphate deposition. At Zin, the extensive inter-digitation of phosphate with marl indicates the approach to the centre of the depositional basin. It is in the centre of the depositional basin where the Bituminous Phosphate ("BTP") deposits are developed.

To the experienced eye, the phosphate beds are easily identifiable in the field and mining is controlled visually. The caprock forms a hard hanging wall and the marl-limestone-chert sequence a hard well-defined footwall. Seams as thin as 0.30m can be mined with specially designed equipment. Dilution, mainly the result of the inter-bedded marl within the principal phosphate horizon, is controllable and can be readily separated by screening. Dilution is. This often has appreciable phosphate content, as can the Caprock.

The phosphate bearing seams or transitional/interburden units are expressed with a code that reflects their geo-relationship in the stratigraphic column. For instance, Interburden 2-3 lies between main Interburdens 2 and 3. Similarly intermediate Phosphate seam '3-4' lies between main Phosphate 3 and 4.

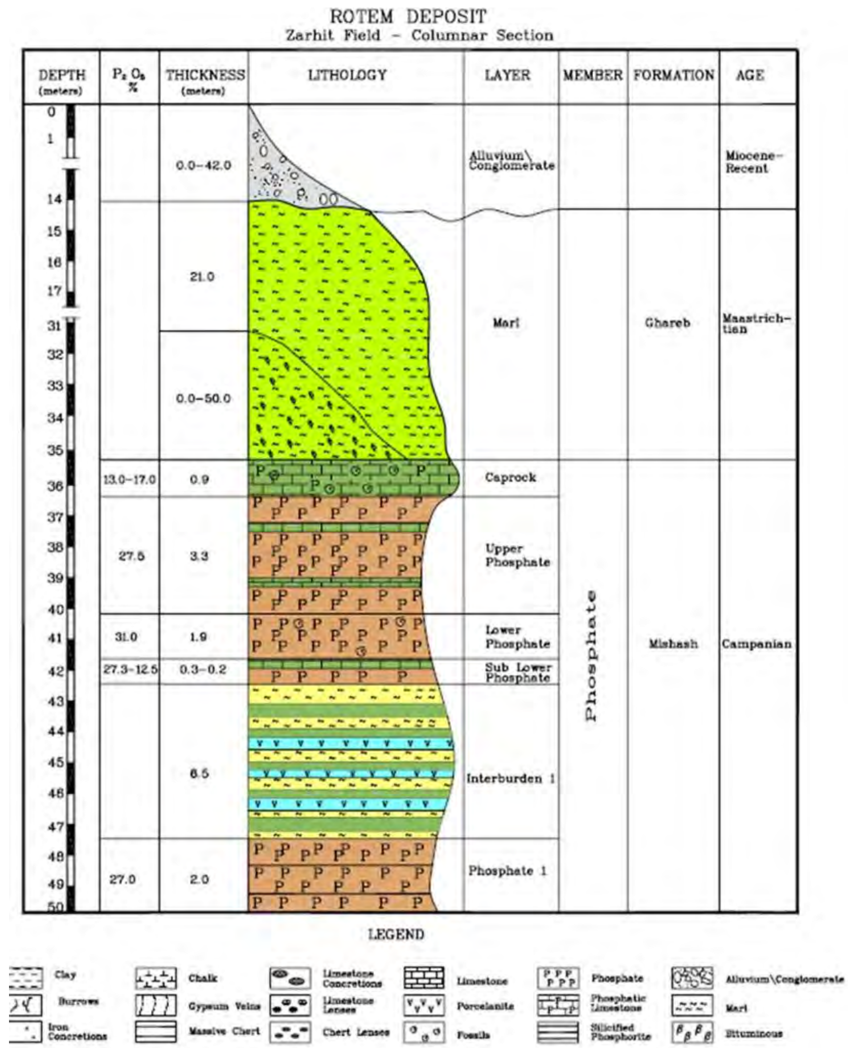


Figure 6.20: Rotem Stratigraphic Column

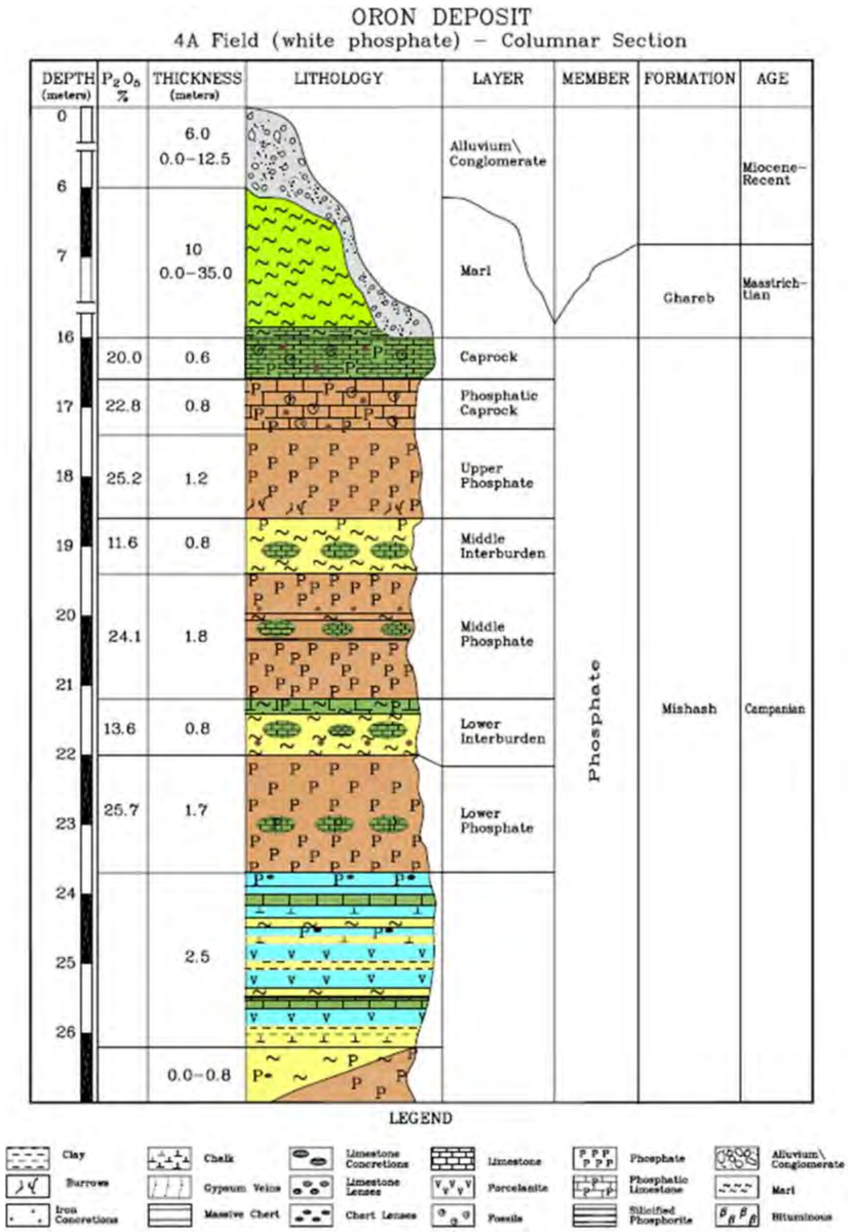


Figure 6.21: Oron Stratigraphic Column

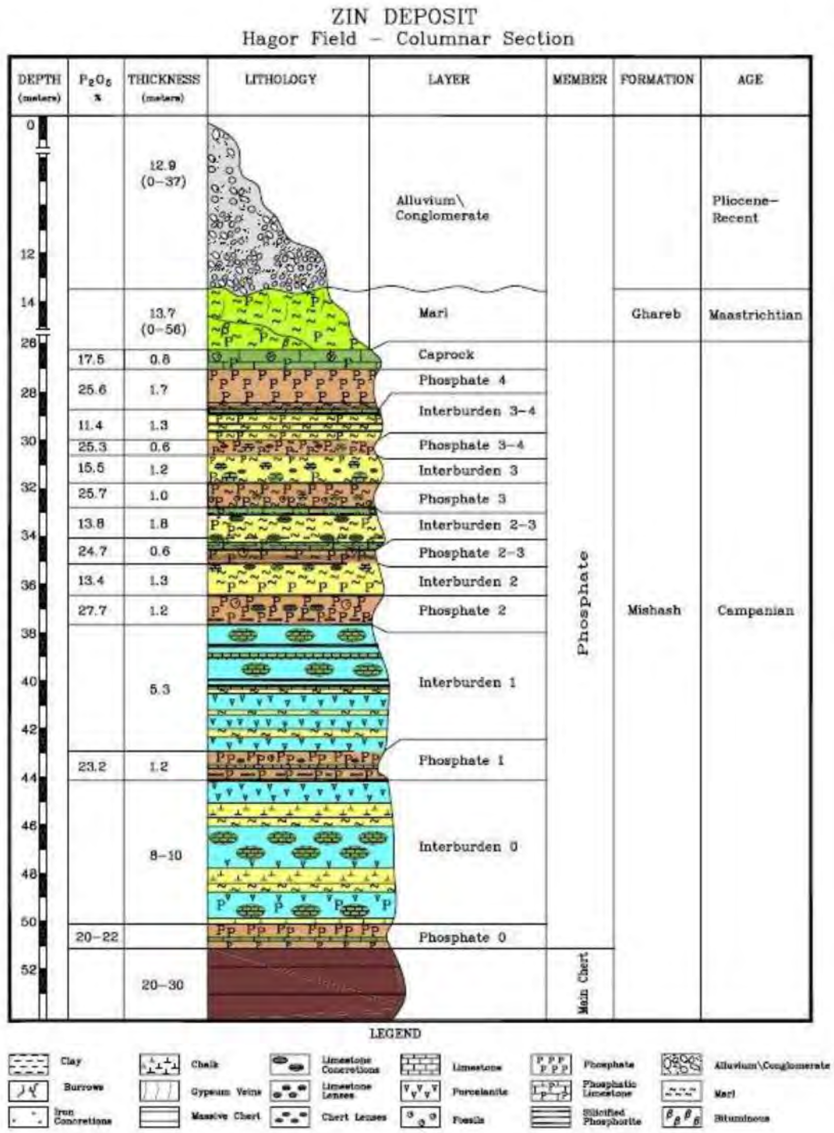


Figure 6.22: Zin Stratigraphic Column

6.3.2 Deposit Types

Phosphate deposits in Israel are sedimentary in origin and formed on or near the margins of continents where organic productivity is high and there is limited influx (and dilution by) other sediments. This high organic productivity is thought to be associated with upwelling ocean currents brining phosphorous rich cold water from deeper ocean levels to nearer surface which stimulates organic growth, the remains of which accumulate as phosphorous rich debris.

The phosphorite deposits of Israel are part of a Cretaceous to Eocene phosphorite belt that extends from Turkey to Morocco. The Late Cretaceous belt, which the Israeli deposits form a part of, across North Africa and the middle east is estimated to contain half the world's high grade phosphorite deposits. The deposits are of Santonian to Maastrichtian age (85-65 Ma) with the most intense upwelling associated with deposition thought to occur during the middle-late Cambrian. Typically, the belt shows a sedimentary progression including chert deposition followed by phosphate and oil shales and finally marls.

Phosphorite deposition in Israel coincides with tectonic activity that led to the formation of the Syrian Arc system active from the Late Cretaceous to the Early Eocene forming structural highs and lows of anticlinal ridges and synclinal basins resulting in large changes in thickness and facies. The Negev phosphates are classified and mined according to organic matter (originally microorganisms and algae) content, as follows:

- White <0.25 % organic matter;
- Low organic: 0.25-0.35 % organic matter;
- High organic and Brown: >0.35-.1.0% organic matter;
- Bituminous: >1.0% organic matter

The chlorine content of phosphate rock should not exceed 0.05%Cl if it is to be used to manufacture phosphoric acid. In general, the Negev rock phosphates contain less than 0.5%Cl, most of which is attributable to contamination with surface water. High Cl contents in the Negev phosphates can be reduced by a factor of 10 by washing, or mitigated by blending with low-Cl phosphates. High iron content is also undesirable in acid manufacture, as is high magnesium grade phosphate, which is sourced at the Hatrurim field and is blended with low magnesium BTP material for fertilizers. In phosphate rock, the content of cadmium and other toxic elements such as mercury, chromium, arsenic, lead, selenium, uranium, and vanadium should be low. The Company has not had problems with toxic metal levels in its products.

6.4 DSW

6.4.1 Regional Geology

The Dead Sea is located in the western Judean Desert on the border between Israel and Jordan. The regional geology developed as the result of divergence between the African and Arabian tectonic plates forming the Dead Sea graben depression. This graben was filled with water approximately 3 million years ago and was connected to and formed an extension of the Mediterranean Sea. Approximately 2 million years ago, tectonic activity led to the area between the Mediterranean and the Dead Sea being raised, isolating the Dead Sea basin from the Mediterranean and limiting further influx of water other than from surface run-off and groundwater movement.

Today, the Dead Sea has the lowest elevation of any point on Earth (400m below sea level) and replenishment of the Dead Sea is mostly restricted to the Jordan River that flows into the Dead Sea from the north. There is no outflow from the Dead Sea and the aridity of the region combined with high near-surface evaporation has led to the waters of the Dead Sea becoming hyper-saline. A regional geological map is shown in Figure 6.23.

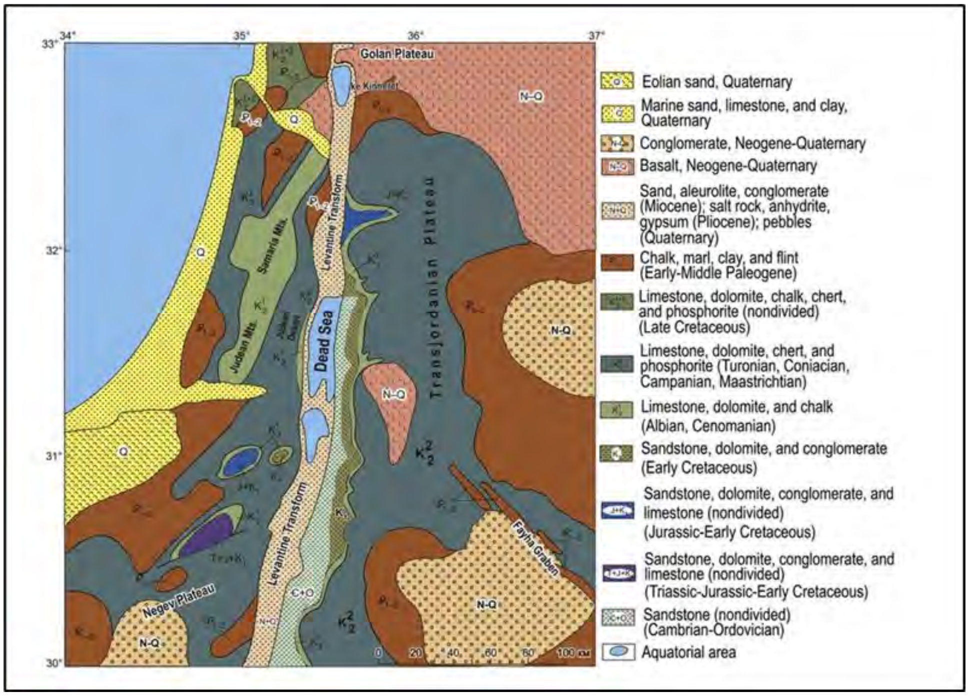


Figure 6.23: Regional Geological Map

6.4.2 Local Geology

The Dead Sea is located in a region dominated by Cretaceous age calcareous deposits that form the boundaries of the graben in which it is situated. Within the Dead Sea basin itself, Miocene and Pliocene sediments, halites and anhydrites dominate. A schematic cross section of the boundary of the Dead Sea basin is shown in Figure 6.24 and general stratigraphic column of the Dead Sea Group (Mount Sodom, approximately 6km north of the DSW processing facility) is presented in Figure 6.25.

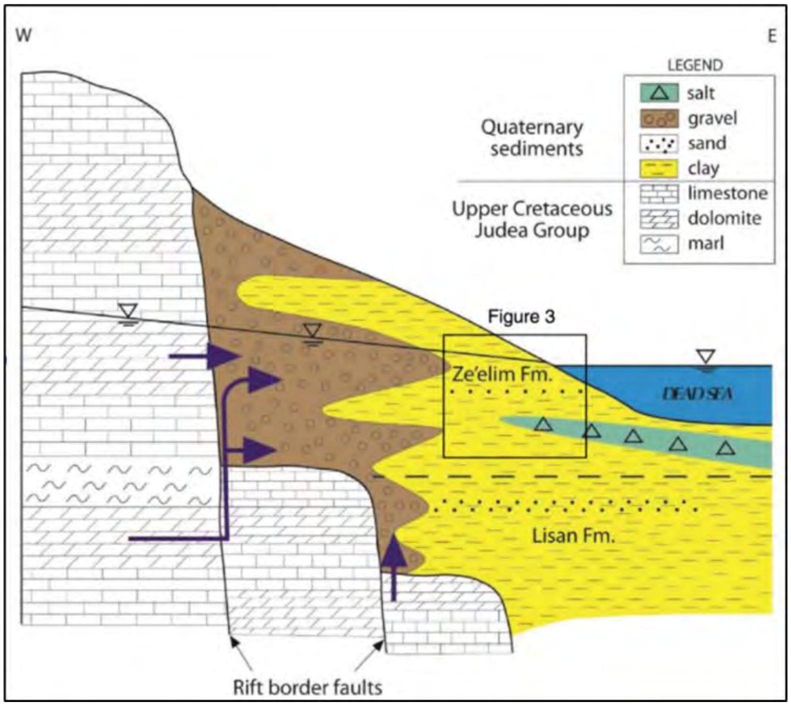


Figure 6.24: Schematic Cross Section (Western Dead Sea)

6.4.3 Regional Structure

The Dead Sea lies within the Dead Sea basin, part of a larger transform fault system known as the Dead Sea Transform ("DST") fault system or Dead Sea rift (Figure 6.26). The DST consists of a series of faults extending from a junction with the East Anatolian Fault in eastern Turkey to the northern end of the Dead Sea Rift offshore of the southern extent of the Sinai Peninsula. The DST is a transform boundary that falls between the African Plate to the west and the Arabian Plate to the east. Whilst the general relative movement between the plates is lateral, with both plates moving in the same direction to the north-north-east but the Arabian Plate moving faster, there are extensional zones in the southern part of the DST which has led to the formation of pull apart basins, one of which is the Dead Sea basin.

The Dead Sea basin is a pull apart basin located in an offset between the Wadi Arabah and Jordan Valley segments of the DST. The basin is almost 150km long and 8-10km wide and formed approximately 15 million years ago close to the beginning of the transform motion.

Local basin structure is dominated by longitudinal faults which delineate the pull-apart zone and which are extensions of major strike-slip faults located to the north and south of the basin and normal faults along the basin margins. Transverse faults divide the basin into several segments.

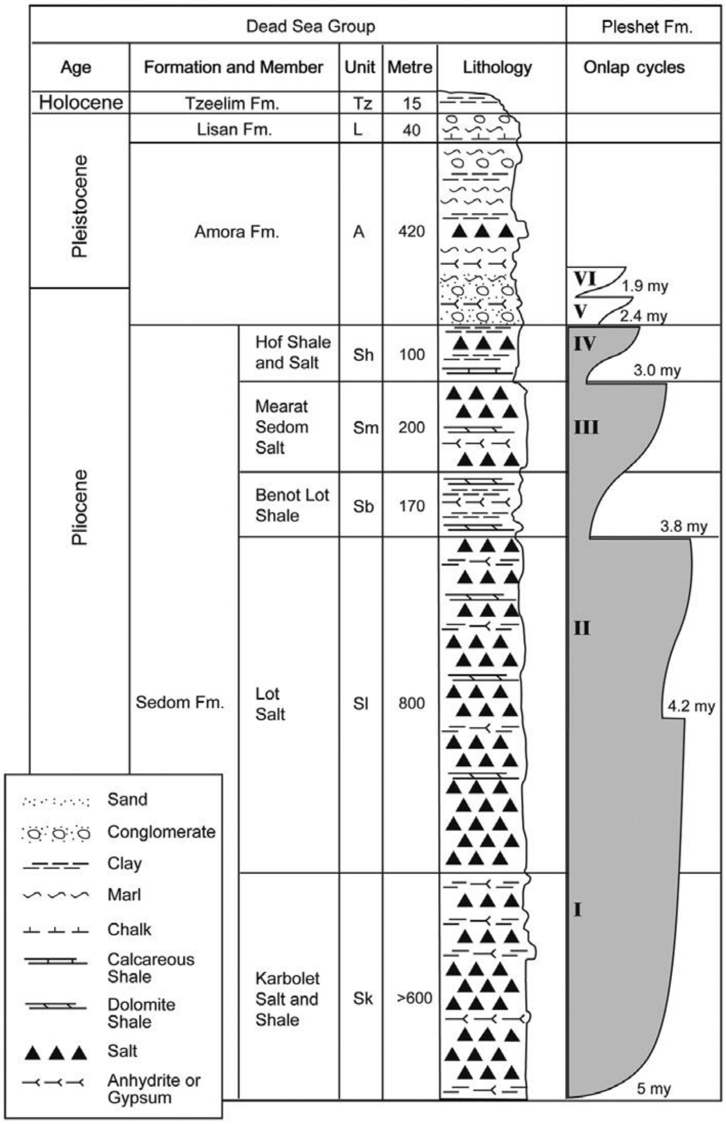


Figure 6.25: General Stratigraphic Section of the Dead Sea Group in Mount Sedom (data from Zak, 1967; Agnon et al., 2006; and Torfstein et al., 2009)

6.4.4 Deposit Type

The Dead Sea Works can be described as a closed-basin potash bearing brine deposit. This type of deposit is worked in various countries around the world and are important sources of potash production. These deposits typically have the potential to produce other commodities such as lithium, boron, and magnesium as by-products.

Potash bearing brine deposits form in closed basins in arid environments where high rates of evaporation at surface leads to concentration of brines. These basins are commonly structural basins.

Water flowing into the basins from precipitation run-off and groundwater typically have chemical constituents scavenged from local country rocks with sources of potassium being weathered minerals including orthoclase, microcline, biotite, leucite, and nepheline. These deposit types typically form in volcaniclastic terranes with acid to intermediate rocks common but can also form in areas with a prevalence of older saline rich rocks or continental sedimentary rocks.

The Dead Sea Works are not a single natural basin but take advantage of the already concentrated brine present in the northern Dead Sea to enable further staged concentration of the brine after evaporation and precipitation of minerals in a series of restricted ponds. Mineral precipitation from the brine follows a typical evaporite sequence. Precipitation of halite early in the process is followed by precipitation of carnallite from the super concentrated brine before the remaining brine is pumped back to the northern Dead Sea.

The ponds that form the basis of the Dead Sea Works are located to the south of the Dead Sea proper. They consist of 14 salt ponds (total area 97.4km^2), 14 carnallite ponds (total area 49.3km^2). The ponds have a total length of approximately 30km and a maximum width of approximately 8km.

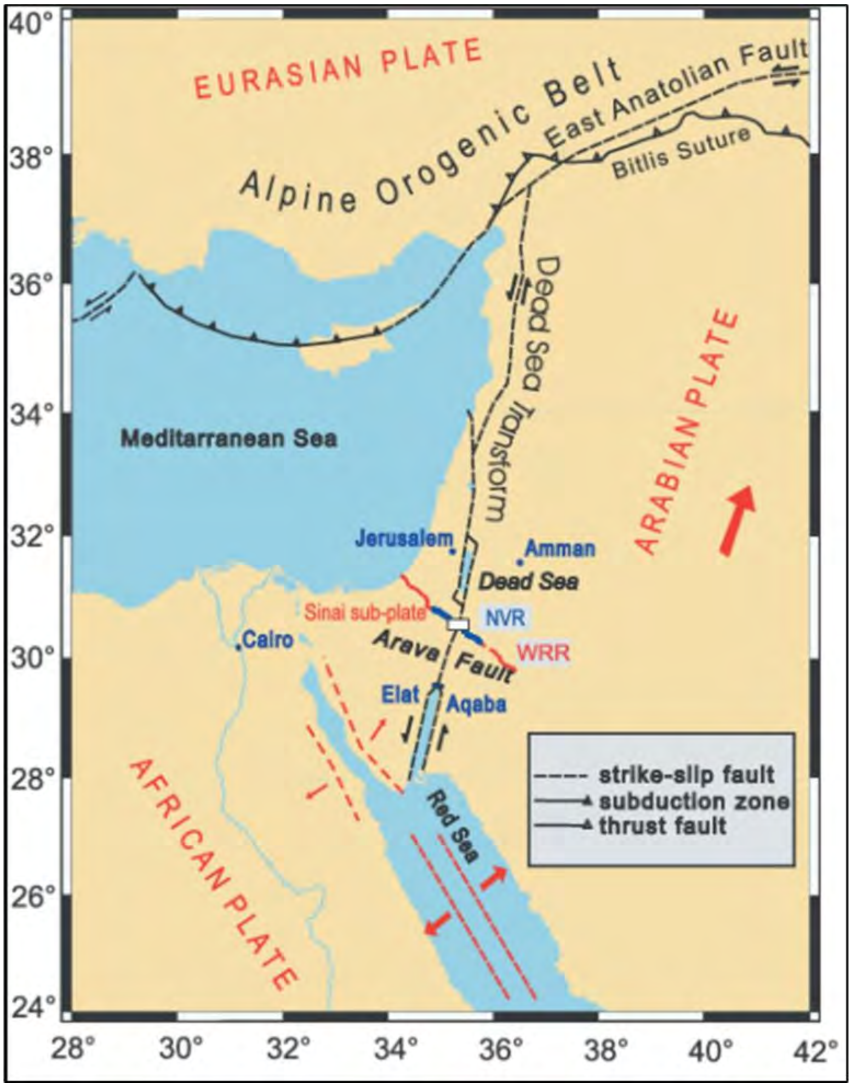


Figure 6.26: Location of the Ded Sea Basin with Respect to The Dead Sea Transform Fault System

6.5 YPH

6.5.1 Regional Geology

The Haikou Phosphate Mine is located on the southwest edge of yangzi platform and close to the west side of the Kunming Depression in Yunnan province. Geologically the phosphate deposits of Haikou and Baitacun are part of an extensive marine sedimentary basin, predominantly stratiform argillaceous phosphorite of late Precambrian to early Cambrian age, located on both flanks of a gently folded, east west trending XiangTiachong anticline (Figure 6.27). The exposed soil strata include the Dengying Formation of the Upper Sinian, the Yuhucun Formation of the Lower Cambrian, the Qiongzhushi Formation of the Lower Cambrian and Quaternary. The phosphate deposit is located in Yuhucun formation of the Lower Cambrian.

The regional structure mainly consists of two main structural systems of near north south striking and near east west striking systems (Figure 6.28). The north south structural belt passes through the Dianchi Lake from the north of Kunming to the south with a length of more than 70km. It consists of a long stretch of faults and some tight folds. The east-west tectonic belt, between Xianjie South of Anning and Jinning, is more than 20km wide.

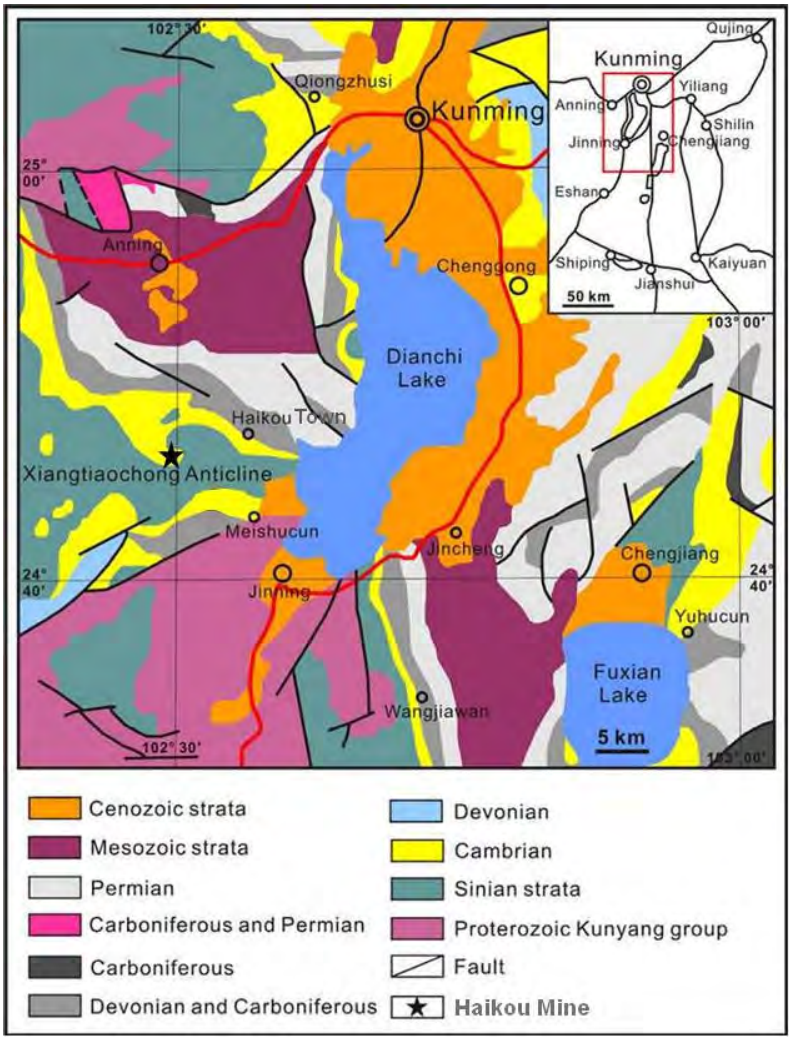


Figure 6.27: Geology Map of Kunming Area (after Lecai Xing et al, 2015)

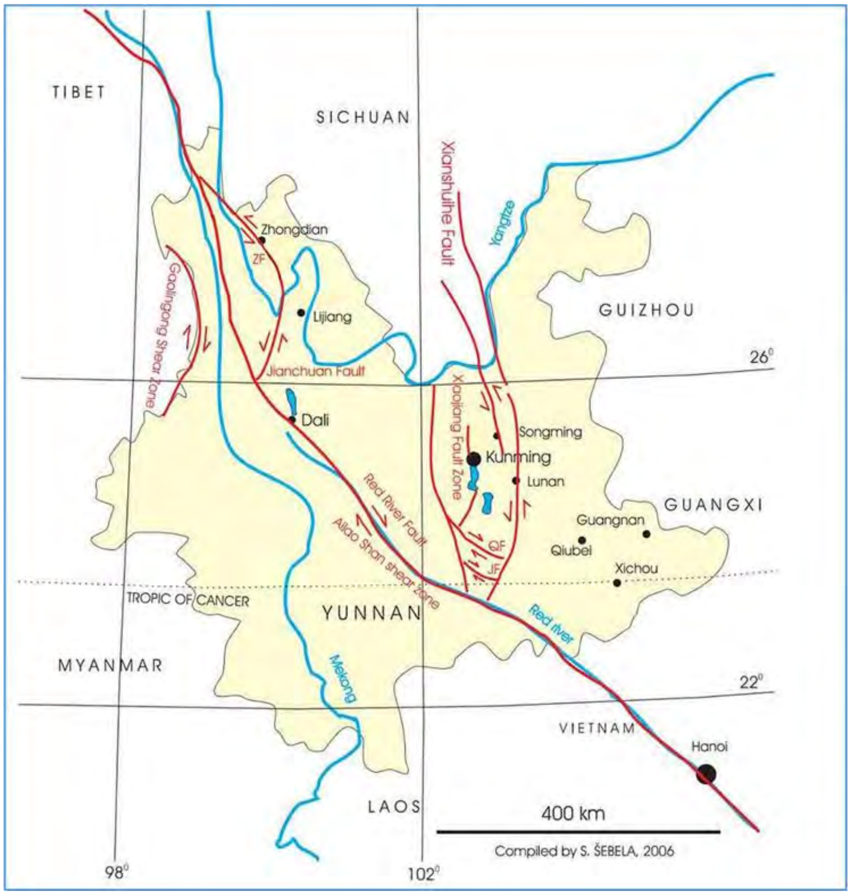


Figure 6.28: Structural Map of Yunnan Province
[ZF=Zhongdian fault, JF=Jianshui fault, QF=Qujiang fault (after Stanka Šebela et al 2006)]

6.5.2 Local Geology

Phosphate accumulation in this area is associated with multi-period strong crustal movement, movement of ocean wave and current, sediments and deposition of organic material. The stratigraphy within the mine area (Figure 6.29) ranges as follows ranging from old to young:

- Dengying Formation of Upper Sinian (Zzdn): Yellow sale followed by 300m thick layered dolomite
- Yuhucun Formation of Lower Cambrian (€1y) : Phosphate rocks and interburden dolomite
- Qiongzhushi of Lower Cambrian (€1g) : Pelletic siltstone
- Quaternary (Q) : Sandy clay (alluvial and pluvial clay and gravel)

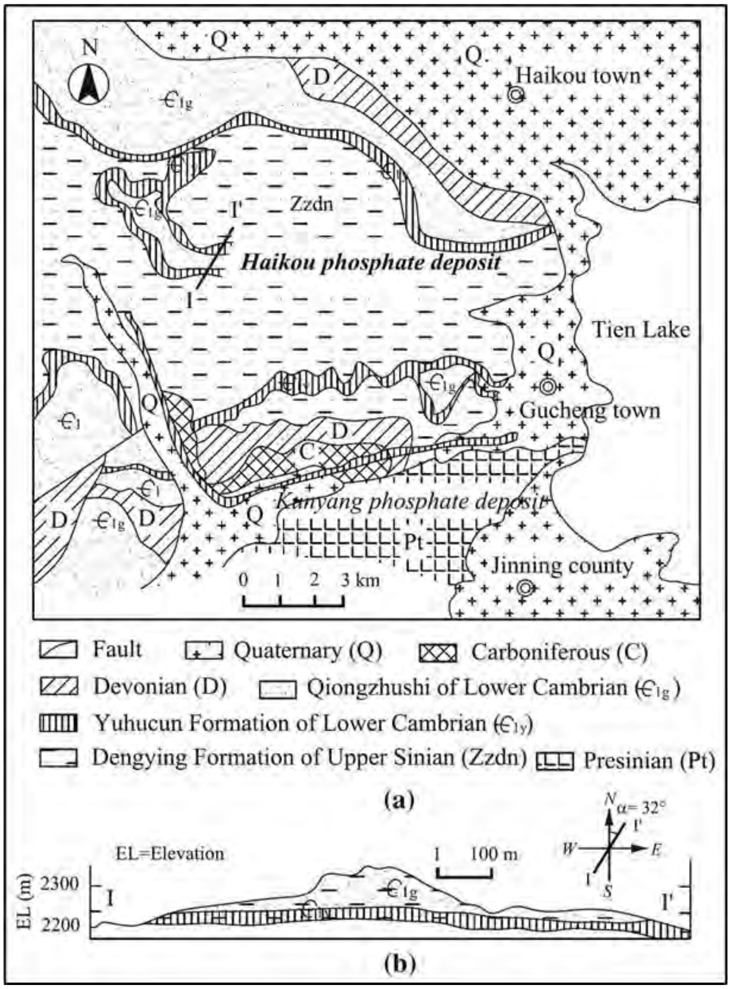


Figure 6.29: Local geology in the Haikou Phosphate deposit (after Yu-You Yang 2014)

The Haikou phosphate deposit is in the Yuhucun Formation of the Lower Cambrian. A simplified general stratigraphy of the Haikoue deposit is presented in Table 6.2.

Table 6.2: Simplified General Stratigraphy in Haikou Phosphate Deposit

Age	Strata	Unit	Thickness (m)	Petrographic Description (Lithology)
Quaternary		Q	>40.0	Sandy clay; alluvial and pluvial clay and gravel
Lower Cambrian	Qiongzhushi	€1g	>75.0	Pelitic siltstone
	Yuhucun Formation	€1y	0.92 – 14.03	Phosphate rock; sandy phosphate rock
			1.76 – 22.46	Sandy dolomite
			2.55 – 17.33	Sandy phosphate rock; phosphate rock; phosphate rock with dolomite
			2.00 – 18.13	Layered silicalite dolomite
Upper Sinian	Dengying Formation	Zzdn	330	Yellow shale followed by 300m-thick layered dolomite

6.5.3 Mineralisation

The XiangTiachong anticline controls the distribution of phosphate rock layers. As the main structure of the mining area, the Haikou Phosphate Mine is in the northern wing area of the anticline where magmatic rocks are not developed (Figure 6.27).

In line with the overall orientation of the phosphate layers, the Haikou deposit is divided into four mineralised blocks. Figure 6.30 provides location of the four blocks.

- Block 1 – North central flank of the Haikou deposit with 12° strike orientation and plunging 5-10°
- Block 2 – Northwest flank of the Haikou deposit with 12° strike orientation and dipping 5-10°
- Block 3 – Is south to south-east flank of the deposit with a general strike of 120-130° plunging at 5 to 7° to southeast
- Block 4 – At north-eastern flank with general strike of 32° plunging at 10° towards the north east. This block is geologically more complex and is characterised by several local faults with several metres of displacement.

Block 1 and 2 share similar characteristics and orientations. The stratigraphy of the Yuhucun Formation of the Lower Cambrian, where economic grade Phosphate bearing rocks is located, is sequentially divided into the following:

1. Top siliceous dolomite of no economic value.
2. The upper Phosphate layer of significant economic value. This generally comprises sandy phosphorite material on the upper parts, strips of phosphorite and dolomite layers at the middle followed by pseudo-oolitic phosphorite at the base. This subdivision is not consistent throughout the strike length of the Haikou deposit and some of the middle layers appear to be missing in certain places. Certain sections of pseudo-oolitic phosphorite are also thinner and occasionally distributed on the middle or top of the horizon. Conglomerate phosphorites are also present but are very sporadic with very small occurrences in the middle or bottom of the horizon.

3. Interbedded Phosphate bearing sandy dolomite – locally enriched with sporadic low-grade ore, within shallow oxidised zones, but not of economic value.
4. The lower Phosphate layer of better than marginal economic value. This has extremely stable and consistent bioclastic phosphorite on the top, followed by sandy phosphorite at the middle and pseudo-oolitic phosphorite, stripped (dolomitic) phosphorite and silicious phosphorite at the bottom of the horizon.
5. Base rock as dolomite of the Dengying Formation of Upper Sinian (Zzdn) interbedded with silica textured stripes of no economic value.

Figure 6.31 to Figure 6.33 provides examples of lower- and upper-layer phosphate rocks at Block 2, 3, and 4.

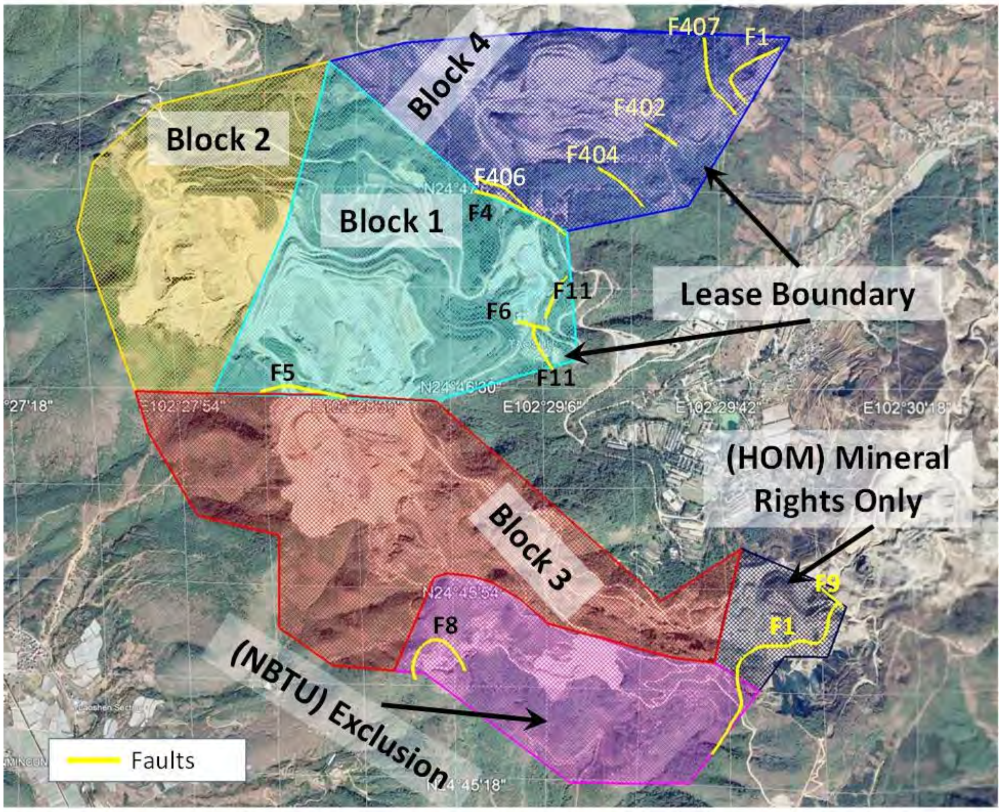


Figure 6.30: Haikou Mine Lease Area and Associated Mineralisation Sub-division (Google Earth Feb 2020)

Figure 6.31: Block #2 Overview-Looking West (lower layer between two red lines) [Golder November 2021]

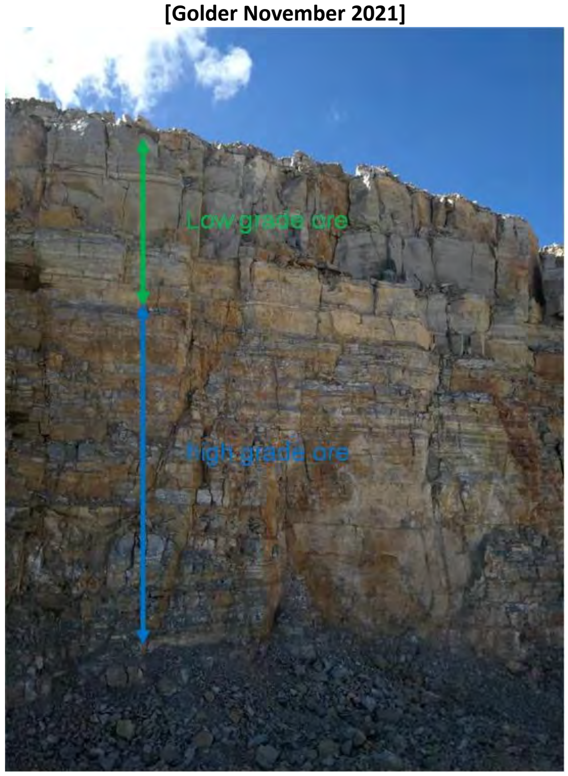


Figure 6.32: Upper Layer Profile in Block #3 [Golder November 2021]

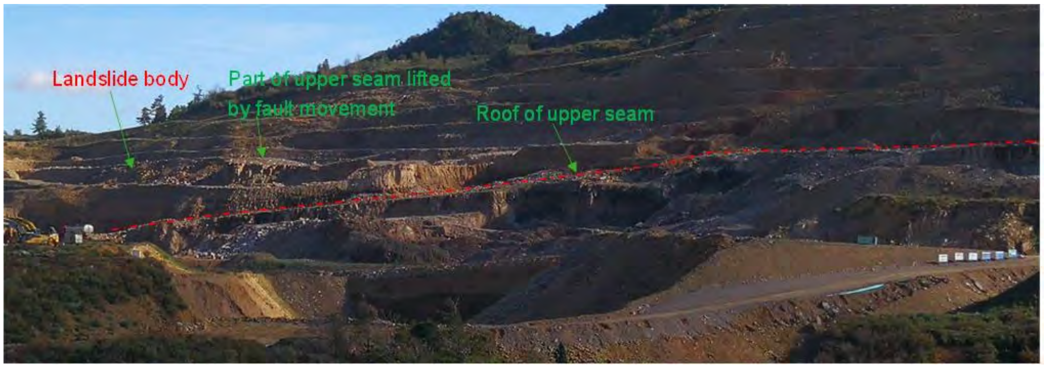


Figure 6.33: Overview of Upper Seam in Block #4-looking South [Golder November 2021]

7 EXPLORATION

7.1 Boulby

7.1.1 Overview

The exploration conducted on the Boulby Mine area has occurred over the 50-year history of the mine. All exploration works up to 1999 conducted in and around the mine were concerned primarily with potash and regional geology with polyhalite exploration only commencing from 1999. Exploration methodology at Boulby is dictated by the depth of the polyhalite, the offshore location of much of the region of interest and stratigraphic constraints of water bearing strata and lithologies not conducive to drilling. The polyhalite at Boulby has been explored with a combination of seismic surveys and drilling from underground development.

7.1.2 Seismic Surveys

7.1.2.1 2D Seismic Survey lines

ICL Boulby has access to 2D seismic data derived from a suite of approximately 460 kilometres (33 lines) of offshore and 28 onshore Lines that extend knowledge of the near mine area through the entirety of the Permian stratigraphy. The data was originally shot and processed for hydrocarbon exploration and was purchased and re-processed and re-interpreted by ICL Boulby to facilitate its use in guiding underground exploration and development of the mine workings. This data has driven development of the mine's structural models, fault identification and targeting of exploration drilling for mineral resources. Data from these 2D lines is available across the majority of existing workings and planned exploration areas. The extent of the 2D seismic survey in relation to the coastline and existing mine workings (in potash) is shown in Figure 7.1.

7.1.2.2 3D Seismic Survey 2011

In 2011, ICL Boulby commissioned and shot a 3D seismic survey. The purpose was to better define the complex structural situation that exploration drilling had encountered to the North and East of the mine. Over a two-week period in February 2011 a 3D offshore seismic survey covering an area of 160km^2 was successfully undertaken. Processing and interpretation were completed by the end of 2011. The survey conducted was a towed streamer type survey conducted at an oblique angle to the major structures, whilst this is not standard practise, a set of orientation exercises were conducted using 2d data with strong seabed multiples (a common feature of towed streamer surveys) and looking at the ability of an oblique survey to image the major structures. Both exercises were successful with the end data being deemed good enough quality for the main survey to follow these parameters.

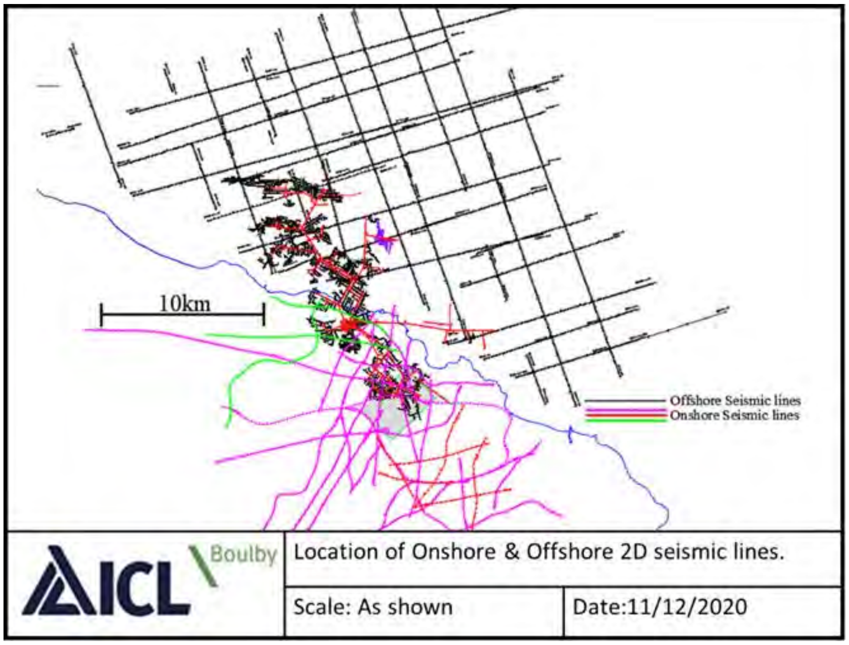


Figure 7.1: Location of Onshore and Offshore 2D Seismic Lines

The survey was shot using eight towed 1,500m length streamers. Shotpoint density for this survey averaged 12.5m to deliver an “inline” density of 6.25m and a “crossline” density of 25m across the surveyed area.

In total 43 sail lines were carried out resulting in a total of 833km sailed and over 64,000 shot points conducted. The extent of the offshore 3D seismic survey in relation to the coastline and existing mine workings (in potash) is shown in Figure 7.2. The 3D survey was designed and processed to primarily to identify and map in detail large scale structures to the North of the mine workings. Limitations of the survey and the collected data give a minimum resolution of approximately 10m for lithological contacts and structures.

As a result of the offshore 3D survey, a zone for the initial stages of development and testing of polyhalite was established. This zone is known as the “Seismic Quiet Zone” or “SQZ”. The extents of this area were established by delineating the major structures and interpreting the lateral continuity of the polyhalite across a broad area of the survey. The resulting areas of the SQZ can be described as free from major faulting disturbance and with good prospects for lateral continuity of the polyhalite and associated lithologies.

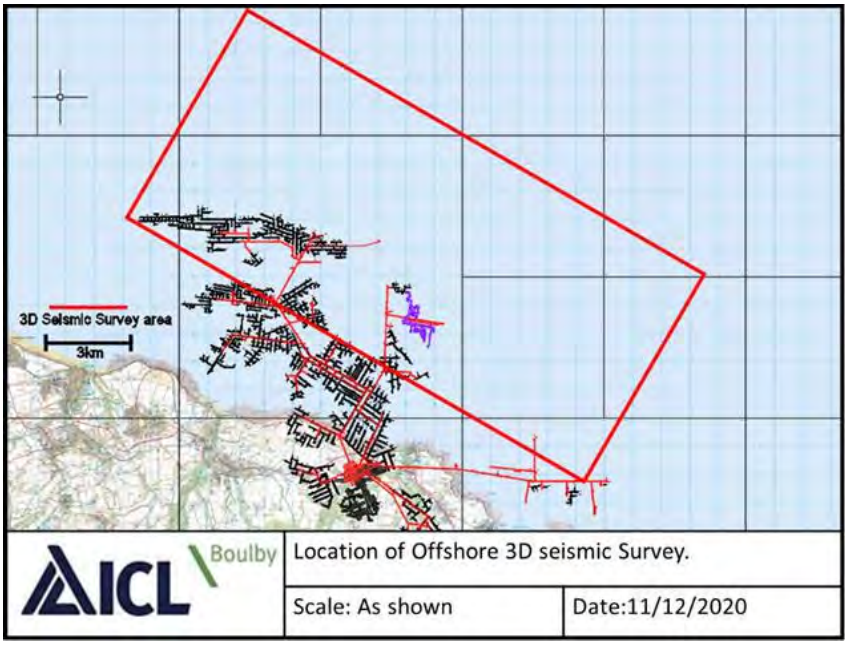


Figure 7.2: Location of Offshore 3D Seismic Survey

7.1.3 Drilling

7.1.3.1 Introduction

Three types of drilling intersecting polyhalite have been carried out by ICL Boulby:

- Initial vertical exploration holes drilled from potash workings above the polyhalite;
- Sub-horizontal, Longhole directional drilling known as Longhole drilling (“LHD”); and
- Grade control face drilling.

The primary source of information on which the Mineral Resource estimate is based is the longhole drilling.

The vertical holes were drilled in two campaigns between 1999-2008 and there is uncertainty regarding their surveyed position and some assay results. Grades from samples obtained during this drilling are not used in the Mineral Resource estimate.

The grade control/face drilling provides only a qualitative measure of grade and is primarily used to identify the base of seam in close proximity to the current mining. These bases of seam intersection locations have been used in conjunction with the LHD data to improve the geological model for the structure/surface of the polyhalite seam but grades from this drilling method are not used in the Mineral Resource estimate.

7.1.3.2 Sub-horizontal Longhole Drilling

Sub-horizontal Longhole drilling is a bespoke method of drilling which has been developed and refined at Boulby Mine since the mid-1970's. The LHD was initially designed for potash exploration and has since been adapted for polyhalite exploration.

The method allows for exploration holes to be collared sub-horizontally from in-seam or near seam locations and then be "steered" by altering the configuration of the drill bit and drill rods to achieve the initial desired parent hole profile up to approximately 2,000m in length through a series of upwards deflections and dropouts. From this initial parent hole, a series of daughter holes can be drilled on retreat to intersect the full thickness of the polyhalite seam (Figure 7.3).

Parent holes are drilled in a fan from purpose mined drill bays to achieve the desired coverage across the deposit. Typically, hole fans are drilled on 10° horizontal increments over a range of up to 180° with lateral distance between polyhalite intersections along hole of 100 - 150m.

During advance of the pilot hole and drilling of daughter holes, the upper anhydrite and lower anhydrite layers act as markers for termination of upwards or downwards deflections.

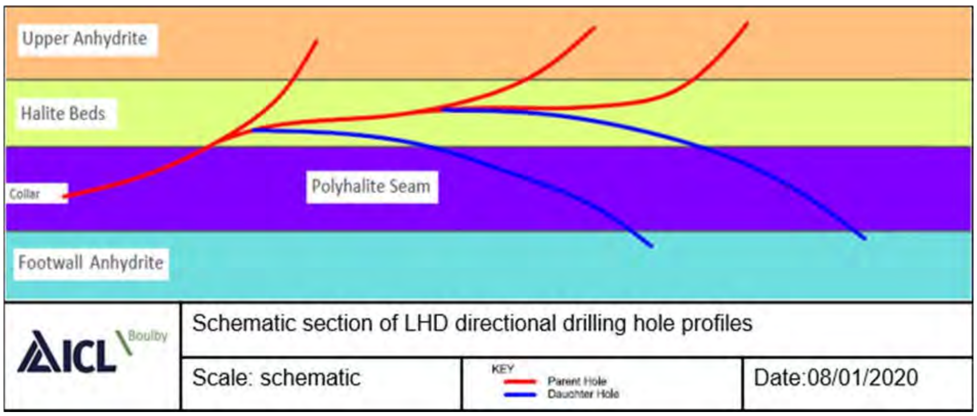


Figure 7.3: Schematic Section of the LHD Directional Drilling Hole Profiles

7.1.3.3 Drill Core Diameter

LHD operates using a diamond impregnated matrix style drill bit and is a continuous coring system of NQ2 size with core at a nominal 50.6mm diameter. Drill rods are 3.0m in length.

7.1.3.4 Core Return, Collection and Order

Core is returned via reverse circulation of KCl and NaCl saturated brine to prevent dissolution of the core samples. Core exits the back of the rod string and is collected in baskets which allows the brine to drain away. The drilling crew remove the core from the baskets and place it on trays. From and To tags are inserted to record the depth of each 3.0m run.

Collection of core materials in this manner means the orientation and exact order of the core within each three-metre run is not preserved. To prevent mix-up of core in adjacent runs the hole is flushed and core returned for every three-metre run prior to commencing of the next run.

7.1.3.5 Core Recovery

The polyhalite seam is very competent and recovery is consistently around 100%. Core recovery is not quantitatively recorded during drill hole logging, but notes are made systemically by the geologist regarding the quality of core returned.

7.1.3.6 Hole Positioning

The mine survey department which creates and maintains a precise underground control network backed up by gyro-theodolite bases. Subsidiary surveys and scans are undertaken in operational areas on a regular basis.

Planned drilling positions are set out by a surveyor using a theodolite from known control points and these are used when establishing a new LHD hole. Once collared, the offsets from the surveyed positions are measured and recorded by a geologist to measure the holes true position with these final positions recorded in the drilling database for use.

7.1.3.7 Downhole Surveys

LHD uses Reflex EZ shot tools with single shot downhole surveys conducted a maximum of every 30m of drilling on advance. The survey tool records a range of parameters that include the magnetic bearing, inclination and magnetic field strength which allows the operator to determine whether a survey has been run without magnetic interference and is therefore an accepted result. Surveys are communicated to exploration geologists who compare the surveyed position to the planned position and can alter the drilling instructions if required for further advancement of the hole.

Each LHD hole is surveyed using a pair of tools in an alternating fashion which allows validation of measurements including assessment of drift, damage to instruments etc. A list of survey tools, their location and date and certificates of last calibration is maintained by the geology department. Survey instruments are returned to the manufacturer for calibration as part of their recommended maintenance scheme.

7.1.3.8 Adequacy of the Location of Data Points

The location of drilled data points is confirmed by the occasional intersection of old boreholes during mining operations. The locations of these intersections are surveyed and compared to the expected position. A correction can be applied to the hole if appropriate. In polyhalite, a total of seven holes have been intersected by mining, the average bearing correction applied is 0.39° and the average inclination correction is 0.28°. These corrections are within the stated accuracy of the EZ-SHOT tool and indicate that the positions provided by the survey instruments are suitable for use in the mineral resource estimate.

7.1.3.9 LHD Logging Procedures

Drill holes are logged and sampled at the drill site upon completion of each daughter deflection. Core trays are laid out to sufficiently understand the macro structure and geology. The core is logged by a geologist including the from/to positions, a description of the observations and interpretation, the assigned ICL Boulby lithology code, and a qualitative description of core quality.

7.1.3.10 LHD Sampling Procedures

Sampling procedure for LHD in polyhalite has evolved over time with two methods of sampling being used for the data used in the current Mineral Resource estimate.

Current procedure is for 100% of core to be taken as a sample by the geologist in three metre intervals, with each three metre interval representing a single drill run/rod. Given the low angle nature of the drilling relative to the generally flat lying seam, three metres of core represents 0.3 - 0.5m true thickness. Samples are taken from the top of the P2/Polyhalite lithology starting with a sample of the immediate hanging-wall halite. Samples are then taken in three metre intervals to the base of seam, with the last two samples being split at the contact between the P3/Polyhalite unit and the footwall anhydrite.

The from/to depths, lithology code, geologist name and date of sampling are recorded in a sample book with each page having a unique sample code. A perforated sample tag with the same sample code is removed from the book and is placed into a heavy-duty plastic bag along with the sample. The bag is secured with a tie-wrap and placed in a secure container awaiting transport to the surface.

Prior to February 2017, drill core was sampled differently. Instead of taking all core from a three-metre run, geologists selected a sub-sample of the defined sample interval, extracting approximately 2-3kg or approximately 10% of total material, to be taken for sample preparation. In addition, the defined sample interval was not restricted to being within a single drill run.

7.1.3.11 Factors with Potential to Impact Accuracy and Reliability

The drill hole information used in the Mineral Resource estimate is from LHD drilling and sampling. Approximately 80% of this data was generated prior to February 2017 with the remainder from holes drilled after this point. This sampling method used prior to February 2017 is unlikely to be fully representative of the interval it describes and as a sample could be taken across three metre drill runs could include material which do not lie within the true interval. This poses a risk to the mineral resource / reserve estimate and has been considered during classification.

7.1.3.12 Effects of Crystallisation of drilling brine on drill core

Drill core is reversed flushed through the drill string and recovered using a saturated brine solution. The potential exists that this saturated brine contaminates the surface of the drill core therefore altering the final assay result of the drill core. To quantify the potential contamination three test pieces of non-evaporite rock and of similar dimensions to the LHD drill core was submerged into the saturated brine solution after initial weighing. The samples were then oven dried and subsequentially re-weighed before washing in distilled water. The washed solution was submitted for analysis and the experiment conducted three times. The result of this test is summarised in Table 7.1.

Table 7.1: Test Results for Assessing Possible Brine Contamination

Sample Description	w/w %			
	NaCl	**KCL**	**Ca**	**Mg**
Saturated Brine (Control sample)	23.04	3.17	0.04	0.51
Test 1	ND	ND	0	0.14
Test 2	ND	ND	0	0.15
Test 3	ND	ND	0	0.15
Uncontaminated Distilled Water	ND	ND	0	0.15

No detectable amounts of sodium chloride and potassium chloride were recorded with calcium recording zero in all three tests including the uncontaminated distilled water sample. No additional magnesium was recorded in the three tests compared to the uncontaminated sample. Weight gains were measured during each of the repeated tests ranging from 0.0 to 0.5g grams (<1% of the rock mass test samples).

Given no detectable contamination was detected, a correction value of drill core final assay results due to saturated brine flushed drilling has not been applied.

7.1.3.13 Drill Plans & Sections

The exploration drilling for polyhalite in Zone 1 used in the Mineral Resource estimation has covered an area of approximately six square kilometres at varying spacings. Typical spacings between polyhalite intersections within the same hole are 100 - 150m between daughter holes whilst spacing between holes vary with distance from the collar. Close to the collars spacing between polyhalite intersections is approximately 50 - 100m and spacing progressively increases to approximately
300 - 500m at the end of drill arcs (1.0 - 1.5km horizontal distance from the collar).

A total of 21 parent holes are used in the current Mineral Resource estimation from which 117 sampled polyhalite seam intersections have been carried out. These total nearly 60,000m of parent and daughter hole drilling of which 8,100m of daughter holes have been sampled.

A plan view of the drillholes within the context of the current mine workings and the defined prospective areas is shown in Figure 7.4. An example drill section showing the geological interpretation of the Boulby Zone 1 is shown in Figure 7.5. A summary of holes used in the Mineral Resource estimate is shown in Table 7.2. This table does not include any of the sub-vertical or grade control drilling as none of this data was used in the production of the Mineral Resource estimate.

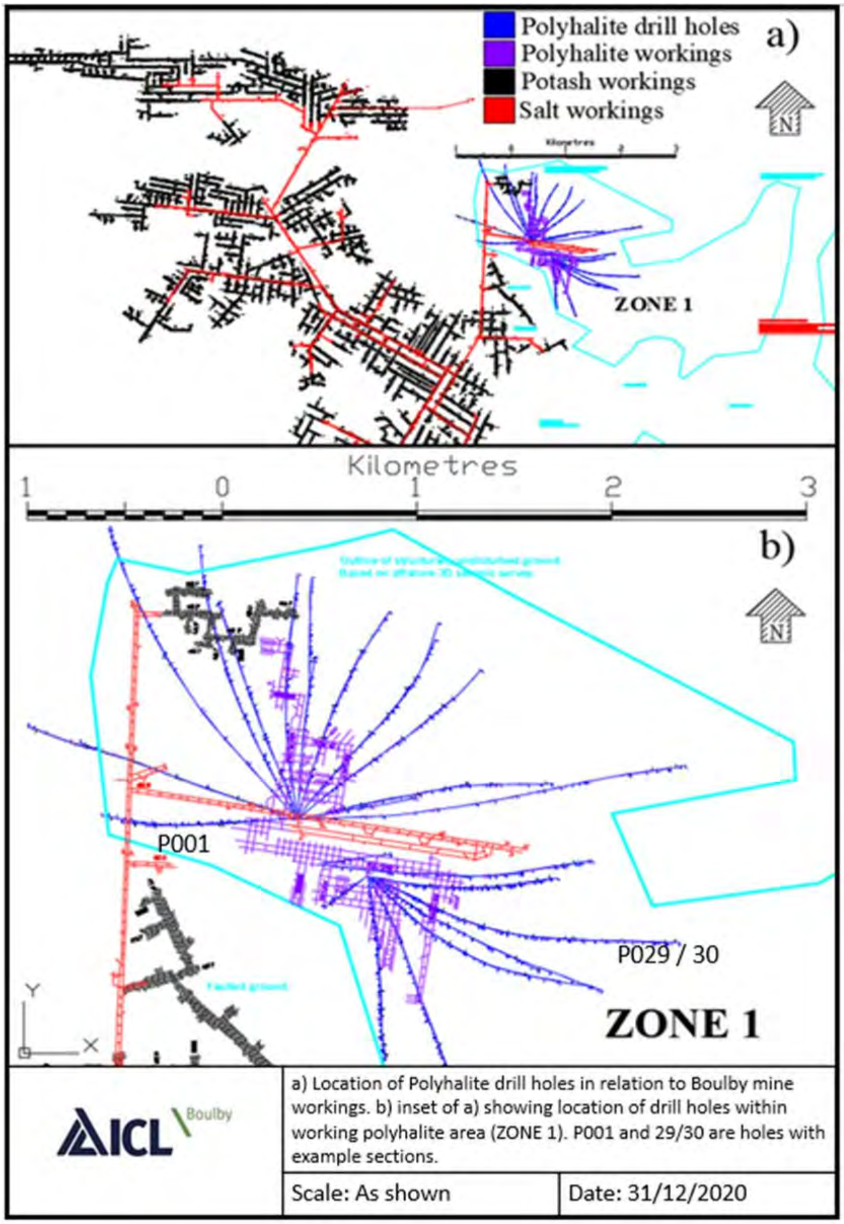


Figure 7.4: a) Location Of Polyhalite Drill Holes in Relation to Boulby Mine Workings b) Inset of a) Showing Location of Drill Holes Within the Working Polyhalite Area (ZONE1)

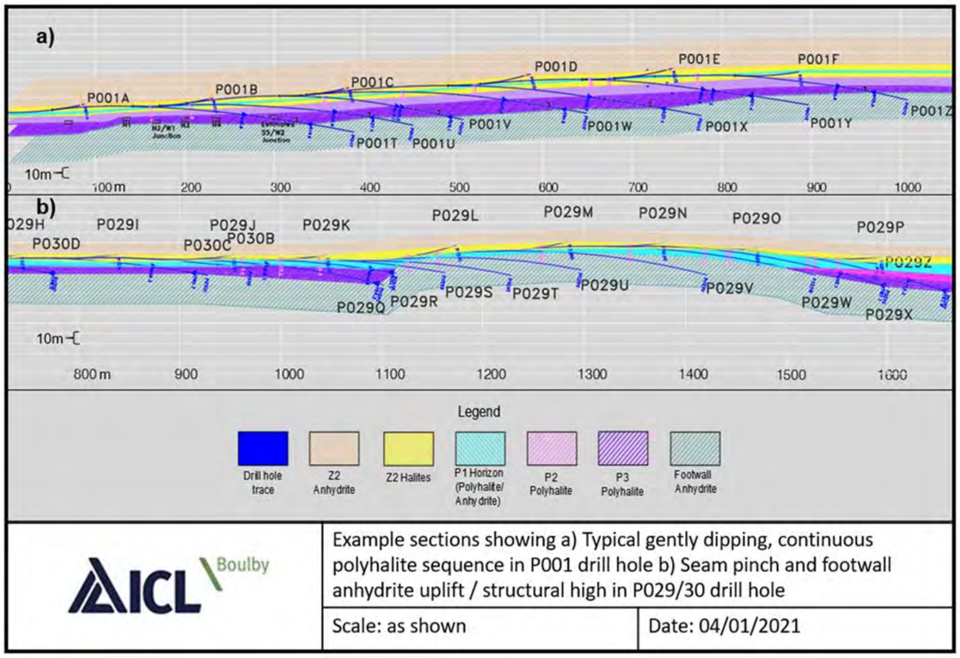


Figure 7.5: Example Sections of Longhole Exploration Boreholes through the Polyhalite

Table 7.2: Summary of Drillholes Used in Mineral Resource Estimation

BHID	First Deflection Collar Easting	First Deflection Collar Northing	First Deflection Collar Elevation	Total Length All Deflections	Start Bearing	Start Dip	Type	Number of Polyhalite Intersections	Used in MRE
P001	478,179	523,503	833	2,908	270	0	LHD	7	Yes
P003	478,180	523,505	833	2,032	290	-2	LHD	2	Yes
P006	478,183	523,508	833	3,622	319	0	LHD	5	Yes
P007	478,185	523,509	833	3,127	330	1	LHD	5	Yes
P008	478,187	523,509	833	2,741	340	0	LHD	5	Yes
P009	478,187	523,515	833	2,898	350	0	LHD	4	Yes
P010	478,190	523,509	833	3,076	359	1	LHD	7	Yes
P011	478,191	523,509	833	2,608	10	0	LHD	5	Yes
P012	478,193	523,509	833	2,716	26	1	LHD	6	Yes
P014	478,195	523,507	833	2,304	44	2	LHD	5	Yes
P017	478,197	523,505	833	2,842	77	1	LHD	7	Yes
P019	478,199	523,503	832	2,838	87	2	LHD	2	Yes
P021	478,292	523,257	810	643	80	0	LHD	2	Yes
P027	478,291	523,256	810	3,600	95	0	LHD	9	Yes
P028	478,552	523,191	797	3,593	100	0	LHD	9	Yes
P029	478,552	523,189	797	4,011	115	0	LHD	4	Yes
P030	479,367	522,868	813	1,101	98	4	LHD	6	Yes
P032	478,549	523,187	797	3,016	124	1	LHD	8	Yes
P034	478,548	523,186	798	3,112	134	2	LHD	5	Yes
P036	478,533	523,189	797	753	230	0	LHD	3	Yes
P037	478,544	523,184	797	3,425	169	1	LHD	10	Yes
P040	478,546	523,185	797	2,974	150	-2	LHD	1	Yes
TOTAL				**59,940**				**117**	

7.1.3.14 QP Statement on Drilling

The drilling, logging, and sampling is considered to follow a conventional approach suitable for the geology and deposit under investigation, and uses standard industry practices. The results achieved are in line with expectations and the QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the historical or recent exploration drilling. The data are well documented via original digital and hard copy records and were collected using industry standard practices in place at the time. All data has been organised into a suitable database.

7.2 Cabanasses and Vilafruns

7.2.1 Overview

A summary of the exploration undertaken within the Cabanasses and Vilafruns licences is described in the sections below. Although historical exploration and mining (pre-1960's) is known to have occurred within the area, no data remains from this time.

The stratiform and laterally extensive nature of the ICL Iberia deposits would in a typical situation lend themselves to exploration in a grid like manner using surface drilling at an initial wide (250 - 750m) spacing, followed by infill of prospective resources to sufficient detail (50 - 100m) to enable planning and scheduling of detailed designs.

However, the depth of the deposits (800 - >1,000m) makes extensive surface drilling cost prohibitive. In addition, during surface drilling aquifer bearing rocks are intersected prior to encountering the potash bearing seams. Upon completion, surface drillholes are grouted and sealed to prevent potential water ingress into the mine. Mineral resources located within a radius of 25 - 50m from the trace of a surface drillhole are then sterilised from mining to act as a safety pillar. From a practical standpoint underground drilling is therefore the preferred option and is undertaken predominantly within (non-aquifer) halite located below the potash seams before being deflected upwards to intersect the mineralisation. Although the low angle of intersection resulting from underground drilling is problematic when calculating true thickness of the seams (compared to surface drilling which intersects the seams perpendicularly), the practical benefits of underground drilling are still considered to outweigh extensive surface drilling. As such, underground drilling comprises the bulk of all exploration drilling and is undertaken continuously by ICL Iberia and used for near mine exploration (i.e. up to 1,700m from existing mine development). Surface drilling campaigns are undertaken less frequently and are used as step-out drilling to expand the resources beyond the near-mine area.

The exploration model relies extensively upon geological interpretation of 3D and 2D seismic surveys as an important tool in guiding exploration. These are used in conjunction with a detailed understanding of the depositional structure and chemistry of the Catalan Potash Basin and post-depositional tectonics including folding and fault structures.

7.2.2 Seismic Surveys

In 1989, 91km^2 of 2D seismic surveys of Cabanasses, Vilafruns and the surrounding area between the Cardoner and Llobregat rivers was completed. The survey included 8 profiles orientated at an azimuth of 20° (perpendicular to the potash mineralisation) and four additional profiles orientated parallel to the mineralisation.

In 2005, the seismic data were reprocessed to provide greater detailed interpretation of the geometry and depth of the top of the Seam B structure.

In 2010, 40km^2 of detailed 3D seismic surveys of the Cabanasses mine and the area to the north of Cabanasses was completed.

The 2D and 3D seismic surveys were merged by ICL Iberia. The 3D survey is used as the principal survey while the 2D survey is used for peripheral areas (e.g. Agenaise Zone) located beyond the extents of the 3D survey. The merged 2D and 3D seismic surveys for Cabanasses are shown in Figure 7.6.

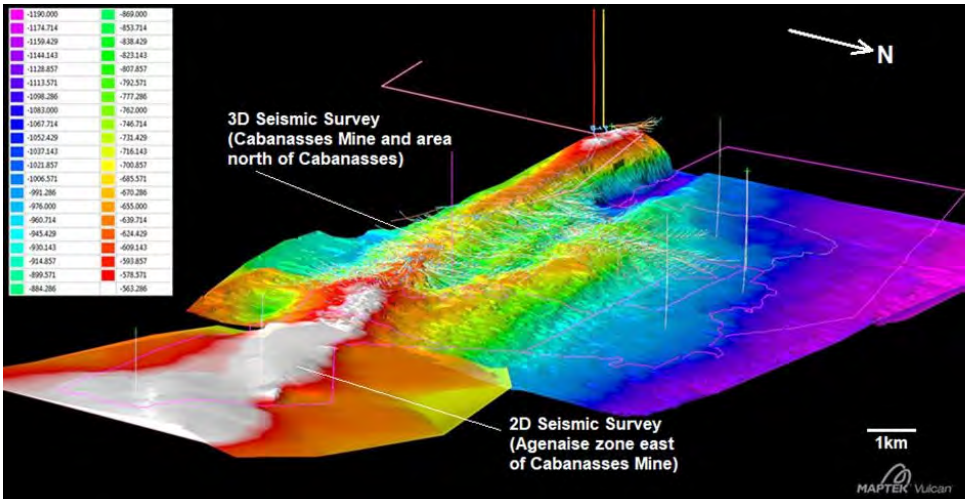


Figure 7.6: Merged 2D and 3D Seismic Surveys of Cabanasses Area

The seismic surveys are used by ICL Iberia to identify the geometry and depth of the top of Seam B along with associated antinclinal and synclinal structures. The surveys confirm continuity of potash mineralisation beyond the extents of the mine and underground drilling and are used by ICL Iberia to guide geological interpretation and exploration drill planning.

7.2.3 Drilling

7.2.3.1 Introduction

Drilling is the principal exploration method used by ICL Iberia to delineate mineral resources. Nearly all drilling has been completed from underground with only 12 surface drillholes completed (all at Cabanasses). Of these 12 surface holes, 2 were completed ICL Iberia in 2021 (SAG1 and SAG2) at the Agenaise zone located northeast and along strike of the existing underground mine development. At the time of this report, a third surface drillhole (SAG3) had commenced at Agenaise and a further two drillholes are planned by ICL Iberia during 2022.

A summary of the drilling completed within the Cabanasses and Vilafruns licences is shown in Table 7.3. All drillholes were by diamond core drilling.

Table 7.3: Summary of Cabanasses and Vilafruns Drillholes						
Year	Cabanasses		Vilafruns		Total	
	Drillholes	Length (m)	Drillholes	Length (m)	Drillholes	Length (m)
Underground Drillholes						
2002	-	-	13	3,417	13	3,417
2003	10	2,475	-	-	10	2,475
2004	63	21,717	6	529	69	22,246
2005	81	23,195	-	-	81	23,195
2006	60	16,612	56	15,165	116	31,777
2007	38	11,763	40	11,793	78	23,556
2008	36	10,050	45	14,829	81	24,879
2009	74	22,864	46	14,844	120	37,708
2010	129	37,887	28	7,224	157	45,111
2011	80	26,294	22	6,399	102	32,693
2012	115	36,965	-	-	115	36,965
2013	134	49,572	13	2,289	147	51,861
2014	112	35,671	20	3,978	132	39,649
2015	145	45,779	62	21,459	207	67,238
2016	251	83,941	74	29,793	325	113,734
2017	256	88,548	-	-	256	88,548
2018	262	90,166	-	-	262	90,166
2019	252	92,693	-	-	252	92,693
2020	144	56,401	-	-	144	56,401
2021	83	35,173	-	-	83	35,173
Sub-Total	2,325	787,766	425	131,719	2,750	919,485
Surface Drillholes						
1963	1	999	-	-	1	999
1991	4	3,406	-	-	4	3,406
2010	1	1,258	-	-	1	1,258
2011	3	3,525	-	-	3	3,525
2018	1	966	-	-	1	966
2021	2	1,910	-	-	2	1,910
Sub-Total	12	12,064	-	-	12	12,064
Grand Total	**2,337**	**799,830**	**425**	**131,719**	**2,762**	**931,549**

The extents of the drilling at Cabanasses and Vilafruns is shown in Figure 7.7 and the drillholes coloured by drilling year are shown in Figure 7.8 (Cabanasses) and Figure 7.9 (Vilafruns). No drilling has been undertaken at Vilafruns since 2016.

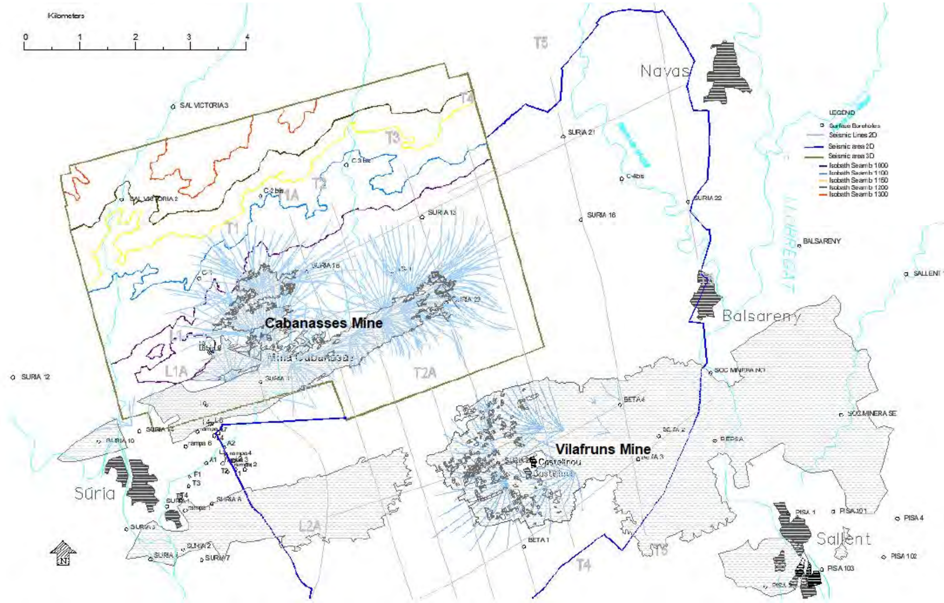


Figure 7.7: Extent of Drilling at Cabanasses and Vilafruns

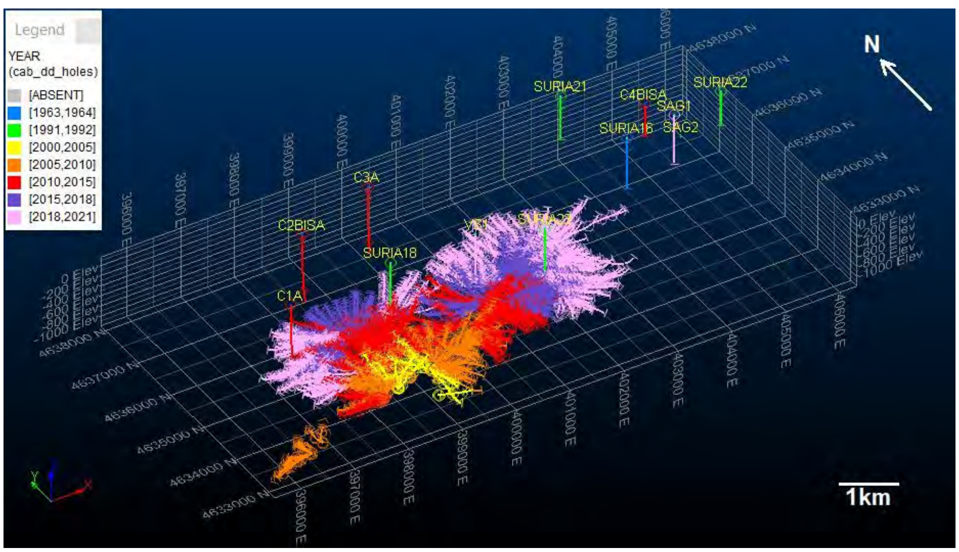


Figure 7.8: Underground and Surface Drillholes at Cabanasses by Drilling Year

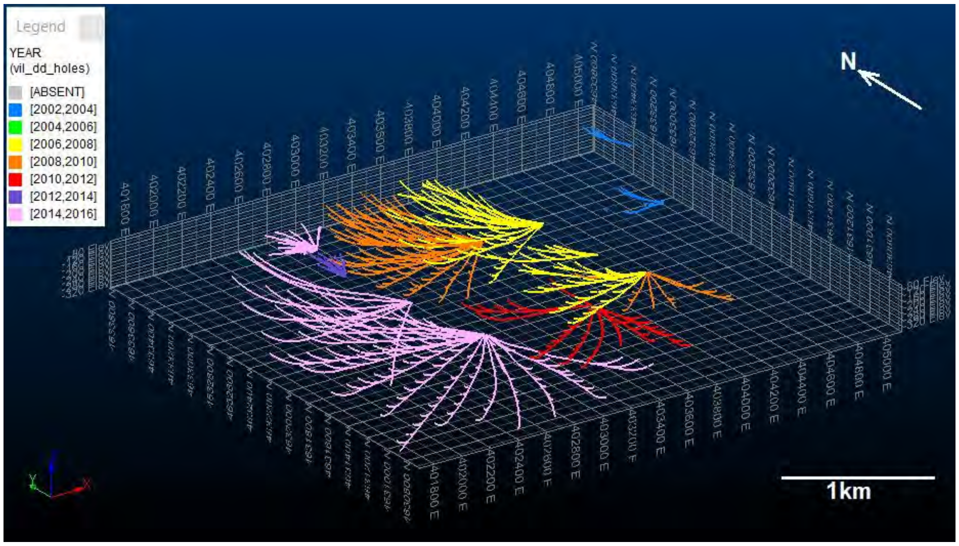


Figure 7.9: Location of Underground Drillholes at Vilafruns by Drilling Year

7.2.3.2 Underground Drilling

Underground drilling is the principal method of exploration drilling for near-mine resources and is undertaken continuously by ICL Iberia.

Core drilling is performed using the 'fan and deflection' drilling techniques as developed and introduced by Cleveland Potash Limited (CPL) at the Boulby potash mine in the UK. Underground long hole drilling (LHD) with multiple deflections up into the potash seams is used to intersect the mineralisation. In the first instance, a single horizontal parent hole is drilled in the halite below Seam A to a distance of up to 1,400m. At the maximum horizontal extents of the drillhole the drill head is then deflected upwards to intersect the potash seams. After intersecting through the mineralisation, the drill head retreats along the parent hole (typically 80 - 100m per retreat) before being deflected upwards again to intersect the mineralisation. Using this technique, numerous intersections can be completed from a single parent hole. A schematic of the LHD drilling method is shown in Figure 7.10.

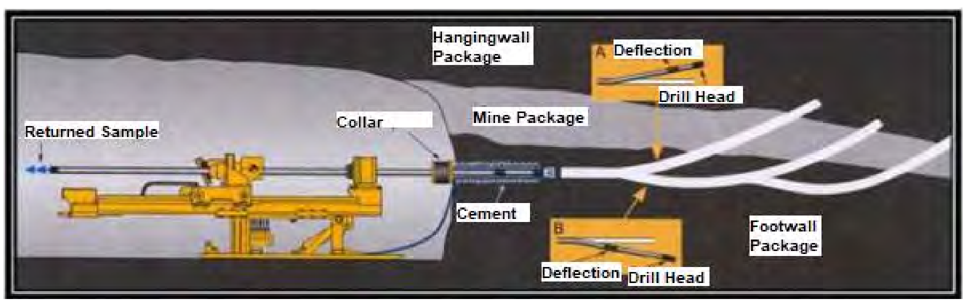


Figure 7.10: Schematic Cross Section of LHD Drilling Method

Core is returned from the drill head using a pressurised brine (KCl and NaCl saturated) flush as a medium to push the drill core back up the drill string. Brine is used instead of water to prevent dissolution of the halite or sylvinite. The core pieces are ejected from the drill string and are collected in baskets mounted at the back of the drill rig which allow the brine flush to drain away. At the drill site, the pieces of drill core are then placed on metal trays by the drill crew and re-assembled to best correspond to their original sequence. From and to tags are then inserted to record the depth of each 3m run within halite and 1m within the potash seams.

Collection of cores in this manner means the orientation and order of the core within each 1m run (for the potash seams) is not always exactly preserved. To prevent mix-up of core from adjacent runs the hole is flushed and all core is returned prior to commencing the next run.

LHD operates using a diamond impregnated matrix style drill bit and is a continuous coring system producing NQ size core (47.6mm diameter). Drill rods are 3 m in length. The potash seams are competent and core recovery is consistently around 100%. Core recovery is not quantitatively recorded during drillhole logging but notes are made systemically by the geologist regarding the quality of core returned. No correlation is observed between grades and core recovery.

Drillhole collar locations are surveyed using a total station and are checked by a geologist prior to drilling. Downhole surveys are completed every 30m using a Reflex EZ single shot tool and reducing to 15m when close to the point of deflection from the parent hole.

7.2.3.3 Surface Drilling

Surface drilling is undertaken as separate campaigns and consists of step-out drilling for exploration beyond the near-mine area. Due to issues associated with surface access, deep drilling depths (800 – 1,000m) and sterilisation of resources in proximity to surface drillholes (to prevent water ingress), surface drilling is less frequently used.

Drilling is completed as near-vertical drillholes of 900 – 1,300m length. Previous surface drilling campaigns were completed using core drilling for the entire length of the drillhole, however, for the 2021 campaign, drilling initially commenced using rotary percussion methods. Chip samples were logged and photographed and as the drill head approached the potash seams, drilling then switched to diamond core (wireline). Drilling produces HQ (occasionally NQ) diameter drill core and core recovery is 100%.

Drillhole collar locations are surveyed using a GPS survey instrument. Downhole surveys are completed every 30m using a Reflex EZ single shot tool and are also surveyed by a televiewer which provides a continuous downhole survey.

7.2.3.4 Effects of Crystallisation of Drilling Brine on Drill Core

The drilling brine used for routine drilling operations is supersaturated with NaCl, KCl and MgCl to avoid the dissolution of the halite, sylvinite and carnallite during drilling. The brine is produced from a mixture of rock salt, potash product (95.5% KCl) from the process plant and carnallite rock obtained from the mining operations.

After the core is obtained from the drilling rig and stored in the drilling bay for subsequent logging and sampling, the brine at the surface of the core evaporates, depositing a thin layer of salts (variable amounts of halite, sylvinite and carnallite) on the core surface. To assess if any significant contamination of the drill core results from contact with the drilling brine, a study was completed by ICL Iberia using 18 rock salt samples collected from the working face of a continuous miner. Of these samples, 9 were analysed for KCl (%), MgCl (%) and Ca2+ (%) as a control group. To replicate the conditions of the drill core during routine drilling operations, the other 9 samples (brine group) were submerged in drilling brine for 25 minutes, then dried in air before being analysed for the same compounds.

Within the rocksalt, a positive correlation exists between KCl and Ca2+ due to the presence of minor polyhalite ([K2Ca2Mg(SO4)4•2H2O]). If no significant contamination occurs from the drilling brine then the same relationship between KCl and Ca2+ should be observed in the brine group samples. Based on this, the results of the analysis of the control group and the brine group samples for KCl and Ca2+ are shown in Figure 7.11.

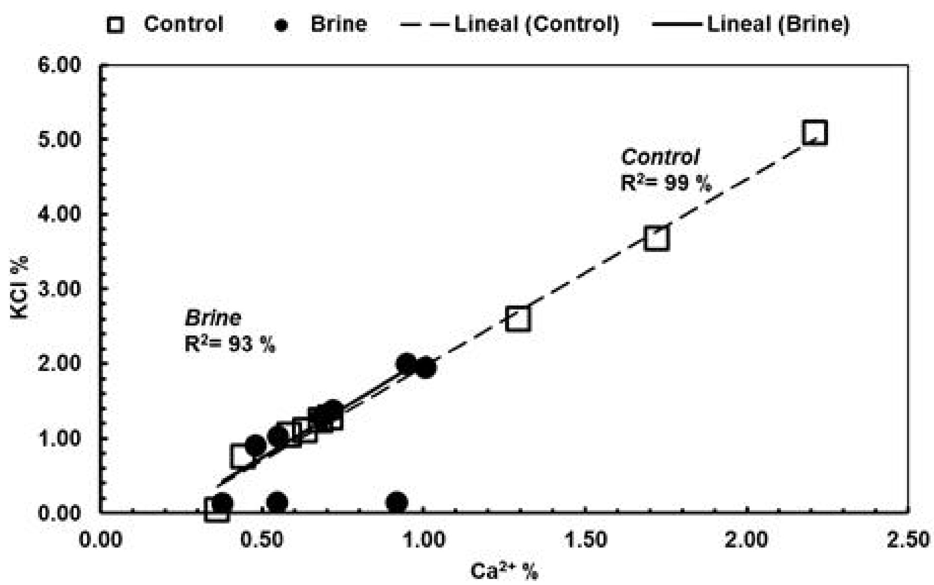


Figure 7.11: Results of Analysis for KCl (%) and Ca2+ (%) for Control and Brine Group Samples

Overall, a similar linear relationship between KCl and Ca2+ is observed for the brine group samples as for the control group samples (note: two samples within the brine group with elevated Ca2+ and low KCl values are attributed to the presence of anhydrite (CaSO4) in these samples). This indicates that no significant contamination from the drilling brine has occurred which would have resulted in elevated levels of KCl in the brine group samples (relative to the original relationship of KCl and Ca2+ in polyhalite).

7.2.3.5 Adjustment of KCl Grade for Carnallite Content and Dissolution of Drillcore

The majority of the total KCl content of the potash seams is derived from sylvinite, however, minor carnallite ($KClMgCl_26H_2O$) is also present. Laboratory analysis provides total KCl and an adjustment is made by ICL Iberia to reflect only the KCl reporting from sylvinite (as carnallite is not recoverable by the current processing methods). The following empirical formula derived from the stoichiometry of carnallite is used by ICL Iberia to adjust total KCl content to give KClcorr (i.e. KCl in sylvinite):

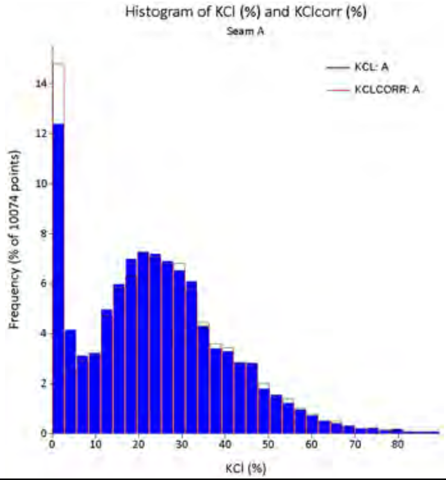
$$KClcorr = (KCl) - (MgCl_2 \times 2.916 \times 0.2684)$$

As a result of the adjustment, the KClcorr value will be lower than the KCl (total) value, except for the following:

- Instances where the drilling brine was not sufficiently saturated, results in differential dissolution of the drillcore, whereby, sylvinite is partially dissolved and a higher proportion of halite remains;
- In cases of differential dissolution, the remaining drillcore diameter is measured by a geologist using a calliper and the proportion of sylvinite that has been dissolved is estimated and a Leach Factor (LF) is recorded in the drillhole database to reflect this;
- The L.F is used to correct the KCl values to account for the missing proportion of sylvinite from the drillcore. An LF value of 1 means no dissolution of drill core has occurred and no adjustment is made. LF values of >1 reflect the proportion of dissolution and the resulting KClcorr value will be higher than the KCl (total) value.

A comparison of the KCl (total) and KClcorr values for samples located within the Seam A and Seam B wireframes at Cabanasses is shown in Figure 7.12 and a statistical analysis is shown in Table 7.4.

a) Cabanasses Seam A



b) Cabanasses Seam B (including Transformada)

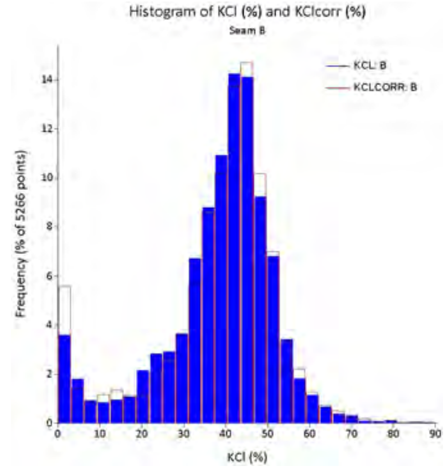


Figure 7.12: Histograms comparing KCl (%) and KClcorr for Cabanasses Seams A and B

Table 7.4: Summary Statistical Analysis of KCl (%) and KClcorr at Cabanasses

Year	№ of Samples	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient of Variation
Seam A							
KCl	10,074	0	89.6	24.2	263.2	16.2	0.67
KClcorr	10,074	0	89.4	24.3	276.2	16.6	0.68
Seam B (including Transformada Zone)							
KCl	5,266	0	90.4	40.2	186.5	13.7	0.36
KClcorr	5,266	0	90.1	38.2	213.1	14.6	0.38

The effect of the adjustment of KCl to KClcorr on the overall drillhole database is minor, with similar mean grades and population distributions observed for both values. For the purposes of mineral resource estimation, the KClcorr grades are used by ICL Iberia.

7.2.3.6 Calculation of True Thickness and Grade

For each sample, the angle of intersection with the potash seam (based on the centre line axis of the drillcore) is measured with a protractor by a geologist during the first stage of geological interpretation. The angle is recorded in the drillhole database (incl. field). In instances of variable angles of a sample, an average angle is taken. The angle of intersection is then used to calculate the true thickness of each sample using the sine value of the angle. Further details on the calculation of true thickness and grade are included Section 11.3.6.

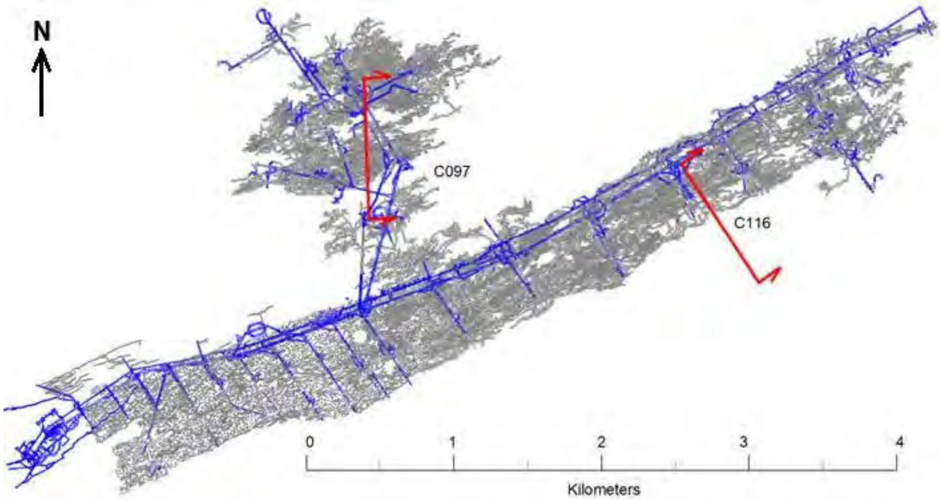
7.2.3.7 Drill Sections

Geological cross sections showing the underground drilling at Cabanasses and Vilafruns are shown in Figure 7.13 and Figure 7.14 respectively.

7.2.3.8 QP Statement on Drilling

The drilling, logging, and sampling is considered to follow a conventional approach suitable for the geology and deposit under investigation, and uses standard industry practices. The results achieved are in line with expectations and the QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the historical or recent exploration drilling. The data are well documented via original digital and hard copy records and were collected using industry standard practices in place at the time. All data has been organised into an appropriate exploration database.

a) Plan View of Cross Section Profiles C097 and C116 at Cabanasses



b) Geological Cross Sections of Profiles C097 and C116 at Cabanasses

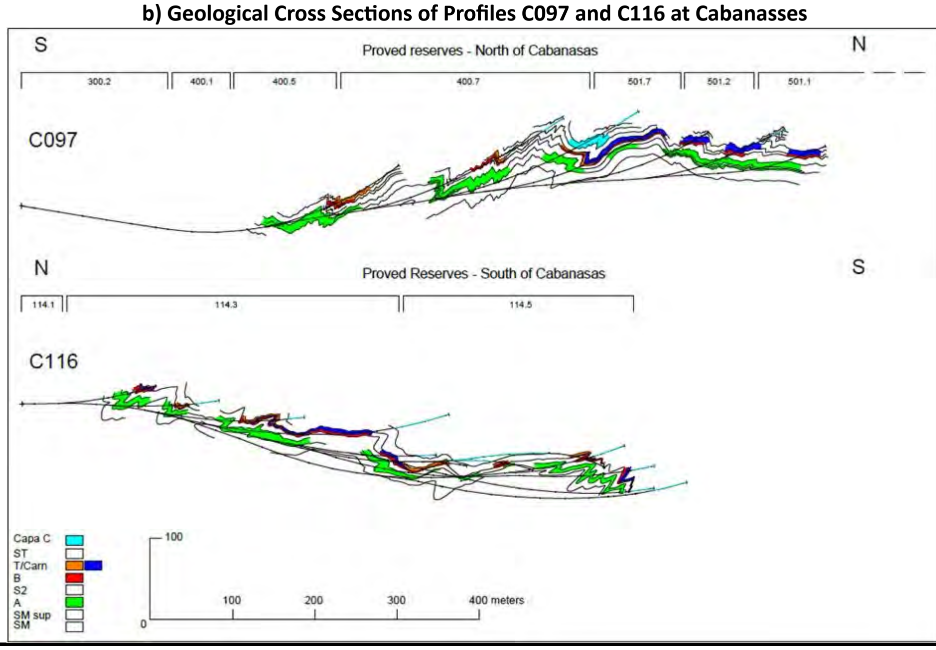
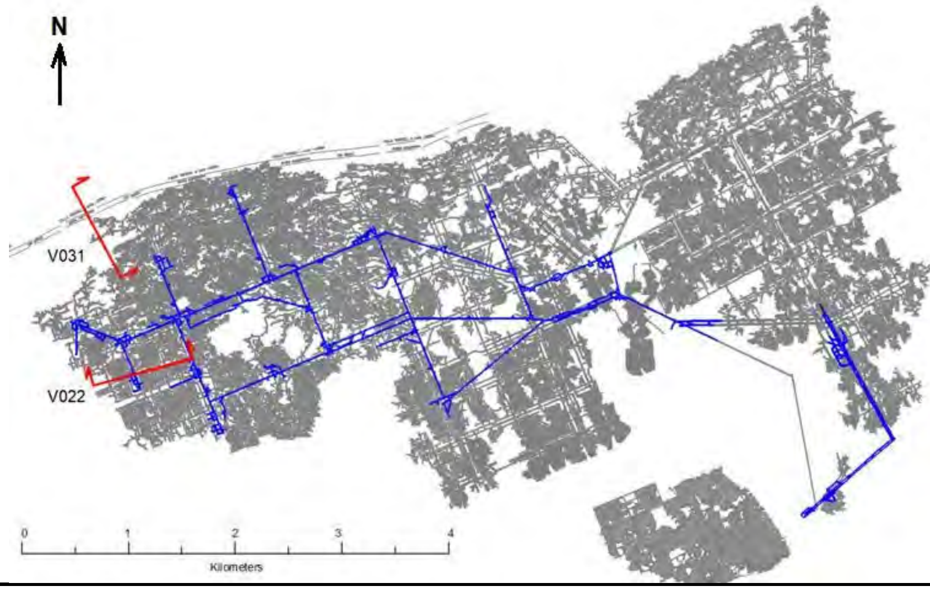


Figure 7.13: Geological Cross Sections of Underground Drilling at Cabanasses

a) Plan View of Cross Section Profiles V031 and V022 at Vilafruns



b) Geological Cross Sections of Profiles V031 and V022 at Vilafruns

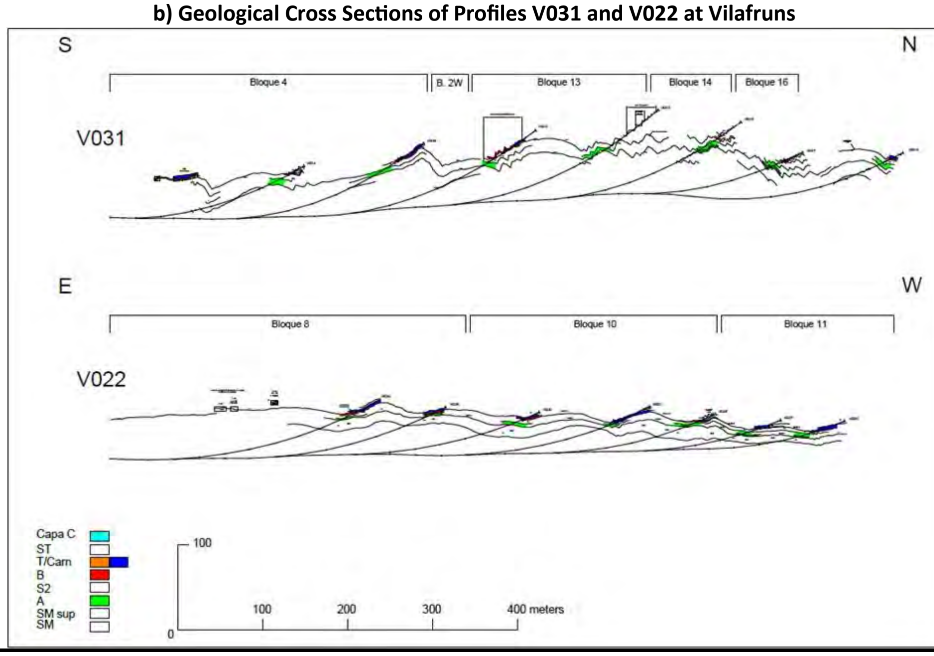


Figure 7.14: Geological Cross Sections of Underground Drilling at Vilafruns

7.3 Rotem

7.3.1 Overview

All exploration at Rotem, Oron and Zin is carried out by surface drilling. No other data is used in the production of Mineral Resource estimates.

7.3.2 Drilling

All surface drilling is carried out using a conventional mobile six wheel drive combination drill rig which has the ability to drill Rotary Air Blast (RAB) style chip samples, or to drill a 110mm diameter solid core (Photo 7.1). All holes are drilled vertically down from surface.

The RAB chip samples are used for establishing grade boundaries of the different seam intersections and assist the geologist in establishing the primary geological horizons. The drilling is carried out by a contractor, but under the direct field supervision of Rotem geologists.

Drillhole spacing varies and generally is in the range of 100 - 150m. Drillhole spacing can be lower with infill holes added as required to provide more detailed data where rapid variation in seam thickness or variable chemistry of samples is expected/seen and drillhole spacing can be as low as 60 - 70m in places where more supporting information is required. Reasons for a smaller grid spacing may include steep dips in seam, changing seam thickness, variable chemistry or in places where karstic features have developed.

Photo 7.1: Contractor's Mobile Combination RAB/Core Drill Rig

Field logging is carried out by geological personnel. Logging is carried out by review of the chips produced by RAB drilling. Logging is carried out on 1m intervals for overburden or caprock but on 20cm intervals once the phosphate layers are reached. Logging sheets record standard data including drillhole ID, logging and matching sample depth interval depths and a qualitative description.

As a product of the RAB drilling method, rock chip (or 'dust') samples are collected at 20cm intervals in phosphate and interburden layers to produce a 1½ to 2 kg sample, which is described and recorded by the geologist on-site.

Samples are not weighed, so recovery is not quantitatively measured, but if the hole is dry – as it is in 95% of cases – the sample recovery is high. When the hole is wet or sticky, the rods are pulled frequently to maximise recovery and to minimise chip build-up on the sides of the drill hole.

Whole core (110 mm) samples are recovered for conducting laboratory bench scale testing of different seams and different ROM ore types by simulating washing, flotation, size classification etc. A log is compiled from the diamond drill core to provide more detailed geology. Core recoveries are calculated but no structural (geotechnical) measurements or logging is carried out. The open pits are relatively shallow and so no geotechnical modelling is undertaken, further information is presented in Section 13.3.2.2.

Whole core testing is carried out by the laboratory so no core remains from the phosphate bearing intersections and core is not photographed before sampling. Core recovery in the phosphate bearing seams is variable and typically results in some loss due to the friable nature of the phosphate rock. If recovery is considered to be less than 80% however, the core is not used for a laboratory sample (and therefore omitted from the mineral resource modelling).

In overburden or caprock layers, logging and sampling is carried out at 1m intervals (Photo 7.2).

Photo 7.2: 1m Spaced Chip Samples Collected in the Un-Mineralised Overburden (Un-Sampled)

Figure 7.15, Figure 7.16, and Figure 7.17 illustrate the high density of exploration drilling that has been carried out at the Rotem, Oron and Zin sites respectively. Drill spacing is typically in the range of 100 - 150m but can be decreased to take into account changes in seam thickness or dip or changes in chemistry.

7.3.3 QP Statement on Drilling

The drilling, logging, and sampling is considered to follow a conventional approach suitable for the geology and deposit under investigation, and uses standard industry practices. The results achieved are in line with expectations and in the QP's opinion, there are no drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

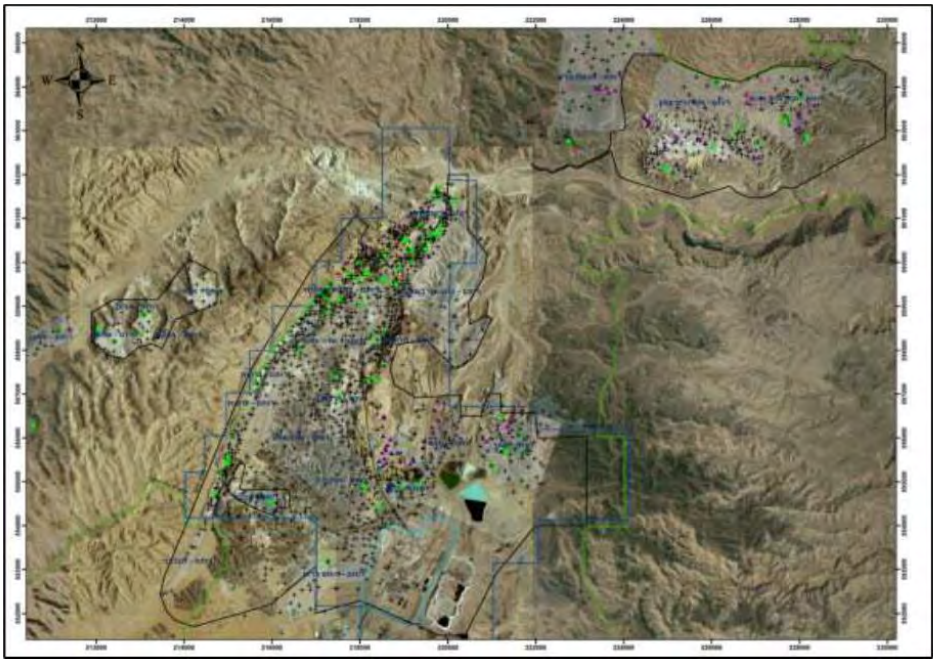


Figure 7.15: Drill Hole Locations at Rotem

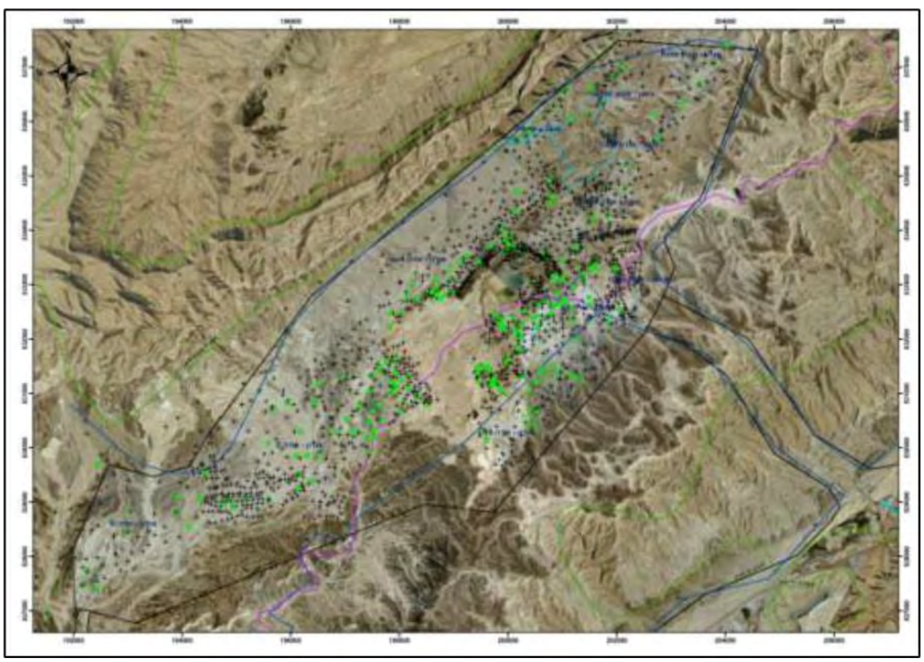


Figure 7.16: Drill Hole Locations at Oron

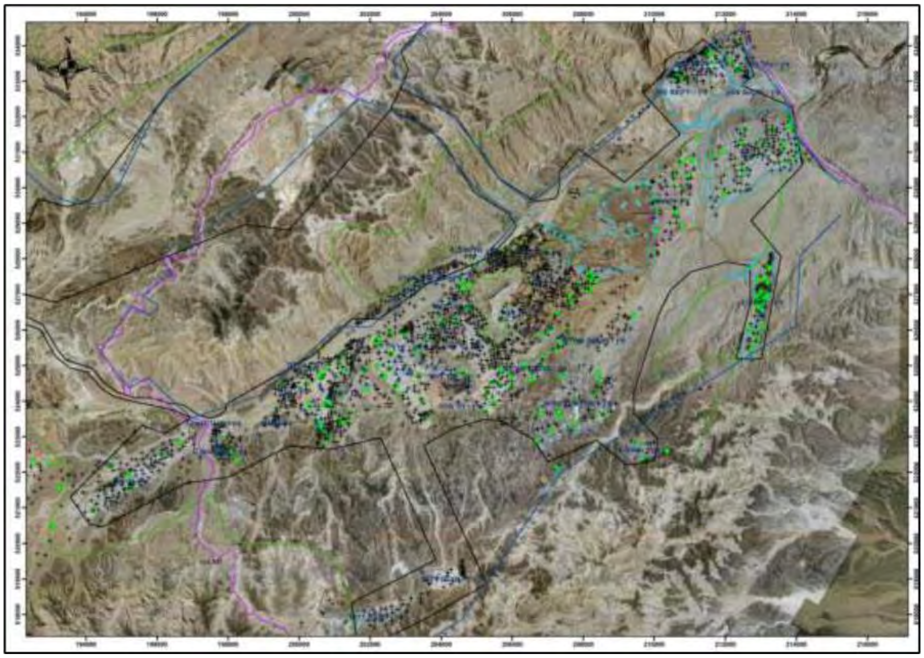


Figure 7.17: Drill Hole Locations at Zin

7.4 DSW

7.4.1 Overview

DSW deposits are not a conventional soft/hard rock deposit, nor a groundwater (aquifer) deposit, and extraction of mineral is from natural evaporation of hypersaline brines. As such there is no standard 'exploration' approach as is typically understood for a mineral deposit. For example, no conventional exploration drilling has been conducted on the DSW.

In the early part of the 20th century, the Dead Sea began to attract interest from chemists who deduced the sea was a natural deposit of potash (potassium chloride) and bromine. A concession was first granted in 1929 (Palestine Potash Company) and the first plant commenced production in 1931 and produced potash by solar evaporation of the brine. Essentially the operation continued to develop until the operations was paused in southern plant (Kalya was destroyed by the Jordanians) in the 1948 Arab–Israeli War. Subsequently, the DSW was founded in 1952 as a state-owned enterprise based on the remnants of the Palestine Potash Company and in 1995 the company ICL Group Ltd. (ICL) was privatised.

Exploration is essentially limited to the chemical analysis of source brine from the northern Dead Sea basin and the monitoring of brines from change in concentration on transfer between the various ponds of the operation.

From the first pond (pond 5) and the start of halite precipitation the brine solution decreases in NaCl concentration and increases in KCl concentration until at pond 13, KCl is present at approximately 20g/kg in the brine. From pond 13 through to pond 36, KCl content steadily decreases with continued precipitation of carnallite. From pond 36, the remaining brine is returned to the northern Dead Sea source at a concentration of approximately 5g/Kg. These concentrations are monitored on a regular basis, at fixed stations, by sampling of the brines.

7.5 YPH

7.5.1 Overview

As presented in Section 5.5.1 of this TRS, the Project area has been subject to several historical and recent exploration campaigns targeting phosphate mineralisation of economic grade. These exploration campaigns included a combination of mechanical trenching, surface geological mapping, topographic surveys, exploration drilling and geotechnical drilling. A high-level summary of the historical and recent exploration campaigns is presented in Table 7.5.

Table 7.5: Summary of Exploration Campaigns for YPH

Year	Group	Type of Exploration Work
1955	Southwest Geological Bureau	Regional geological mapping
1966	Yunnan Geological Bureau	Geological mapping of northern limb of Xiangtiaochong anticline
1973	Yunnan Geological Bureau	Geological survey, DDH drilling and Trenching of Blocks 1 and 2 of the Haikou deposit
1974	Yunnan Geological Bureau	Additional Geological survey, DDH drilling and Trenching of Blocks 1 and 2 of the Haikou deposit
1980	Yunnan Chemical geological team	Geological survey, DDH drilling and Trenching of Blocks 4 of the Haikou deposit
2009 – 2014	Yunnan Chemical geological team	Infill drilling

Yunnan Phosphate Group Engineering Construction Co., Ltd has been engaged since 2014 to complete the mine verification work and supporting technical studies as required by the People's Republic of China (PRC) regulation in support of YPH's applications for the renewed exploration and mining lease permit related to Haikou Licence.

7.5.2 2010 Outcrop/Subcrop Trenching

Extensive surface trenching was performed on the Project as part of the exploration programmes during the 1973, 1974, and 1980 exploration campaigns. While the trench data provides good basis for increased geological confidence and establishing geological continuity, the data and observations are often not representative of the full thickness and grade of the phosphate layers.

While the trench sample data were not used for Mineral Resource modelling purposes, the knowledge gained was used as part of the geological mapping data for phosphate layer interpretations and for Mineral Resource classification.

It is recommended to continue to exclude outcrop and trench sample data from any future updates to the Mineral Resource estimates.

7.5.3 Exploration Drilling

7.5.3.1 Drilling Methods

Exploration drilling programmes targeting Phosphate mineralisation on the project have been carried out by the geological team of Yunnan Geological Bureau from 1973 to 1974 and Yunnan Chemical geological team in 1980. Infill mine development drilling was further added during 2009, 2010, 2011, and 2014. Core drilling techniques has been the only type of drilling used during each of the drilling programmes.

A summary of the core drilling completed during the various drilling programmes is presented in Table 7.6, and a drill hole location map is illustrated in Figure 7.18.

Table 7.6: Exploration and Infill Drilling Summary for YPH

Year	Group	№ Holes Drilled
1966	Yunnan Geological Bureau	7
1973	Yunnan Geological Bureau	71
1974-1980	Yunnan Geological Bureau	47
2009	Yunnan Chemical geological team	37
2010	Yunnan Chemical geological team	30
2011	Yunnan Chemical geological team	85
2014	Yunnan Chemical geological team	23
Total		**300**

All holes have been drilled vertically using various diameters ranging from 117mm for pre-collar, 79mm for infill drilling, 63.5mm (HQ) and 47.6mm (NQ) for exploration drilling.

7.5.3.2 Drill Sample Recovery

For the core drilling programmes, core recovery was recorded for each cored interval. Core recovery was determined by measuring the recovered linear core length and then calculating the recovered percentage against the total length of the core run from the drill advance.

7.5.3.3 Drill Hole Logging

Drill hole logging was conducted by core logging geologists either on site at the drill or at the Haikou core storage facility. All logging was reviewed by the senior site geologist. All core samples have been geologically logged to a level of detail to support appropriate Mineral Resource estimation, such that there are lithological intervals for each drill hole, with a correlated geological/lithological unit assigned to each interval.

The QP has reviewed all unit boundaries in conjunction with the YPH senior geologists, and where applicable, adjustments have been made by the QP to the mineralised units based on the assay results intervals to limit geological dilution.

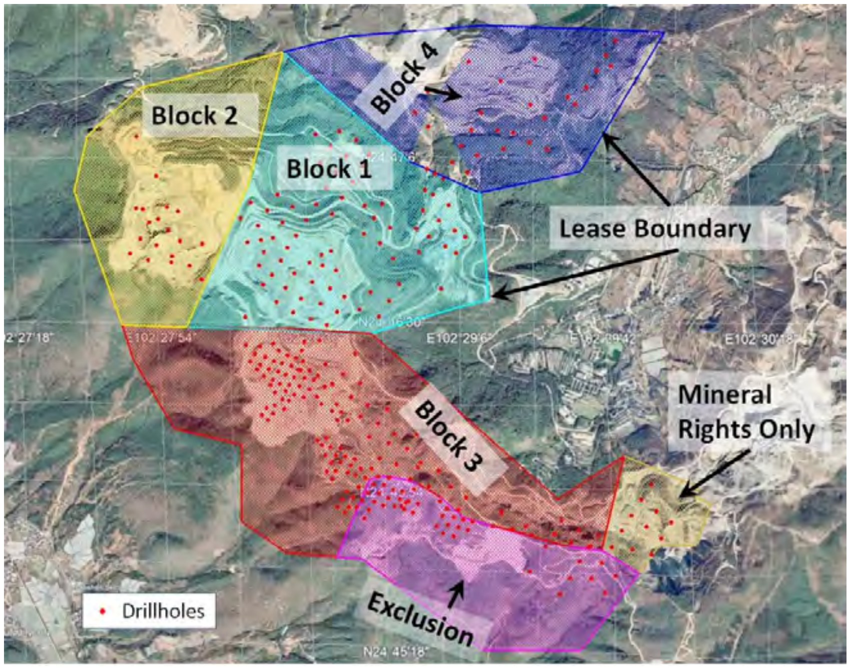


Figure 7.18: Drill Hole Location Plan for YPH

7.5.3.4 Drill Hole Location of Data Points

Collar Positional Surveys

All drill holes were surveyed using Southern Spirit S82 GPS system, which used four GPS units to simultaneously measure coordinates, with a standard E-level (equivalent to I Grade wire) achieving a high degree of accuracy. Similarly, all geological mapping, trench channel sampling and topographic survey has adopted a similar high precision approach.

Downhole Positional Surveys

All core drill holes have been drilled and assumed to be vertical. Vertical deviations were monitored through all drilling programmes by measuring deviations at every 100m downhole. The overall rate of deviation remained below 3° for over 95% of the drilling. Those with higher than 3° deviation were mainly shallow holes with no significant impact.

Drill Hole Data Spacing and Distribution

Drill lines are aligned to 35° NE section lines, spaced at 125m on average. Hole spacing on the section lines are also at 125m on average. Parts of Block 3 has been further infill drilled to 62.5m × 62.5m whereas certain areas within Block 4 remains at larger drill spacing of 250m and greater. The QP considers the drill hole spacing sufficient to establish geological and grade continuity appropriate for a Mineral Resource estimation.

Relationship Between Mineralization Widths and Intercept Lengths

The upper and lower phosphate bearing layers of economic value have a gentle dip / plunge angles of 5 to 7° towards north to north-east for Blocks 1, 2, and 4 and towards southeast at Block 3. In rare cases, and in proximity of few of local faults, the dip angles have reached to 20° and higher. Upper Layer thickness varies from 3.0m to 8.0m and 7.0m on average, Lower Layer from 2.0m to 6.0m and 5.0m on average. Interburden thickness between the Upper and Lower Layers varies between 1.8m to 14.4m and 10.0m on average. Based on the geometry of the mineralisation, it is reasonable to treat all samples collected from drill holes at intercept angle of 90° as representative of the true thickness of the zone sampled.

7.5.3.5 QP Statement on Exploration Drilling

The drilling, logging, and sampling is considered to follow a conventional approach suitable for the geology and deposit under investigation, and uses standard industry practices. The QP has reviewed all unit boundaries in conjunction with the YPH senior geologists, and where applicable, adjustments have been made by the QP to the mineralised units based on the assay results intervals to limit geological dilution. The QP is not aware of any further drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the historical or recent exploration drilling. The data are well documented via original digital and hard copy records and were collected using industry standard practices in place at the time. All data has been organised into a current MAPGIS database. The data has undergone thorough internal data verification reviews, as described in Section 9.5 of this TRS.

7.6 QP Statement on Hydrogeological Drilling

The QP is not aware of any factors relating to hydrogeological data collection that could materially affect the accuracy and reliability of the results of the hydrogeological analyses. The data are well documented via original digital and hard copy records and were collected using industry standard practices in place at the time. All data has been organised into a current and secure spatial relational database.

7.7 QP Statement on Geotechnical Drilling

The QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the geotechnical drilling data. The data are well documented via original digital and hard copy records and were collected using industry standard practices in place at the time. All data has been organised into a current and secure spatial relational database.

8 SAMPLE PREPARATION, ANALYSES AND SECURITY

8.1 Boulby

8.1.1 Introduction

All samples used in the production of the Mineral Resource estimate were collected by longhole drilling and have been assayed by the on-site laboratory owned and operated by ICL Boulby. The on-site laboratory is currently not independently certified.

8.1.2 Sample Preparation

All sample preparation for the samples used in the Mineral Resource estimate was carried out in the ICL Boulby laboratory. The sample preparation procedure was as follows:

- Clean the crusher and remove contamination including the jaws, collection pan, hopper, and general area. This is done between every sample
- Adjust the jaws to the 2.5mm position
- Turn the crusher on and pour the sample into the hopper
- Once all the material has been crushed at the 2.5mm aperture place the sample into a sampling bowl.
- Inspect and clean the sample splitter (riffle) and collection pans to remove any residues or lodged materials.
- Pour the material evenly over the riffle splitter. Discard one side back into the sample bag. Continue riffling the retained side until the sample is reduced to ≈100g
- Pour the sample into a metal tray and place in the lab oven at 120°C for 20 minutes.
- Inspect and clean the ring and puck mill including the barrel and rings. This is done between every sample.
- Remove the sample from the oven and pour into the polyhalite specific barrel.
- Grind the sample for 20 seconds at 1,200rpm to target of 200 microns.
- Brush out the sample and seal in a labelled plastic bag.

8.1.3 Analysis Method

All analysis for the samples used in the Mineral Resource estimate was carried out in the ICL Boulby laboratory. Samples were analysed via wet chemistry techniques as follows:

- From the 100g sample accurately weigh out a 1g ±0.0001g sub-sample
- Place the 1g sample in a clean 600ml beaker and slowly add 400ml of de-ionised water to avoid sample caking.
- Place the beaker on a hotplate and boil for 30 minutes
- Cool the beaker and transfer the contents to a 500ml volumetric flask. Top up to the mark.
- Analyse for Na^+ and K^+ content using flame photometry
- Analyse for Ca^{2+} and Mg^{2+} and subsequently Cl^- content using automatic titration or if not possible using manual titration
- Record the results by hand in the “geology book” and then enter the data into the relevant geology sample spreadsheet.

8.1.4 Sample Security

Core samples were collected underground at the drill rig location and are tagged, sealed in bags and placed within a metal box. Each bag contains a sample number tag and has the drill hole intersection number written on the front. Samples are separated by intersection to prevent samples getting mixed up or being lost.

Samples remain underground until there is capacity for them to be processed on surface to reduce potential exposure to moisture. Samples were delivered to the on-site laboratory where they were prepared for analysis. A sample record is kept by the geology department noting the identity and number of samples that have been dispatched to the laboratory.

8.1.5 Quality Assurance and Quality Control (QA/QC)

8.1.5.1 Introduction

The drill hole samples used as the basis of the MRE presented in this report were collected from exploration programmes completed between 2012 and 2018. Drill programmes completed in this time did not make use of reference materials, blanks or duplicate samples submitted by the geological department or make use of an independent laboratory for verification of results. QA/QC analysis as reported below was limited to internal laboratory control testing. Since 2018, work has been on-going to develop and implement the use of additional QA/QC samples, appropriate for use in assessing polyhalite content, in line with industry best practice.

8.1.5.2 Internal Laboratory Controls

During the analysis of drillhole samples, the Boulby laboratory analysed control solutions to check for significant error such as equipment failure or human error.

Prior to 2018 a “50/50” control was used which was made up in the laboratory and contained 50% KCl and 50% NaCl. The results of this analysis show a normal distribution of results without significant bias or trend.

From May 2018 onwards, control solutions were analysed for each element in the analysis of polyhalite at both the start and the end of a batch of samples. The quoted errors for the analytical instrumentation are ±5% of the true value. The laboratory uses a tighter pass/fail criterion of ±2% of the true value except for sodium which uses an absolute ±0.2%.

The control data results are shown in Table 8.1. The results show acceptable levels of accuracy and precision with only slight bias notable in the sodium.

Table 8.1: Control data since May 2018

Element	Theoretical Value (%)	Ave. Lab Result (%)	Above Instrument Error		Below Instrument Error	
			Count	Percentage	Count	Percentage
K	12.00	12.00	1	0.02%	2	0.05%
Na	3.00	3.14	16	0.4%	0	0.0%
Ca	11.65	11.71	224	5.1%	1	0.02%
Mg	4.93	4.86	87	2.0%	308	7.1%
Cl	90.00	89.65	0	0.0%	5	0.2%

Element	Theoretical Value (%)	Analytical Error	Absolute Error (%)	Upper Limit (%)	Lower Limit (%)
K	12.00	2.0%	0.24	12.24	11.76
Na	3.00	0.2	0.20	3.20	2.80
Ca	11.65	2.0%	0.23	11.88	11.42
Mg	4.93	2.0%	0.10	5.03	4.83
Cl	90.00	2.0%	1.80	91.80	88.20

In addition to the 50/50 control, three standard solutions were analysed on the flame photometer (which measures K and Na) to monitor performance. Standard solutions were prepared in house using analytical grade KCl and NaCl for 120ppm, 240ppm and 360ppm potassium and sodium which covered the expected range of concentrations.

All three solutions were analysed at the start of a sample batch, and a calibration curve was produced for fitting subsequent results. The standard solutions were run three times before and after a sample batch was analysed to the monitor the performance of the photometer. If a control test fell outside acceptable limits, then the source of error was investigated, and the sample run retested.

8.1.6 Discussion

The sample security measures, the sample preparation procedure and the analytical methodology covering the exploration period of samples used in the MRE were designed to act as a clear pathway from drill to laboratory, to avoid sample mixing or contamination during sample handling or preparation and to avoid gross errors in sample analysis. However, in terms of industry standard QA/QC procedures some basic elements were omitted that would have helped monitor assay accuracy, precision, and contamination, namely reference samples, duplicate samples or blank samples that would normally have been submitted alongside exploration samples as part of the sample stream. These omissions were partly the result of the unique nature of polyhalite and the lack of certified materials for the elements under investigation.

An independent audit of procedures identified these gaps in QA/QC and subsequent to this audit a halt was placed on sample analysis until a more robust procedure was implemented. Work in the intervening time has been completed to identify and test suitable material for use as blank samples for monitoring contamination and for standard reference materials to monitor accuracy. In addition, a system of sample duplicate analysis for monitoring precision has begun. Sample analysis of exploration drill samples at Boulby mine laboratory has restarted but no samples analysed alongside this new set of QA/QC samples are included as part of the current MRE and, as such, a review of the QA/QC results are not included in the sections above.

In the opinion of the QP, the standard operating procedures used for the sample security, sample preparation and analysis were generally robust and well managed but the lack of QA/QC for the data used for the MRE has implications for Mineral Resource classification and this is discussed in the Mineral Resource chapter. Despite these concerns, given the tabular and continuous nature of the polyhalite mineralisation and the variable halite content of the polyhalite seen during mining operations, minor issues with precision and accuracy have little bearing on interpretation of the base and top of polyhalite positions and decisions on the location of final mining cuts are always made on the basis of short-range grade control rather than exploration drilling. The lack of a full suite of QA/QC samples has little bearing on the overall geological interpretation and planning decisions made on longer (annual) production increments.

8.2 Cabanasses and Vilafruns

8.2.1 Underground Drilling Samples

8.2.1.1 Core Logging

All core from underground drilling is logged at the drill site and no core is brought to the surface except for those potash samples that have been bagged for analysis. Non-mineralised (halite) lithologies are also logged and this drill core is disposed of underground. Core from Seam A, B, transformada and carnallite are sampled based on 1m to 3m sample lengths or split at lithological boundaries. Core is photographed routinely, and basic measurements are made from the core for structural interpretation purposes. A description of the database core logging codes is provided in Section 11.3.3.1.

8.2.1.2 Core Sampling

Core from underground drilling is whole core sampled, collected, and transferred into heavy-duty plastic sample bags (containing internal and external sample tags). The samples are transported to the surface and delivered to the sample preparation facility. All samples are collected by the mine geologist assigned to that drill rig who has responsibility for delivery of the samples.

8.2.1.3 Sample Preparation

At the sample preparation facility, samples (11-12kg) are crushed to 2.5mm using a Retsch® BB200 jaw crusher which is cleaned with compressed air after each sample. The sample is then manually homogenised and split by a technician using the cone and quarter method (undertaken 5 times) to produce a 350g sample which is submitted to the laboratory for pulverising. The coarse reject samples are then disposed of.

A summary of the drill core sample preparation procedures for samples from underground drilling is shown in Figure 8.1.

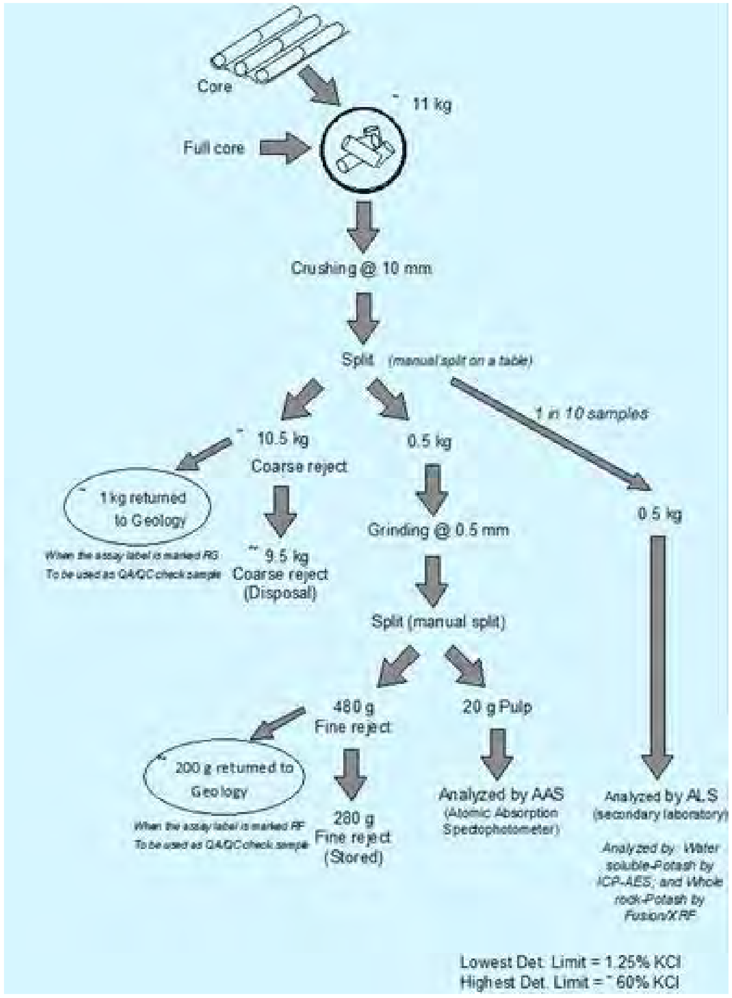


Figure 8.1: Summary of Sample Preparation of Drill Core Sample from Underground Drilling

8.2.1.4 Sample Analysis

Analysis of samples is undertaken by Atomic Absorption Spectrometry (AAS) at the Cabanasses laboratory. Samples are analysed for KCl, Ca2+ and $MgCl_2$. Laboratory results usually take 3 -5 days to be completed and the laboratory system is linked to the geological database. This is the main reason for being unable to conduct grade control sampling for working headings as results are needed within 24hrs or less.

For each of the crushed samples, 20 grams of sample are weighed and dissolved with 200 ml of purified water. To improve solubility, the mixture is boiled for 5 minutes and subsequently cooled and made to the mark in a 500 ml flask. Finally, the solution is filtered before taking the analysis aliquot.

Determination of KCl

If the sample is mostly potash, 25 ml of the filtered solution is taken and diluted in a 1000 ml flask, and this diluted sample is analysed by the AAS. If the sample is mostly halite, 25 ml of the filtered solution is taken and diluted in a 250 ml flask, and this diluted sample is analysed by AAS. Analysis by AAS provides the % KCl present in the sample

Determination of Ca and Mg

From the filtered sample, the Ca and Mg content is determined by titration with EDTA (Ethylenediaminetetraacetic acid).

8.2.2 Surface Drilling Samples

8.2.2.1 Core Logging

Surface drilling initially commences using rotary percussion drilling and returned chip samples of non-mineralised lithologies are logged and photographed at the drill site before being disposed of. Prior to intersecting the potash seams, drilling switches to core drilling and the collected core is placed into heavy duty plastic core trays and transported to the Vilafruns facility for logging and sampling.

8.2.2.2 Core Sampling

Samples are taken based on 0.6m to 1m sample lengths or split at lithological boundaries. The core is split using a radial arm saw along the longitudinal axis of the core. The half core samples (≈2kg) are transferred into heavy-duty plastic sample bags (containing internal and external sample tags) and transported to ALS Minerals (Sevilla) for sample preparation and analysis. Remaining half core samples are retained for core storage. ALS Minerals (Sevilla) is an independent accredited laboratory facility, part of the global ALS group carrying ISO/IEC 17025:2017 and ISO 9001:2015 certification.

8.2.2.3 Sample Preparation

Sample preparation by ALS Minerals (Sevilla) of the ≈2kg half core samples includes:

- Drying (ALS code: DRY-22);
- Crushing to better than 70% of the sample passing 2mm (ALS code: CRU-31);
- Riffle splitting to produce a sample weight of 250g (ALS code: SPL-21); and
- Pulverising to better than 85% of the sample passing 75 microns (ALS code: PUL-31).

8.2.2.4 Sample Analysis

Analysis by ALS (Sevilla) of surface drilling samples is undertaken by X-Ray Fluorescence Spectroscopy (XRF). Prior to analysis, the sample (0.66g) is fused with a lithium metaborate and lithium tetraborate flux (12:22 ratio) and lithium nitrate oxidising agent is added. The sample is then analysed by XRF for a suite of compounds including: Al_2O_3, BaO, CaO, Cl, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SO_3, SiO_2, TiO_2. The analysis provides a “total” value for the compounds. The lower and upper analysis tolerances for K_2O are 0.01% and 60.0%, respectively. The K_2O (%) values are subsequently converted by ICL Iberia into KCl (%) using the empirical formula: KCl = K_2O / 0.6317.

8.2.3 Quality Assurance and Quality Control

8.2.3.1 Introduction

Prior to February 2019, no QA/QC samples were submitted by ICL Iberia for either underground drilling or surface drilling. During 2019, ICL Iberia commenced submission of internal and external pulp duplicate samples of the underground drilling to the Cabanasses laboratory and ALS (Sevilla), respectively. In 2021, an updated QA/QC programme commenced for the underground drilling and included coarse duplicates, pulp duplicates, blank material and three in-house prepared standard reference materials. No formal QA/QC programme for the samples from the surface drilling is currently implemented by ICL Iberia.

8.2.3.2 QA/QC 2019 - 2021

During 2019 – 2021, QA/QC submissions consisted of internal and external pulp duplicate samples as discussed below.

Internal Pulp Duplicates (Cabanasses Laboratory)

Internal pulp duplicates comprise of a second sample taken after pulverising during sample preparation. The pulp samples are then submitted blind to the laboratory for analysis.

A total of 216 internal pulp duplicate samples from the underground drilling were submitted by ICL Iberia to the Cabanasses laboratory for analysis by AAS. Summary results of the primary and duplicate samples are shown in Figure 8.2.

The results of the analysis show generally good levels of precision for the pulp duplicates with only minor outlier values present. Typically for pulp duplicates, WAI considers a HARD value of >90% of the population being less than 10% HARD to be acceptable, based on the analysis, a HARD value of 97% is attained.

Cabanasses Project - UG-LHD Cabanasses Drilling Campaign - Laboratory Duplicate							
Primary Laboratory:	IBP		Primary	Duplicate		Primary vs Duplicate
Assay Method 1:	AAS	Minimum:	0.91	0.91	Correlation Coefficient:	0.99
Duplicate Laboratory:	IBP_check	Maximum:	70.5	70.8	Mean HARD:	1.66%
Assay Method 2:	AAS	Mean:	28.55	28.86	Median HARD:	0.81%
Number of Pairs:	216	Median:	29.05	29.2	Mean HRD:	0.51%
Element:	KCl	Standard Deviation:	16.18	16.32	Median HRD:	0.00%
Unit	%	Coefficient of Variation:	0.57	0.57	% of Pairs < 10% HARD:	97.7%

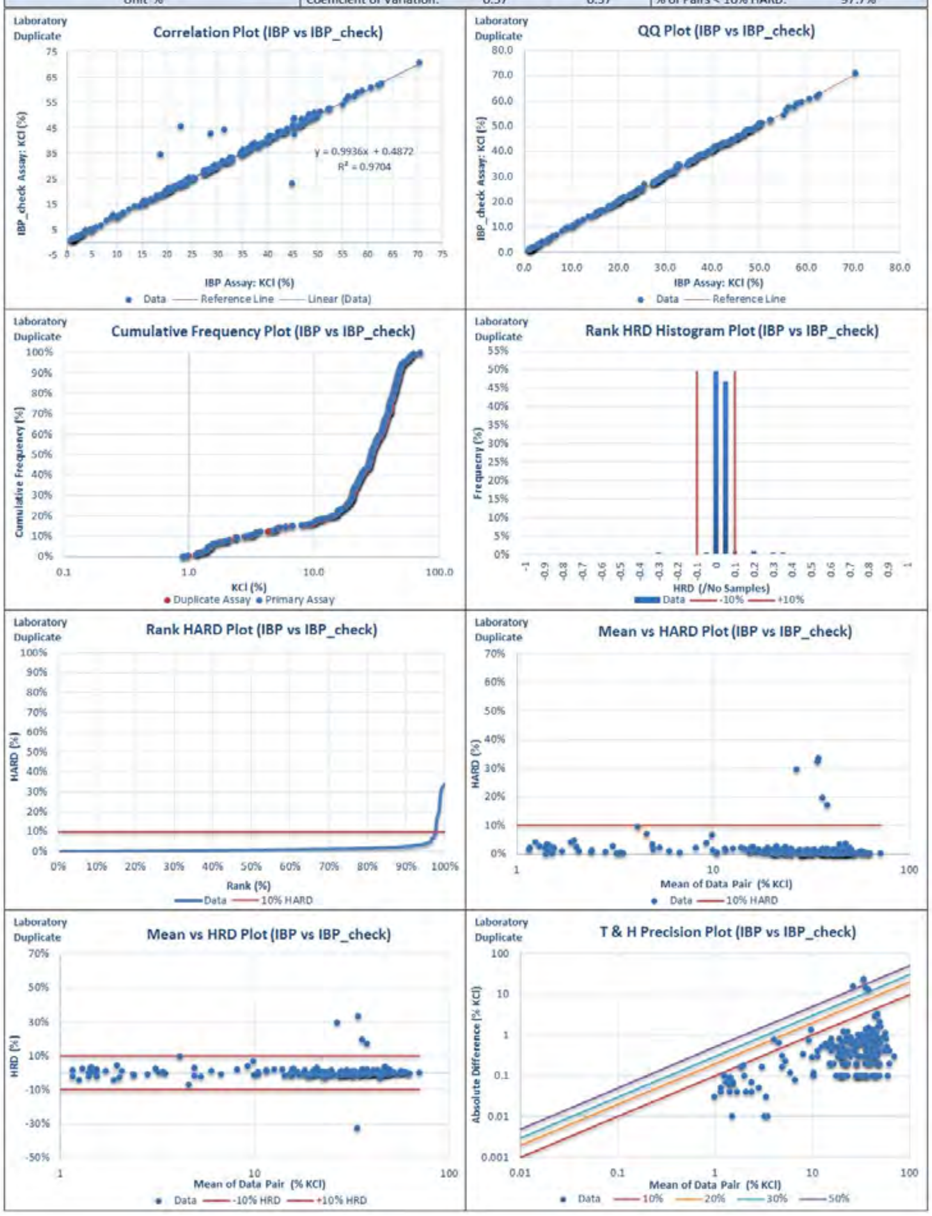


Figure 8.2: Internal Pulp Duplicates (Cabanasses Laboratory) for KCl (%) (2019 – 2021)

External Pulp Duplicates (ALS)

External pulp duplicates comprise of a second sample taken after pulverising during sample preparation. The pulp samples are then submitted blind to another laboratory (i.e. not the primary laboratory) for analysis. External pulp duplicates are used as an umpire check on the analysis of the primary laboratory.

A total of 146 external pulp duplicate samples from the underground drilling were submitted by ICL Iberia to ALS (Sevilla) for analysis by XRF. Summary results of the primary (Cabanasses laboratory) and duplicate (ALS) samples are shown in Figure 8.3.

The results of the analysis show a high level of precision between the primary samples and the external duplicates with a HARD value of 99%. In addition, the comparison identified no significant differences in the analysis by AAS or XRF.

Cabanases Project - UG-LHD Cabanasses Drilling Campaign - Check Assay						
Primary Laboratory:	IBP		Primary	Duplicate		Primary vs Duplicate
Assay Method 1:	AAS	Minimum:	0.33	0.59	Correlation Coefficient:	0.99
Duplicate Laboratory:	ALS Minerals	Maximum:	65.70	69.97	Mean HARD:	3.04%
Assay Method 2:	XRF	Mean:	28.50	29.23	Median HARD:	2.48%
Number of Pairs:	146	Median:	31.10	31.49	Mean HRD:	1.98%
Element:	KCl	Standard Deviation:	16.21	16.43	Median HRD:	2.09%
Unit	%	Coefficient of Variation:	0.57	0.56	% of Pairs < 10% HARD:	99.0%

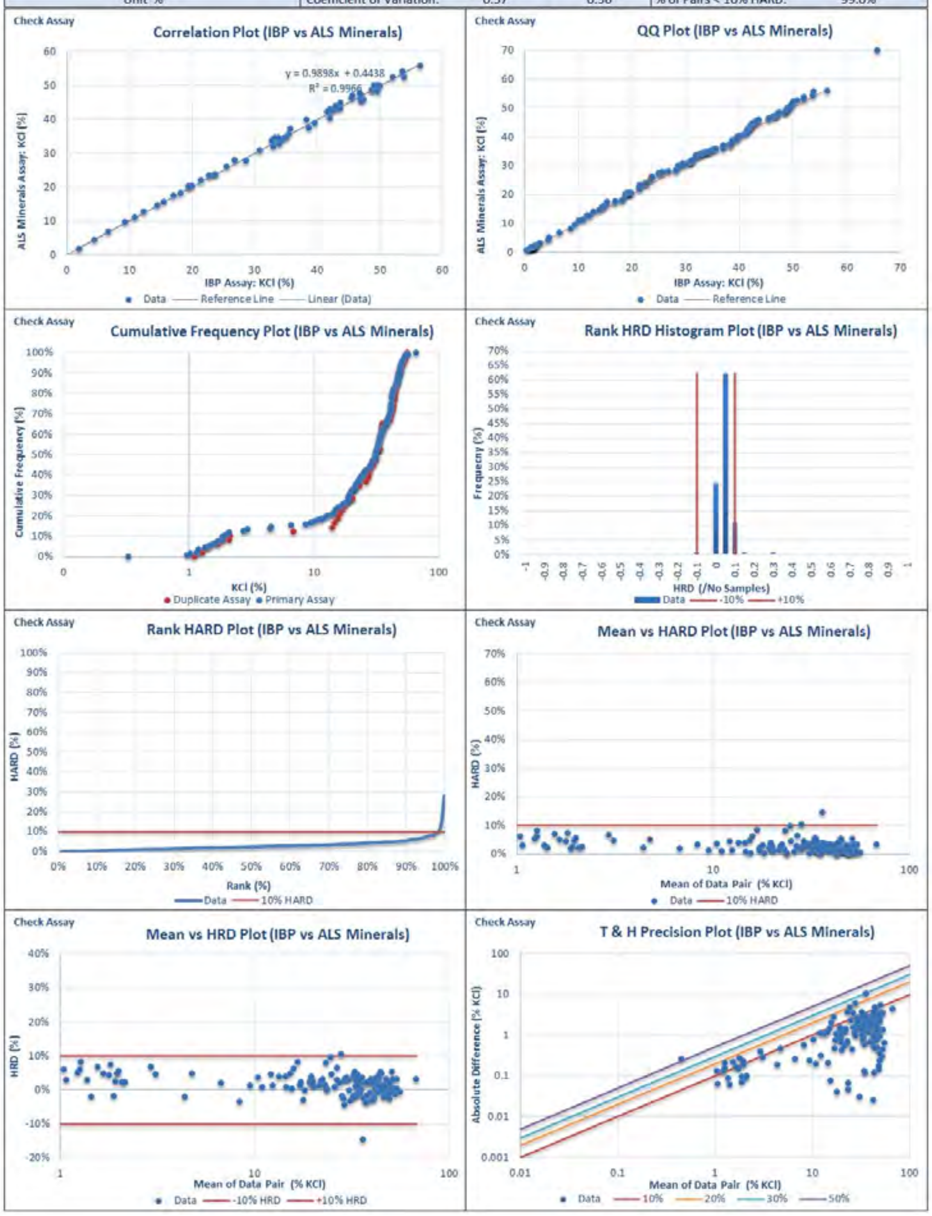


Figure 8.3: External Pulp Duplicates (ALS) for KCl (%) (2019 – 2021)

8.2.3.3 Updated QA/QC Programme 2021

In H2 of 2021, an updated QA/QC programme commenced for the underground drilling and included standard reference materials, blanks and pulp duplicates (internal and external). Currently only a limited number of samples have been completed as part of the updated QA/QC programme.

Standard Reference Materials (SRMs)

SRMs are samples that are used to measure the accuracy of analytical processes and are composed of material that has been thoroughly analysed to accurately determine its grade within known error limits. By comparing the results of the laboratory's analysis of an SRM to its certified value, the accuracy of the result is monitored. SRMs were inserted by ICL Iberia into the sample stream at a rate of one SRM for every 25 samples submitted for analysis. The SRMs used by ICL Iberia are produced in-house and consist of potash which has been repeatedly analysed at the Cabanasses laboratory to derive an average KCl (%) grade. A summary of the SRM grades is shown below:

- STD 1 (high grade): 43.1% KCl
- STD 2 (medium grade): 21.2% KCl; and
- STD 3 (low grade): 14.6% KCl.

The grade ranges used are representative of those encountered in the deposits. A total of 4 samples of each SRM were submitted to ALS and 3 samples of each SRM were submitted to the Cabanasses laboratory and the results are summarised in Table 8.2 (some additional SRMs were also submitted to SGS laboratories for analysis by ICP-OES, however, these were subsequently discontinued due to issues identified with the analysis method).

Table 8.2: Summary of SRM Analysis

ALS Analysis of SRMs								
SRM	**ALS (KCl %)**	**Target (KCl %)**	**SRM**	**ALS (KCl %)**	**Target (KCl %)**	**SRM**	**ALS (KCl %)**	**Target (KCl %)**
STD1	43.38	43.1	STD2	21.37	21.2	STD3	13.80	14.6
	44.32	43.1		20.90	21.2		14.64	14.6
	44.01	43.1		21.92	21.2		13.57	14.6
	44.01	43.1		22.16	21.2		14.99	14.6
Cabanasses Laboratory Analysis of SRMs								
SRM	**ICL Iberia (KCl %)**	**Target (KCl %)**	**SRM**	**ALS (KCl %)**	**Target (KCl %)**	**SRM**	**ALS (KCl %)**	**Target (KCl %)**
STD1	42.00	43.1	STD2	20.40	21.2	STD3	13.00	14.6
	42.50	43.1		20.40	21.2		13.00	14.6
	41.80	43.1		20.70	21.2		13.00	14.6

Overall, the number of SRM analyses completed to date is limited, however, the available results are promising and indicate a reasonable level of accuracy for both the ALS and Cabanasses laboratories.

Additional data will be required for a robust statistical analysis and typically WAI would consider failures for any results outside of 3 standard deviations of the certified value.

Blanks

Blank samples consist of material that is known to contain grades that are less than the detection limit of the analytical method. Analysis of blank samples is a method used to monitor sample switching and cross-contamination during the sample preparation or analysis processes. Blank material (halite) from drill core is inserted into the sample stream at a rate of one blank sample for every 25 samples submitted for analysis. A total of 9 blank samples were submitted for analysis by AAS at the Cabanasses laboratory and the results are shown in Table 8.3.

Table 8.3: Summary of Blank Analysis

Sample ID	KCl (%)	Ca2+ (%)	$MgCl_2$ (%)
C302D018	0.85	0.51	0.53
C303C032	0.14	0.45	0.41
C303D001	1.08	0.58	0.79
C304A026	0.59	0.58	0.34
C304C009	0.04	0.87	0.20
C304E005	0.03	0.80	0.02
C305A010	0.19	0.69	0.38
C305B003	0.32	1.07	0.33
C305C008	0.38	0.69	0.09

Based on the limited number of analyses completed, the levels of KCl (%) are generally low, however, some slightly elevated values of KCl (%) are also evident and it is possible that the blank material may not be entirely blank. Going forward, WAI recommends that this is reviewed by ICL Iberia and if necessary, commercial blank samples should be sought.

Field Duplicates

Field duplicates comprise of a second sample taken from drill core and submitted for sample preparation and analysis. In addition to providing a check on the repeatability of the sample preparation and analysis procedures, field duplicates provide an indication of the short-range variability of the mineralisation.

No field duplicate samples are taken by ICL Iberia for QA/QC as whole drillcore is submitted for analysis.

Coarse Duplicates

Coarse duplicates consist of a second sample taken after crushing during sample preparation. The coarse samples are then submitted blind to the laboratory for analysis. Coarse duplicate material is inserted into the sample stream by ICL Iberia geologists at a rate of one coarse duplicate sample for every 50 samples submitted for analysis.

The results of the coarse duplicate analysis are currently being awaited from the Cabanasses laboratory, as such, no review of these results has been undertaken.

Internal Pulp Duplicates

Internal pulp duplicates are inserted by ICL Iberia into the sample stream at a rate of one internal pulp duplicate sample for every 50 samples submitted for analysis. The results of the internal pulp duplicates (up to September 2021) are included as part of the analysis contained in Section 8.2.3.2.

External Pulp Duplicates

External pulp duplicates are inserted by ICL Iberia into the sample stream at a rate of one external pulp duplicate sample for every 50 samples submitted for analysis. The results of the external pulp duplicates (up to September 2021) are included as part of the analysis contained in Section 8.2.3.2.

8.2.3.4 Conclusions on Quality Control Procedures

A review of the internal and external pulp duplicate samples submitted by ICL Iberia from 2019 through 2021 identified no significant issues with precision. In addition, a comparison of pulp duplicate samples analysed by AAS (at Cabanasses) and XRF (at ALS) identified no issues with precision as a result of the different analysis methods.

The updated QA/QC programme, which commenced in H1 2021, includes coarse duplicates, internal and external pulp duplicates, SRMs and blanks and is in-line with industry best practice. The proposed QA/QC sample insertion rate for this programme is considered by WAI to be appropriate. Given the recent implementation of this programme, only limited data is currently available for review. Notwithstanding, the initial results of the programme appear promising, however, WAI recommends that the blank material should be reviewed by ICL Iberia and if necessary commercial blank samples should be sought.

Currently no formal QA/QC programme is implemented for the surface drilling samples. WAI recommends that the updated QA/QC procedures for the underground drilling should also be used for the surface drilling campaigns.

8.2.4 Density Determination

Density measurements are undertaken at the Cabanasses laboratory on samples of drill core from the underground drilling. The Archimedes method is used for density determination. Brine solution is used instead of fresh water to prevent sample dissolution. For the potash seams the % of sylvenite to halite contained within the sample is recorded prior to measuring density. A summary of the density measurements by lithology is shown in Table 8.4. A total of 582 density measurements are contained in the database. A density of 2.1t/m^3 is used for the potash seams (including transformada) and all halite lithologies and a density of 1.65t/m^3 is used for the carnallite.

Table 8.4: Density Measurements by Lithology									
	ANH	**SM**	**SMS**	**A**	**S2**	**B**	**CAR**	**TR**	**ST**
Number	10	103	41	193	37	98	29	49	22
Minimum	2.89	2.15	2.15	1.63	2.16	1.95	1.60	1.97	2.15
Maximum	2.94	2.21	2.27	2.49	2.19	2.18	1.82	2.18	2.20
Average	**2.92**	**2.17**	**2.18**	**2.11**	**2.18**	**2.07**	**1.68**	**2.09**	**2.17**

Notes:
NH (basal anhydrite); SM (lower massive halite); SMS (lower semi-massive halite); A (Seam A); S2 sal entredos (middle halite); B (Seam B); CAR (carnallite); TR (transformada); ST (upper halite)

8.2.5 Sample Security and Chain of Custody

Sample collection and transportation of drill core is undertaken by ICL Iberia geological staff as follows:

- Underground drillhole samples are transported as whole core within sealed heavy duty polythene bags with internal and external tags. The whole core samples are used for sample preparation; and
- Surface drillhole samples are transported to the Vilafruns facility in sealed core boxes. Once photographed, logged and half core samples are taken, the remaining half core from the surface drillholes is stored at the Manresa core storage facility. Half core for the following surface drillholes (completed from 2010 onwards) are currently stored at Manresa: C1, C2bis, C3, C4bis, VS1bis, SAG1 (2021) and SAG2.(2021).

8.2.6 Discussion

Prior to February 2019, no formal QA/QC procedures were implemented by ICL Iberia. A review of the quality of the assay data collected before this date is included in Section 9.2 (Data Verification). A review of 216 internal and 146 external pulp duplicates from February 2019 to 2021 identified no significant issues with analytical precision. From H1 2021, an updated QA/QC programme for the underground drilling was implemented by ICL Iberia and is considered by the QP to be in-line with industry best practice. Further, the QP recommends that this QA/QC programme should be continued for all underground and surface drilling.

8.3 Rotem

8.3.1 Sample Preparation

The rock chip and core samples are sent to a sample preparation facility at Oron. All samples are screened, with one sub-sample being sent for run-of-mine grade analysis. The other (larger) sub-sample is ground and split for wet or dry screen and chemical analysis, with sample size distribution ranges selected to reflect actual plant crushing and screening performance parameters. In this way, the sample material replicates plant performance.

8.3.2 Analysis Method

8.3.2.1 Summary

The Oron sample preparation laboratory sends prepared 100g analytical sub-samples from the 20cm sample intervals to the Rotem laboratory for analysis. Sample tracking through the various process is carried out using LIMS.

The chip samples (locally referred as Dust samples) are dispatched to the in-house laboratories where a first pass P_2O_5 grade is calculated. These samples are analysed for P_2O_5 content, using spectrophotometry following HNO_3 digest. If the geologist sees spurious or marginal results in any of the individual 20 cm samples, they request a re-analysis of a composite sample of the entire phosphate bearing seam. A geologist examines the final analytical results and selects appropriate sample groups that represent phosphate or interburden beds for detailed analysis.

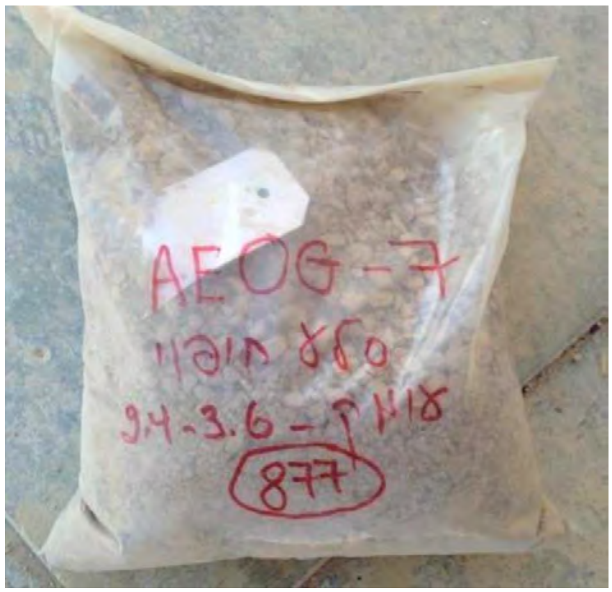


Photo 8.1: Samples from the Phosphate Seams Bagged and Tagged Ready for Laboratory Testing

The sample preparation laboratory aggregates these selected samples into a larger composite samples and sends a sub-sample of this composite for detailed analysis. This analysis is more comprehensive and includes metals and trace elements (analysis includes P_2O_5, Al_2O_3, Fe_2O_3, Cd and other potentially deleterious elements).

Separate analytical processes are used for reporting:

- P_2O_5;
- K, Na, As, Cd, Cr, Ca, Mn, Mo, Ni, V and Zn; and
- TiO_2, SO_3, SiO_2, MgO, Fe_2O_3 and Al_2O_3.

8.3.2.2 P_2O_5 Analysis

For P_2O_5 analysis, samples are initially oven dried at 105°C for 3-4 hours, crushed, pulverised and sieved to 35 mesh.

A sub-sample of between 0.8g and 1.2g is selected for digestion by adding to 5ml of HNO_3 and heating on an electrical plate until the solution is boiling and left to boil for three minutes. The solution is allowed to cool to room temperature, transferred to a 250ml flask and mixed with distilled water before shaking.

The diluted solution is transferred to a clean and dry flask. Analysis is carried out using a spectrophotometer. Analysis is carried out using a series of standard operating procedures alongside a phosphate control sample (certified reference material or "CRM") with each batch.

8.3.2.3 Analysis of Other Elements

Analysis of Zn, V, Ni, Mo, Mn, Cu, Cr, Cd, As, Na and K is carried out using ICP after digestion in HNO_3. A 1g sub-sample is taken from the pulverised and sieved material and placed in a 100ml flask. To this flask is added 15ml of 1:1 HNO_3 and the solution is placed on an electrical hot plate and boiled for three minutes. The solution is allowed to cool and transferred to a 100ml bottle and diluted with distilled water. Analysis is carried out by ICP.

Analysis of Al_2O_3, Fe_2O_3, MgO, SiO_2, SO_3 and TiO_2 is carried out using ICP after digestion in hydrofluoric acid (HF). An initial 0.2g sub-sample (ground to 100 mesh) is selected and transferred to a pressure container. To this is added 1ml aqua regia and 4.5ml of HF. The container is sealed and placed in an oven set to 105°C for one hour before being removed and allowed to cool under a fume hood. Analysis is carried out by ICP.

8.3.3 Quality Assurance and Quality Control

The Rotem laboratory uses a CRM for monitoring analytical accuracy. The CRM used is BCR-032 produced by the European Commission Joint Research Centre. It is a phosphorite sample originating from phosphate deposits in Morocco. The certified P_2O_5 value of the CRM is 33%. The CRM is also certified for SiO_2, SO_3, Al_2O_3, MgO and Fe_2O_3 (Figure 8.4).

The Rotem geological team does not insert additional QAQC samples (duplicates, blank samples) into the sample stream.

The Rotem laboratory does not send samples for external check analysis, partly because no suitable laboratory exists in Israel. However, it is an internationally recognised laboratory for P_2O_5 analysis and is an umpire laboratory in the AFPC Rock Check Programme.

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CERTIFIED REFERENCE MATERIAL
BCR® – 032

CERTIFICATE OF ANALYSIS

NATURAL MOROCCAN PHOSPHATE ROCK
(Phosphorite)

	Mass fraction based on dry mass		Number of accepted individual measurements
	Certified value [1] [g/kg]	Uncertainty [2] [g/kg]	
Ca expressed as CaO	518	4	70
Total P expressed as P_2O_5	329.8	1.7	85
Carbonate Carbon expressed as CO_2	51.0	0.8	60
F	40.4	0.6	80
Si expressed as SiO_2	20.9	1.2	60
Total S expressed as SO_3	18.4	0.8	75
Al expressed as Al_2O_3	5.5	0.6	80
Mg expressed as MgO	4.0	0.1	65
Fe expressed as Fe_2O_3	2.3	0.1	65

[1] The certified value is the unweighted mean of individual measurements obtained by different laboratories. The certified value is traceable to SI.
[2] The uncertainty is estimated standard deviation of reproducibility which. It accounts for the precision and bias of the participating laboratories as well as for any inhomogeneity of the material.

Figure 8.4: CRM Used by Rotem Laboratory

8.3.4 Discussion

The sample preparation, analysis method, and QA/QC protocol adopted for Rotem is considered by the QP to be in-line with industry standards. Further, the QP recommends that this QA/QC programme be continued for all sampling with the addition of blank and duplicate samples to better evaluate the laboratory results achieved and conform to best practice guidelines. This would provide a more robust validation process to support the mineral resource estimation.

8.4 DSW

8.4.1 Sampling

Brine samples are collected daily by ICL personnel, in suitable and individually labelled containers, from 30 locations at strategic locations. Each daily sample is 150ml in volume and the daily samples for each of the 30 individual locations are accumulated in separate larger sample bottles over the course of seven days before the 30 composite samples are sent for analysis. Sample locations include the halite and carnallite ponds and various pump stations. The samples are in liquid form, and mineral composition is considered to be homogenous, and therefore the samples are not split, reduced, or altered in any way following collection and are delivered to the in-house laboratory directly for analysis.

8.4.2 Analysis

Analysis is carried out using ion chromatography and takes place at the DSW in-house laboratory. Each of the 30 samples (batch) is analysed for KCl, $MgCl_2$, $CaCl_2$ and NaCl reported as g/kg with a weekly report issued approved by the laboratory manager. The laboratory is not accredited in-line with any international/independent certification but does undertake its own in-house verification and check analysis (including use of control samples) to ensure reliability of results produced.

8.4.3 Quality Assurance and Quality Control

A control sample is included with each batch of samples for analysis. The control sample has target values of 10g/kg for KCl, 127g/kg for $MgCl_2$, 35g/kg for $CaCl_2$ and 45g/kg for NaCl. Data presented for the period 2005 - 2021 has shown that the natural mineral content of the brine to be consistent. Although the KCl content of the northern Dead Sea does vary, as a result of environmental factors (inflow rates, evaporation rates etc), the maximum and minimum KCl content during this period is within approximately 2% of the overall mean value of 12.69g/kg. Notwithstanding the above comments, it would be prudent to run additional control samples of lower and higher KCl grade, as well as 'blank' samples, to better evaluate the laboratory results achieved and conform to best practice guidelines.

8.4.4 Sample Security

Sample handling, security and chain of custody follows a standard ICL DSW protocol and all sample collection and transportation of samples is undertaken on a regular basis by DSW personnel. The procedures for the sampling, packaging, transportation process and associated health and safety issues are designed to ensure absolute security over the samples, with defined chain of custody to prevent any exposure to the elements and contamination.

8.4.5 Discussion

In the opinion of the QP, and taking into account the uniqueness of the DSW operation, given the relatively stable mineral composition, consistency of the evaporation process, and slow cycle times of carnallite harvesting operations, the frequency and locations of sampling, the analytical method and control procedures are considered suitable to support evaluation of the DSW operations and estimation of Mineral Resources.

8.5 YPH

8.5.1 Introduction

All sampling was completed by or supervised by a senior geologist. The senior Project geologists referenced here and throughout this TRS have sufficient relevant experience for the exploration methods employed, the type of mineralisation being evaluated, and they are registered professional geologists in their jurisdiction.

The QP was not directly involved during the exploration drilling or infill programmes and except for observing sampling procedures by its representative during the site visit, was not present to observe sample selection. Based on review of the procedures during the site visit and subsequent review of the data, it is the opinion of the QP that the measures taken to ensure sample representativeness were reasonable for the purpose of estimating Mineral Resources.

The nature and quality of the sampling from the various drilling programmes is summarised in the following sections.

8.5.2 Sampling Techniques and Preparation

8.5.2.1 Core Drilling

Core samples were collected from 117mm for pre-collar, 79mm for infill drilling, 63.5mm (HQ) and 47.6mm (NQ) for exploration core on 0.2m to 1.5m intervals, with some on 2.0m intervals based on visual inspection of mineralised intervals. A few samples of over 2.0m length are also noted for mineralised material and a large number for low grade interburden and overburden material. Such sample assays are based on a composite sample analysis, rather than individual cores. Cores were split to half using a water-cooled diamond blade core saw.

Sample intervals were selected to reflect visually identifiable stratigraphic boundaries wherever possible, to ensure sample representativeness. Determination of the mineralisation included visual identification of mineralised intervals by a senior geologist using lithological characteristics including siltstone, dolomite, banded phosphorite, oolitic phosphorite, bioclastic and sandy phosphorite. A visual distinction between some units, particularly where geological contacts were gradational was initially made. Final unit contacts were then determined once assay data were available.

The QP was not directly involved during the exploration drilling programmes; however, the visual identification of mineralised zones and the process for updating unit and mineralised contacts was reviewed with the YPH senior geologist during the site visit. The QP has evaluated the identified mineralised intervals against the analytical results and agrees with the methodology used by previous explorers and YPH to determine material mineralisation.

8.5.2.2 Sample Results

To date there has been a total of 5,252 core samples collected and analysed on the Project of which 728 samples are from the NBTU block and 204 sample from the HOM blocks. A summary of the assay samples by block area and stratigraphic unit is provided in Table 8.5.

Table 8.5: Summary of P_2O_5 Assayed Samples by Block and Modelled Stratigraphic Units

Block	Strat Unit	Sample Count	Mean Sample Length	Min Sample Length	Max Sample Length	Block	Strat Unit	Sample Count	Mean Sample Length	Min Sample Length	Max Sample Length
1	INT1	137	2.11	0.25	13.35	4	INT1	55	1.95	0.30	7.43
1	PH1	566	1.14	0.20	4.09	4	PH1	199	1.30	0.13	13.94
1	INT2	388	1.22	0.40	13.34	4	INT2	87	2.75	0.28	15.08
1	PH2	367	1.13	0.15	9.75	4	PH2	91	1.27	0.26	11.27
1	INT3	194	3.11	0.20	64.57	4	INT3	68	1.38	0.25	10.55
1	**Total**	**1,652**	**1.47**	**0.15**	**64.57**	**4**	**Total**	**500**	**1.63**	**0.13**	**15.08**
2	INT1	22	3.81	0.86	15.89	NBTU*	INT1	85	1.81	0.30	15.30
2	PH1	119	1.33	0.39	12.53	NBTU*	PH1	212	1.25	0.27	5.32
2	INT2	66	2.03	0.56	18.50	NBTU*	INT2	103	1.53	0.42	9.31
2	PH2	71	1.51	0.44	23.20	NBTU*	PH2	273	1.25	0.20	6.77
2	INT3	50	2.04	0.63	12.74	NBTU*	INT3	53	1.43	0.22	10.67
2	**Total**	**328**	**1.78**	**0.39**	**23.20**	**NBTU***	**PH3**	**2**	**1.03**	**0.95**	**1.10**
3	INT1	199	1.84	0.30	15.24	NBTU*	Total	728	1.37	0.20	15.30
3	PH1	646	1.25	0.20	3.06	HOM**	INT1	22	3.92	0.40	13.28
3	INT2	234	1.34	0.20	9.33	HOM**	PH1	24	1.13	0.60	3.24
3	PH2	615	1.28	0.02	9.91	HOM**	INT2	12	1.97	0.72	8.41
3	INT3	141	1.53	0.11	14.28	HOM**	PH2	135	1.16	0.19	11.27
3	PH3	5	1.10	0.97	1.20	HOM**	INT3	11	2.09	0.22	6.09
3	**Total**	**1,840**	**1.36**	**0.02**	**15.24**	**HOM****	**Total**	**204**	**1.56**	**0.19**	**13.28**

Notes:
*NBTU: Surface access constraints
**HOM: Surface access constraints

8.5.3 Verification of Sampling and Assaying

During exploration and infill drilling programmes, both the internal and external check sample were carried out. This amounted to in excess of 15% of samples taken from upper and lower phosphate layers were checked externally and in excess of 70% checked internally as pulp repeats. The QA/QA work achieved acceptable level of repeatability.

The QP recommends twinning drill hole pairs as part of any future pre-production or infill drilling programmes to allow for a more robust review of sample representativeness.

8.5.4 Sample Audits and Reviews

The QP's representative reviewed the core and sampling techniques during a site visit in November 2021. The QP found that the sampling techniques were appropriate for collecting data for the purpose of preparing geological models and Mineral Resource estimates.

8.5.5 Sample Security

Sample handling, security and chain of custody follows the "Geological and Mineral Laboratory test Quality Management Specification Standards" (DZ/T 0130-2006 being the latest version). The standards recommend a detailed procedure for the sampling, packaging, transportation process and associated health and safety issues. The process is designed to:

- Ensure absolute security over the samples, with defined chain of custody;
- Prevent any mixing; and
- Prevent exposure to rain and contamination.

8.5.6 Laboratory Sample Preparation Methods and Analytical Procedures

All core samples were processed, crushed, screened, blended, split, and a sub-sample ground for chemical analysis. Sample preparation process used also ensures a less than 5% sample loss during crushing and 3% after splitting. The sampling and sample preparation approach follows the China exploration standards of "Sampling rules and methods for geological survey of metal and nonmetal minerals". The sample preparation scheme used at Haikou is presented in Figure 8.5.

All core samples of the phosphate bearing layers of economic value as well as few metres of overburden and interburden material immediate to the roof or floor of the phosphate layer are analysed for P_2O_5% and acid insoluble material (HP). Further analysis is carried for MgO, CaO, CO_2, SiO_2, Al_2O_3, Fe_2O_3, and F using a larger composite sample that generally represents the full length of the mineralised phosphate layer. Composite samples are generated by combining the existing duplicate pulps of the individual core samples. The analytical methods follow the Chemical Industry Standard of the People's Republic of China specific to Phosphate (DZ/T0209-2002).

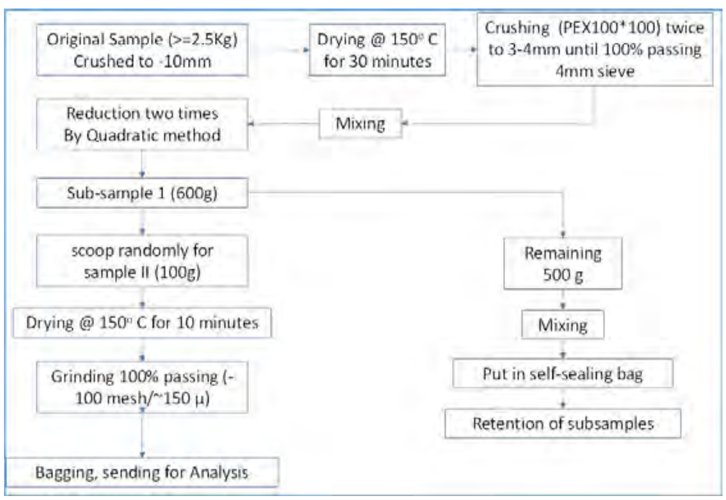


Figure 8.5: Sample Preparation Scheme

8.5.7 Quality Control and Quality Assurance Programs

Drilling, sampling, assaying and QA/QC approach at Haikou deposit follows the Geological and Mineral Industry Standard of the People's Republic of China as per "DZ/T 0209-2002" implementation for phosphorous mineral exploration and that of the DZ/T 130-2006 for Geological Mineral Laboratory Test Quality Management Specification. While the code is considered prescriptive in nature, it is however considered by the QP to be of lower rigour compared to accepted industry principles and practices for QA/QC processes. The QA/QC procedures for each programme are as follows:

- Internal Checks
  - Pulp repeats by the principal laboratory
  - Use of standards by the principal laboratory
  - Checking contamination by using blanks
- External Checks – Pulp repeats by external laboratories.

The following sections present QP's findings relating to each of the types of QA/QC samples.

8.5.7.1 Standard Reference Material Samples

Historical documentation indicates that both the commercial and in-house developed standards have been used throughout various periods and inserted as part of internal and external check analysis. Commercially prepared standards are sourced from the Chemical Mineral Geology Institute of Ministry of Chemical Industry and in-house developed standards are produced from samples prepared and tested by at least three laboratories with similar results and within acceptable level of error.

The QP has not been able to locate the results of the checks on standards and recommends an extended search to locate and store historical results of checks and standard tests.

8.5.7.2 Field Duplicates and Replicates

Field duplicates measure inherent variability and analytical precision of the primary laboratory while replicates measure analytical variability and precision of the primary laboratory. No field duplicate analysis exists. However, both the internal and external check analysis are exhaustive with an acceptable level of repeatability. Most of the items considered as poor repeatability are within the twice the standard deviation, but any analysis with larger than two standard deviations has been re-analysed. Table 8.6 provides summary of the proportion of the internal and external checks conducted.

Table 8.6: Summary Internal and External Checks						
Type	Blocks	№ Samples Checked	%Samples Checked	No Sample with Poor Repeatability >= 1STD		№ Samples Reanalysed
				P_2O_5%	Al	
Internal Checks	1 and 2	2,020	100%	102	102	102
	3	516	30%	0	0	0
	4	192	23%	2	16	0
External Checks	1 and 2	288	14%	13	7	2
	3	55	11%	5	2	0
	4	55	29%	0	3	0

8.5.7.3 Discussion

It is the QP's opinion that the sample preparation, security, and analytical procedures applied by YPH and its predecessors were appropriate and fit for the purpose of establishing an analytical database for use in grade modelling and preparation of Mineral Resource estimates, as summarised in this TRS.

The QP representatives reviewed the core and sampling techniques during a site visit in November 2021. The QP found that the sampling techniques were appropriate for collecting data for the purpose of preparing geological models and Mineral Resource estimates.

The following recommendations are made for consideration regarding sampling:

- Under the China DZ/T 130-2006 Specification, a large proportion of QA samples are managed (prepared, tested, assessed and stored) by the analytical laboratory. It is recommended that the future sample preparation and quality control to be executed and managed by YPH site personnel.
- Revise QA/QC protocol to include field duplicates.
- Exclude trench data from the modelling process due to the poor quality samples and low reliability and representativeness of trench analytical data.

8.6 Opinion On Adequacy

In the QP's opinion, the sample preparation and analysis procedures used at the properties that are the subject of this TRS generally meet current industry standards for quality and the assay results are suitable to use for Mineral Resource estimation and related geological modelling.

9 DATA VERIFICATION

9.1 Boulby

9.1.1 Drill Hole Database

The drill hole information is managed and stored in ICL Boulby's bespoke SQL / Microsoft Access database called "Geodata". Geodata requires data entry in a fixed format by authorised users. Deletion and alteration are controlled by user permissions. The Database has a wide range built-in validation tools to trap and prevent data entry and manipulation errors for survey, assay, logging and other borehole details.

Validation and verification of the drill hole database is routinely undertaken. Once a hole is complete it's associated data, such as assays and surveys, are reviewed by the Chief Geologist and locked to prevent changes to maintain the integrity of the data.

The exploration database was reviewed by Boulby geologists prior to export to Datamine Studio RM software. The review process found some minor errors and logging inconsistencies, primarily regarding the interpreted rock unit within ICL Boulby's logging scheme, these were corrected where found prior to data extraction for the estimation process. The database was considered to be robust with no significant errors identified.

The drill holes were imported into Datamine (Studio RM and EM) software and the position of the holes were compared to those drawn in AutoCAD using the same survey data. This provides a check and verifies the position and de-surveying method within Studio RM prior to the construction of the geological model.

As part of the MRE reported here, the QP carried out independent verification of the exploration database. The review included, but was not limited to, the following steps:

- Verification that collar coordinates coincide with underground workings.
- Ensuring each drillhole collar recorded has valid XYZ coordinates.
- Ensuring collar coordinates are inside expected limits.
- Ensuring collar coordinates are reported to an expected accuracy.
- Checking for the presence of any duplicate drillhole collar IDs or collars with duplicate collar coordinates.
- Ensuring all holes have valid downhole surveys or at least a recorded start bearing and dip.
- Verification that downhole survey azimuth and inclination values display consistency.
- Ensuring all downhole survey bearing and dip records were within expected limits.
- Checking for the presence of any unusually large changes in dip and/or bearing in downhole survey records that may indicate the presence of typographic errors.
- Check for overlapping sample intervals.
- Check for duplicate sample intervals.
- Identify sample intervals for which grade has been recorded that have excessive length which may indicate composite samples or typographic errors.
- Assessing for inconsistencies in spelling or coding (typographic and case sensitive errors) of BHID, hole type, lithology etc. to ensure consistency in data review.

9.1.2 Grade Control Face Samples

The grade control sample dataset contains face samples digitised in Datamine prior to 2015 and face samples collated by the geology department post 2015 from individual excel sheets returned by the laboratory.

Face sample data post 2015 were collated by copying and pasting of information from original assay excel sheets and applying a "halite correction" based on the thickness of halite estimated in the face which is recorded on the sample card completed at the time of sample collection.

It is noted that there are often inconsistencies between the final average value written on the physical sample card when compared to the calculated average from the original assay results after the recorded halite correction is applied.

9.1.3 Laboratory Data Entry

Assay results held by the Boulby laboratory are verified by the geology department against data held in the exploration database.

9.1.4 Independent Sampling

The QP has not carried out any independent sampling for verification of grade or density data used for the MRE.

9.1.5 Limitations on Data Verification

At this time, only a handful of exploration drill holes have been independently checked against the data stored in the drill hole database and the original results held by the laboratory. All of the drill holes in the database are subject to the data entry protocols and verification by the Chief Geologist prior to beinge released for Mineral Resource estimation.

The face samples prior to 2015 have not been able to be verified due to time constraints and lack of identifying information such as roadway name, chainage etc.

For the face samples post 2015, there is no way of verifying the correct halite correction to apply to the assay results received from the laboratory as no face photography or detailed geological mapping is available.

The QP was not directly involved in the exploration drilling and sampling programmes that formed the basis for collecting the data used in the geological modelling and mineral resource estimate for the Project; however, the QP was able to observe drilling and sample preparation methods during previous site visits to Boulby. The QP has had to rely upon forensic review of the exploration programme data, documentation and standard database validation checks to ensure the resultant geological database is representative and reliable for use in geological modelling and mineral resource and reserve estimation.

The QP is not aware of any other limitations on nor failure to conduct appropriate data verification.

9.1.6 Opinion on Data Adequacy

The location, analytical, and geological data in the Boulby database were verified against available source documents for selected drill holes. The drill hole database has robust data verification and error prevention protocols in place and the QP is of the opinion that the database is suitable for use in Mineral Resource estimation of the polyhalite.

Whilst verification of the grade control samples highlighted some issues, the QP is satisfied that the data is adequate for use in the geological interpretation and estimation process with appropriate consideration of data quality on Mineral Resource classification.

9.2 Cabanasses and Vilafruns

9.2.1 Introduction

Prior to February 2019, no formal QA/QC programmes were implemented by ICL Iberia. To verify the drillhole data completed prior to this date the following reviews were undertaken by WAI:

- Statistical comparison of KCl assays by drilling year (underground drilling);
- Comparison of resource models with historical mining production data;
- Review of 2021 re-assaying programme for surface drillhole samples; and
- A review of the drillhole databases.

9.2.2 Statistical Comparison of KCl Assays by Drilling Year

A statistical analysis of the KCl assays by drilling year for the underground drillholes was undertaken by WAI. Samples coded as Seam A, Seam B or Transformada zone in the drillhole database (based on the BOU code in the lithology database) were selected and the KCl assays reviewed.

9.2.2.1 Cabanasses Seam A

A summary of the KCl assays for Cabanasses Seam A by drilling year is shown in Table 9.1.

Table 9.1: Summary Statistical Analysis for KCl (%) at Cabanasses Seam A							
Year	**№ of Samples**	**Minimum**	**Maximum**	**Mean**	**Variance**	**Standard Deviation**	**Coefficient of Variation**
2003	29	2.8	76.9	25.5	349.8	18.7	0.73
2004	892	0.8	87.1	25.9	338.6	18.4	0.71
2005	882	1.23	88.9	28.8	350.0	18.7	0.65
2006	479	0.75	85.9	24.6	287.6	17.0	0.69
2007	389	1.05	89.4	24.7	326.5	18.1	0.73
2008	316	0.59	85.1	24.5	272.3	16.5	0.67
2009	543	0.6	87.3	24.1	246.0	15.7	0.65
2010	670	0.61	78.1	25.1	220.9	14.9	0.59
2011	550	0.89	72.5	25.9	219.4	14.8	0.57
2012	860	0.94	85.4	25.9	239.1	15.5	0.60
2013	1007	0.52	90.9	22.6	240.4	15.5	0.69
2014	643	0.69	89	24.0	246.5	15.7	0.65
2015	855	0	79	24.8	257.3	16.0	0.65
2016	1204	0	86	23.8	237.0	15.4	0.65
2017	1213	0.1	87.2	23.7	259.4	16.1	0.68
2018	1106	0.72	80.2	23.1	230.8	15.2	0.66
2019	1175	0.51	84.1	24.0	249.6	15.8	0.66
2020	628	0.55	89.6	23.2	272.1	16.5	0.71
2021	369	0	87.3	25.0	305.5	17.5	0.70
Total	**13,810**	**0**	**90.9**	**24.6**	**265.2**	**16.3**	**0.66**

Log probability plots comparing KCl assays by drilling year and plots comparing mean KCl grades of the drilling campaigns are shown in Figure 9.1.

a) Cumulative Distribution Plot **b) Mean KCl Grade**

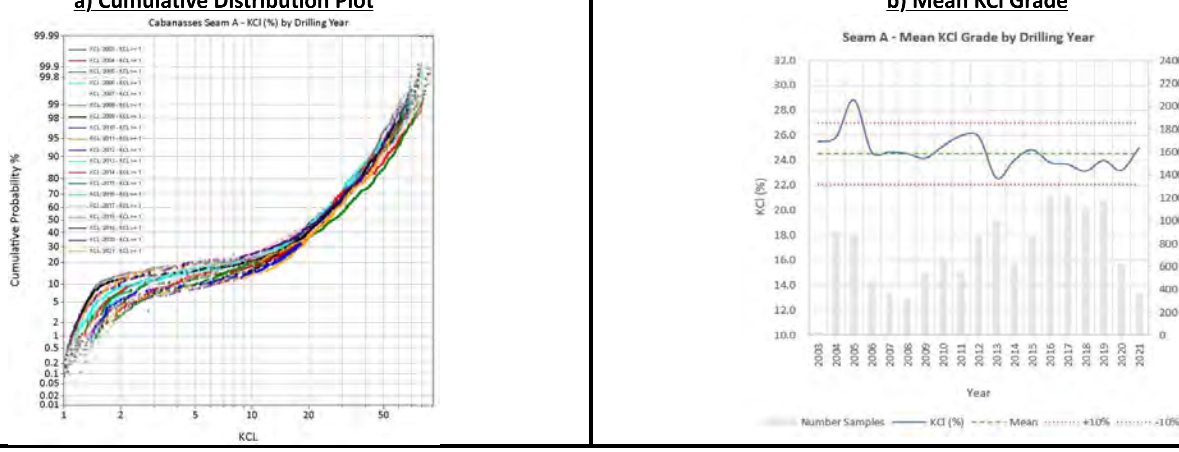


Figure 9.1: Cabanasses Seam A: a) Log Probability Plots and b) Mean Grade Plots of KCl (%)

Overall, average KCl grades and the distribution of KCl grades for the drilling years are considered to compare well for Seam A. Higher average grades are observed in the 2005 drilling campaign, however, these areas have since been removed by mining and are excluded from the MRE.

9.2.2.2 Cabanasses Seam B

A summary of the KCl assays for Cabanasses Seam B by drilling year is shown in Table 9.2.

Table 9.2: Summary Statistical Analysis for KCl (%) at Cabanasses Seam B

Year	№ of Samples	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient of Variation
2003	7	22.8	46	36.3	62.3	7.9	0.22
2004	331	1.3	86.2	40.2	189.6	13.8	0.34
2005	448	4.21	94.2	43.4	189.0	13.7	0.32
2006	218	2.24	78.9	37.9	119.6	10.9	0.29
2007	191	3.3	81	36.2	204.7	14.3	0.39
2008	139	2.77	77.9	37.2	127.2	11.3	0.30
2009	243	1.78	88	39.9	168.5	13.0	0.33
2010	389	0.7	86.8	40.6	183.2	13.5	0.33
2011	289	0.35	93	42.1	207.5	14.4	0.34
2012	319	0.79	85.2	41.7	153.2	12.4	0.30
2013	371	1.58	85.2	36.3	305.1	17.5	0.48
2014	237	1.15	69.1	36.5	178.9	13.4	0.37
2015	379	0	79.4	38.7	199.8	14.1	0.37
2016	474	0.35	78.6	39.5	219.7	14.8	0.38
2017	438	0.71	65.3	40.2	134.6	11.6	0.29
2018	521	0.09	68.6	37.8	175.7	13.3	0.35
2019	464	0.9	90.4	41.5	130.8	11.4	0.28
2020	266	1.09	70.5	38.0	248.1	15.8	0.41
2021	122	0.42	68	32.4	305.9	17.5	0.54
Total	**5,846**	**0**	**94.2**	**39.4**	**193.8**	**13.9**	**0.35**

Log probability plots comparing KCl assays by drilling year and plots comparing mean KCl grades of the drilling campaigns are shown Figure 9.2.

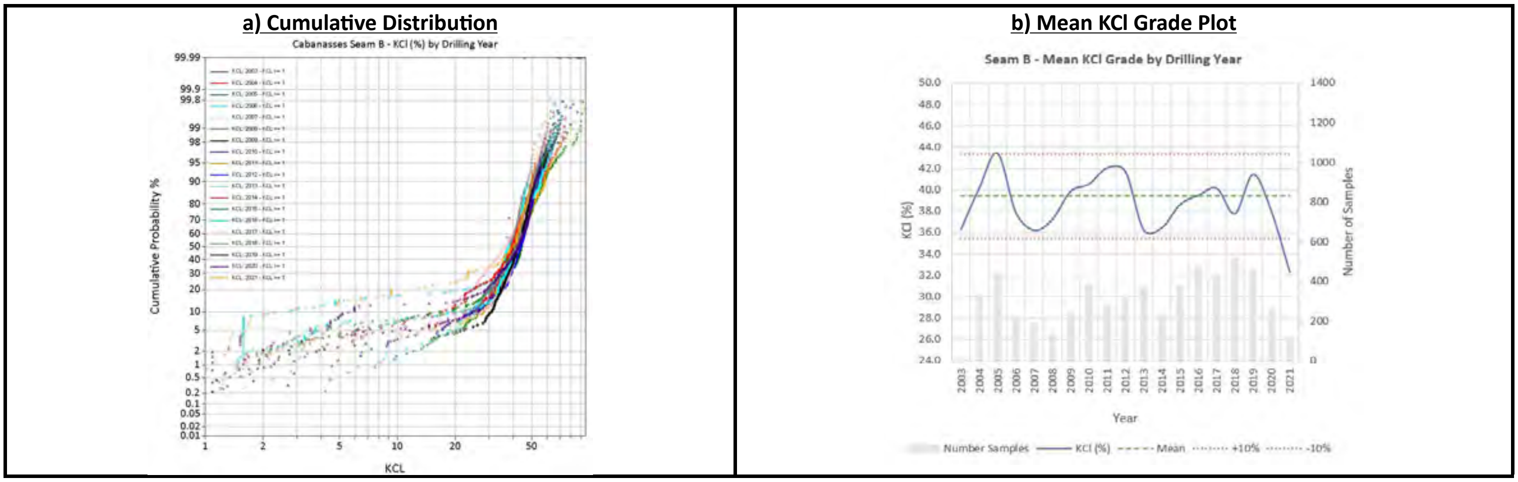


Figure 9.2: Cabanasses Seam B: a) Log Probability Plots and b) Mean Grade Plots of KCl (%)

Overall, no significant bias appears to be evident in the KCl assays for Seam B based on the drilling campaign years. It is noted that the lower mean grade associated with the 2021 drilling is based on fewer samples and should be reviewed again following completion of all 2021 assays.

9.2.2.3 Cabanasses Transformada Zone

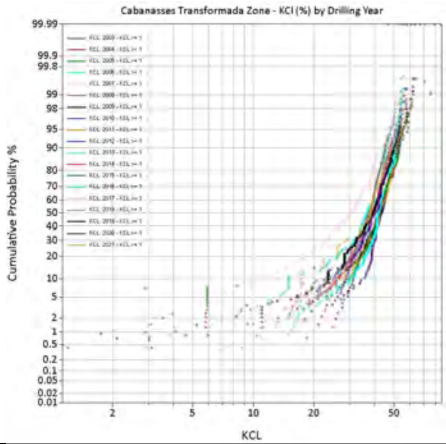
A summary of the KCl assays for Cabanasses Transformada Zone by drilling year is shown in Table 9.3.

Table 9.3: Summary Statistical Analysis for KCl (%) at Cabanasses Transformada Zone

Year	№ of Samples	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient of Variation
2003	14	2.9	46.3	36.5	139.2	11.8	0.32
2004	240	1.2	79.4	40.7	120.9	11.0	0.27
2005	205	1.13	71.2	40.2	175.1	13.2	0.33
2006	117	14.9	56	36.9	76.7	8.8	0.24
2007	82	2.17	52.4	29.2	141.0	11.9	0.41
2008	66	10	53	37.7	63.8	8.0	0.21
2009	109	1.75	85.1	42.2	108.3	10.4	0.25
2010	155	3.03	63.2	42.8	54.7	7.4	0.17
2011	95	2.03	56.6	40.9	114.1	10.7	0.26
2012	140	2.1	60.6	39.0	113.0	10.6	0.27
2013	238	2.9	64.1	37.0	155.8	12.5	0.34
2014	98	4.1	56.3	37.8	83.2	9.1	0.24
2015	133	3.04	57.7	40.7	77.5	8.8	0.22
2016	278	6.83	56.5	41.0	68.9	8.3	0.20
2017	223	7.23	56.9	38.8	88.2	9.4	0.24
2018	246	8.77	54.6	36.4	67.9	8.2	0.23
2019	242	3.13	67.2	37.6	121.8	11.0	0.29
2020	138	18.4	57.8	39.2	61.5	7.8	0.20
2021	71	0	53.3	35.1	131.6	11.5	0.33
Total	**2,890**	**0**	**85.1**	**38.8**	**109.3**	**10.5**	**0.27**

Log probability plots comparing KCl assays by drilling year and plots comparing mean KCl grades of the drilling campaigns are shown in Figure 9.3.

a) Cumulative Distribution Plot



b) Mean KCl Grade Plot

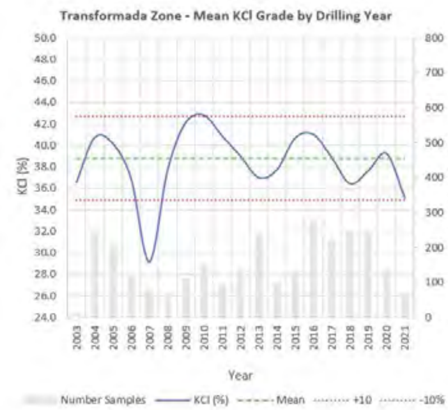


Figure 9.3: Cabanasses Transformada: a) Log Probability Plots and b) Mean Grade Plots of KCl (%)

Overall, the average KCl grades and the distribution of KCl grades for the drilling years are considered to compare well for the Transformada Zone and no systematic bias appears to be evident. The lower mean grades associated with the 2007 campaign are not considered significant as these areas are not included within the proposed mining panels. Similar mean grades are encountered for the Transformada Zone and Seam B and it is noted that these zones are subsequently combined by ICL Iberia for the purposes of mineral resource estimation.

9.2.3 Comparison of Resource Models with Historical Mining Production Data

On-going reconciliation studies are undertaken by ICL Iberia in which the resource models are compared with actual mining production data. The results of previous resource models (updated from 2008 to 2015) and their comparison with historical production from Cabanasses (Domain DS1 mining blocks) is shown in Table 9.4.

Seam B indicates a good level of correlation between the resource models and actual production with the resource models containing:

- 1.8% higher KCl grade;
- 5% lower ore tonnes; and
- 2% higher product tonnes.

Seam A indicates a higher level of variability between the resource model and production data with the resource models containing:

- 1.8% higher KCl grade;
- 16% lower ore tonnes; and
- 5% lower product tonnes.

Table 9.4: Comparison of Resource Model vs Mining Production from 2011 to 2016									
	Resource Model			Mining Production Actual			Difference (Actual / Model)		
Mining Block	**Ore (kt)**	**KCl (%)**	**Product (kt)**	**Ore (kt)**	**KCl (%)**	**Product (kt)**	**Ore (kt)**	**KCl (%)**	**Product (kt)**
Seam A									
9 TXIIW	131	22.6	28	140	20.6	27	107%	-2.0	96%
9 TXIIE + TXIIE	280	21.4	58	321	20.0	59	115%	-1.4	101%
TXIIIE. 113.3	17	21.8	3	22	18.3	4	130%	-3.6	108%
9 TXIIIW. 113.2	113	22.4	24	21	20.0	4	19%	-2.4	16%
TXIIIW. 113.4	343	24.2	77	431	20.0	79	126%	-4.3	102%
114.3	166	22.4	34	244	21.2	48	147%	-1.2	139%
TXIV W. 114.4	201	23.7	44	300	22.3	62	149%	-1.5	142%
BLOQUE 2C (NORTE)	209	18.2	35	214	18.3	36	103%	0.1	103%
Total Seam A	**1,459**	**22.2**	**303**	**1,694**	**20.4**	**318**	**116%**	**-1.8**	**105%**
Seam B									
TXIE	923	31.5	268	1,033	32.2	306	112%	0.7	114%
TXIIW	1,040	30.0	288	1,098	29.9	301	106%	-0.2	105%
TXIIE	1,250	31.0	357	1,200	29.9	330	96%	-1.1	93%
TXIIIW. 113.4	766	33.1	234	788	30.5	221	103%	-2.6	95%
9 TXIIIW. 113.2	375	26.3	91	371	27.8	95	99%	1.5	104%
TXIIIE.113.3	1,175	28.5	309	793	28.9	211	67%	0.4	68%
9 TXIIIE. 113.1	476	25.3	111	333	26.8	82	70%	1.5	74%
TXIV W. 114.4	546	29.0	146	493	30.9	142	90%	2.0	98%
9 TXIVW. 114.2	321	29.6	87	410	27.9	107	128%	-1.7	122%
TXIVE. 114.3	514	31.3	148	473	31.1	135	92%	-0.2	91%
9 TXIVE. 114.1	418	27.8	107	351	28.5	92	84%	0.7	86%
115.10	104	27.2	26	41	29.6	11	39%	2.4	43%
115.20	455	31.9	134	545	29.9	150	120%	-2.0	112%
FLANCO N ANT. PRINCIPAL. ZONA 2	753	20.2	142	375	23.7	82	50%	3.5	58%
ZONA INTERMEDIA. ZONA 3	1,171	24.8	271	701	26.4	170	60%	1.6	63%
FLANCO S. 6C. ZONA 4	8	24.1	2	15	32.4	5	189%	8.3	251%
TOTAL BASE SINCLINAL. ZONA 4	372	25.2	86	173	28.1	45	46%	3.0	52%
FLANCO NORTE (7C. + 402.3) ZONA 4	462	29.8	127	1,188	31.8	347	257%	1.9	274%
T1N. 1W. 501.2	294	28.1	77	379	27.5	96	129%	-0.6	124%
T1N. 1E. 501.1	439	27.0	110	595	27.2	149	136%	0.3	135%
T1N. 2E. 501.3	198	30.4	56	162	27.0	40	82%	-3.4	72%
T1N. 2W. 501.4	137	26.1	33	111	26.1	27	81%	0.1	80%
Total SeamB	**12,198**	**28.5**	**3,208**	**11,625**	**29.4**	**3,143**	**95%**	**0.9**	**98%**
Seam A + Seam B									
Total	**13,657**	**27.8**	**3,512**	**13,319**	**28.2**	**3,461**	**98%**	**0.4**	**99%**

Notes:
1. Resource models have been adjusted for variable mining dilution factors based on seam and mining block.
2. The average mining dilution factors applied were: 9% for Seam A and 31% for Seam B.

Overall, however, WAI considers the resource models generally show an acceptable level of correlation with the historical production actuals.

9.2.4 Re-Assaying Programme of Surface Drilling Samples

During 2021, a re-assaying programme was completed by ICL Iberia using samples from the following surface drillholes (year of drilling shown in parentheses):

- C-2bis (2011)
- C-3 (2011)
- C-4bis (2011)
- SAG1 (2021)

Samples from C-2bis, C-3 and C-4bis consisted of pulp duplicates stored at the Sallent laboratory and were submitted to ALS (Sevilla) for analysis.

Samples from SAG1 consisted of pulp duplicates which were originally analysed by ALS (Sevilla) and were subsequently re-submitted (blind) to ALS.

9.2.4.1 Drillhole C-2Bis

The original analysis for drillhole C-2Bis was undertaken in 2010 at the ICL Iberia laboratory using AAS. In 2021, a total of 11 pulp duplicate samples were submitted to ALS laboratories (Sevilla) for analysis by XRF. A comparison of the original analysis by the ICL Iberia laboratory and the duplicate analysis by ALS is shown in Table 9.5.

Table 9.5: Duplicate Analysis of Drillhole C-2Bis									
Sample	From (m)	To (m)	Length (m)	Lith.	ICL Iberia (AAS)	ALS (XRF)			Difference
					KCl (%)	Duplicate	K_2O (%)	KCl (%)	KCl (%)
C-2Bis/011	1116.50	1117.30	0.80	CAR	24.4	C2BIS-011-DUP	17.1	27.1	
			0.80		**24.4**			**27.1**	**-2.7**
C-2Bis/010	1117.30	1117.95	0.65	B	43.3	C2BIS-010-DUP	28.9	45.7	
C-2Bis/009	1117.95	1118.65	0.70	B	34.9	C2BIS-009-DUP	23.6	37.4	
			1.35		**38.9**			**41.4**	**-2.5**
C-2Bis/008	1118.65	1120.20	1.55	S2	1.5	C2BIS-008-DUP	1.02	1.6	
C-2Bis/007	1120.20	1121.40	1.20	S2	1.4	C2BIS-007-DUP	0.95	1.5	
C-2Bis/006	1121.40	1122.60	1.20	S2	1.4	C2BIS-006-DUP	0.88	1.4	
C-2Bis/005	1122.60	1123.85	1.25	S2	13.1	C2BIS-005-DUP	1.66	2.6	
			5.20		**4.2**			**1.8**	**2.4**
C-2Bis/004	1123.85	1124.70	0.85	Asup	41.4	C2BIS-004-DUP	5.66	9.0	
C-2Bis/003	1124.70	1125.90	1.20	Asup	23.4	C2BIS-003-DUP	17.15	27.1	
C-2Bis/002	1125.90	1126.20	0.30	S60	3.7	C2BIS-002-DUP	2.54	4.0	
C-2Bis/001	1126.20	1127.10	0.90	A/CR	31.1	C2BIS-001-DUP	31	49.1	
			3.25		**28.4**			**26.3**	**2.1**
Note: Calculation of KCl from K_2O based on empirical formula: KCl = K_2O/0.6317									

Generally, a reasonable correlation between the ICL Iberia and ALS laboratory analysis is observed with:

- Seam B: overall grades of 38.9% KCl and 41.4% attained by ICL Iberia and ALS respectively; and
- Seam A: overall grades of 28.4% KCl and 26.3% KCl attained by ICL Iberia and ALS, respectively.

WAI notes that some significant discrepancies are observed in samples C-2Bis/004 and C-2Bis/001 of Seam A. However, it is recognised that the overall grade of the seam (based on the analysis of the two laboratories) is still considered comparable.

9.2.4.2 Drillhole C-3

The original analysis for drillhole C3 was undertaken in 2010 at the ICL Iberia laboratory using AAS. In 2021, a total of 10 pulp duplicate samples were submitted to ALS laboratories (Sevilla) for analysis by XRF. A comparison of the original analysis by the ICL Iberia laboratory and the duplicate analysis by ALS is shown in Table 9.6.

Table 9.6: Duplicate Analysis of Drillhole C-3

Sample	From (m)	To (m)	Length (m)	Lith.	ICL Iberia (AAS)	ALS (XRF)			Difference
					KCl (%)	Duplicate	K_2O (%)	KCl (%)	KCl (%)
C-3/010	1053.30	1056.15	2.85	CAR	20.8	C3-010-DUP	16.5	26.1	
			2.85		**20.8**			**26.1**	**-5.3**
C-3/009	1056.15	1056.80	0.65	B	44.4	C3-009-DUP	27.8	44.0	
C-3/008	1056.80	1057.45	0.65	B	39.9	C3-008-DUP	25.6	40.5	
			1.30		**42.1**			**42.3**	**-0.1**
C-3/007	1057.45	1058.80	1.35	S2	1.5	C3-007-DUP	0.98	1.6	
C-3/006	1058.80	1060.00	1.20	S2	1.7	C3-006-DUP	1.12	1.8	
C-3/005	1060.00	1060.90	0.90	S2	1.5	C3-005-DUP	1.06	1.7	
			3.45		**1.6**			**1.7**	**-0.1**
C-3/004	1060.90	1061.70	0.80	Asup	31.4	C3-004-DUP	21.2	33.6	
C-3/003	1061.70	1062.70	1.00	Asup	20.6	C3-003-DUP	13.8	21.8	
C-3/002	1062.70	1063.10	0.40	S60	1.8	C3-002-DUP	1	1.6	
C-3/001	1063.10	1063.80	0.70	A/CR	41.8	C3-001-DUP	27.5	43.5	
			2.90		**26.1**			**27.5**	**-1.4**

Note: Calculation of KCl from K_2O based on empirical formula: KCl = K_2O/0.6317

A good corelation between the ICL Iberia and ALS laboratory analysis is observed with:

- Seam B, overall grades of 42.1% KCl and 42.3% attained by ICL Iberia and ALS, respectively; and
- Seam A, overall grades of 16.0% KCl and 17.0% KCl attained by ICL Iberia and ALS, respectively.

9.2.4.3 Drillhole C-4Bis

The original analysis for drillhole C-4Bis was undertaken in 2010 at the ICL Iberia laboratory using AAS. In 2021, a total of 17 pulp duplicate samples were submitted to ALS laboratories (Sevilla) for analysis by XRF. A comparison of the original analysis by the ICL Iberia laboratory and the duplicate analysis by ALS is shown in Table 9.7.

Table 9.7: Duplicate Analysis of Drillhole C-4Bis									
Sample	From (m)	To (m)	Length (m)	Lith.	ICL Iberia (AAS)	ALS (XRF)			Difference
					KCl (%)	Duplicate	K_2O (%)	KCl (%)	KCl (%)
C-4Bis01	574.15	578.50	4.35	T	40.6	C4BIS-001-DUP	27.2	43.1	
C-4Bis02	578.50	580.70	2.20	ST	2.4	C4BIS-002-DUP	1.85	2.9	
C-4Bis03	580.70	581.85	1.15	T+SAL	19.8	C4BIS-003-DUP	12.85	20.3	
C-4Bis04	581.85	583.30	1.45	silvinita+Sal	31.1	C4BIS-004-DUP	20.5	32.5	
C-4Bis05	583.30	585.90	2.60	Sal alterada	2.1	C4BIS-005-DUP	1.46	2.3	
C-4Bis06	585.90	588.35	2.45	silvinita+Sal	29.1	C4BIS-006-DUP	19.55	30.9	
			14.20		**23.0**			**24.4**	**-1.4**
C-4Bis07	588.35	590.35	2.00	Sal	1.8	C4BIS-007-DUP	1.85	2.9	
C-4Bis08	590.35	592.90	2.55	silvintia+Sal	8.2	C4BIS-008-DUP	5.68	9.0	
C-4Bis09	592.90	593.70	0.80	Sal	2.1	C4BIS-009-DUP	1.18	1.9	
C-4Bis10	593.70	596.50	2.80	silvinita+Sal	22.3	C4BIS-010-DUP	13.9	22.0	
C-4Bis11	596.50	604.75	8.25	Sal	1.9	C4BIS-011-DUP	1.22	1.9	
			16.40		**6.3**			**6.6**	**-0.2**
C-4Bis12	604.75	607.45	2.70	silvinita+Sal	24.8	C4BIS-012-DUP	16.2	25.6	
C-4Bis13	607.45	610.30	2.85	silvinita+Sal	34.5	C4BIS-013-DUP	23.1	36.6	
C-4Bis14	610.30	613.55	3.25	Sal alterada	8.5	C4BIS-014-DUP	6.58	10.4	
C-4Bis15	613.55	616.15	2.60	Sal alterada	4.4	C4BIS-015-DUP	2.98	4.7	
C-4Bis16	616.15	619.45	3.30	Sal alterada	4.4	C4BIS-016-DUP	2.99	4.7	
C-4Bis17	619.45	622.40	2.95	silvintia+Sal	21.2	C4BIS-017-DUP	13.85	21.9	
			17.65		**16.0**			**17.0**	**-1.0**
Note: Calculation of KCl from K_2O based on empirical formula: KCl = K_2O/0.6317									

From the analysis, a good corelation between the ICL Iberia and ALS laboratories is observed with:

- Seam B, overall grades of 23.0% KCl and 24.4% KCl attained by ICL Iberia and ALS, respectively; and
- Seam A, overall grades of 16.0% KCl and 17.0% KCl attained by ICL Iberia and ALS, respectively.

9.2.5 Drillhole SAG1

The original analysis for drillhole SAG1 was undertaken in 2021 at ALS laboratories (Sevilla) using XRF. In 2021, a total of 7 pulp duplicate samples were re-submitted to ALS for analysis by XRF. A comparison of the original analysis by ALS and the duplicate analysis by ALS is shown in shown in Table 9.8.

Table 9.8: Duplicate Analysis of SAG1

Sample	From (m)	To (m)	Length (m)	Lith.	ALS (XRF) [1]		ALS (XRF) [2]			Difference
					K_2O (%)	KCl (%)	Duplicate	K_2O (%)	KCl (%)	KCl (%)
SAG1-619.95	619.20	619.95	0.75	B	31.1	49.2	QAQC005	31.1	49.2	
			0.75			**49.2**			**49.2**	**0.0**
SAG1-628.20	627.25	628.20	0.95	AS	43.9	69.5	QAQC006	43.8	69.3	
SAG1-630.80	630.20	630.80	0.60	AS	46.2	73.1	QAQC007	46.5	73.6	
SAG1-632.60	632.00	632.60	0.60	AS	26.4	41.8	QAQC008	26.4	41.8	
SAG1-634.65	634.10	634.65	0.55	AS	24.5	38.8	QAQC009	24.5	38.8	
SAG1-636.65	635.75	636.65	0.90	AS	20.3	32.1	QAQC010	20.3	32.1	
SAG1-640.10	639.35	640.1	0.75	CR	33.8	53.5	QAQC011	33.7	53.3	
			4.3			**51.8**			**51.8**	**0.0**
Note: Calculation of KCl from K_2O based on empirical formula: KCl = K_2O/0.6317										

Overall, an excellent correlation is observed between the ICL Iberia and ALS analysis with the same overall grades reported for both Seams A and B (49.3% KCl and 51.8% KCl, respectively).

9.2.6 Review of Drillhole Databases

A summary of the data verification procedures carried out by WAI on the drillhole databases are as follows:

- Review of geological and geographical setting of the Cabanasses and Vilafruns Deposits;
- Review of extent of the exploration work completed to date;
- Inspection of drill core to assess the nature of the mineralisation and to confirm geological descriptions;
- Inspection of geology and mineralisation in underground exposures;
- Review of drilling, logging, sampling and analysis procedures;
- An evaluation of minimum and maximum grade values and sample lengths;
- Assessing for inconsistencies in spelling or coding (typographic or case sensitive errors);
- Ensuring full data entry for each drillhole and that a specific data type (collar, survey, lithology and assay) is not missing;
- Assessing for sample gaps and overlaps;
- A review of assay detection limits;
- Identification of problematic assay records;
- A spatial on-screen review of the grade and lithology distributions of the drillholes was undertaken to identify any additional data reliability issues; and
- A review of collar locations for underground or surface drilling.

Minor validation errors were discovered in terms of overlapping intervals; however, WAI does not consider these to be significant. In addition, WAI notes that some instances of survey azimuth values of >360 degrees and <0 degrees are present in the drillhole database and should be corrected by ICL Iberia.

Overall, WAI considers the electronic databases to be generally robust with only minor errors identified.

9.2.7 Limitations on Data Verification

The QP was not directly involved in the exploration drilling and sampling programmes that formed the basis for collecting the data used in the geological modelling and mineral resource estimate for the Project; however, the QP's representative was able to observe drilling and sample preparation methods during the 2021 site visit. The QP has had to rely upon forensic review of the exploration programme data, documentation and standard database validation checks to ensure the resultant geological database is representative and reliable for use in geological modelling and mineral resource and reserve estimation.

The QP is not aware of any other limitations on nor failure to conduct appropriate data verification.

9.2.8 Opinion on Data Adequacy

Overall, the data verification procedures confirm the integrity of the data contained in the drillhole databases. Although no formal QA/QC procedures were implemented during the majority of the underground drilling completed at the Project, these data are, however, supported by on-going reconciliation studies with actual mining production data. In addition, statistical analyses indicated no significant bias in KCl grades based on drilling year. The re-assaying programme for the surface drilling, indicates an acceptable level of precision between the original assays and the duplicate assays. Overall, the QP considers the underground and surface drilling data contained in the databases to be suitable for inclusion in the Mineral Resource Estimate.

9.3 Rotem

9.3.1 Procedures

Site visits by one of the QP's authoring this report were conducted in January 2022. The project site, mining operations, and geology office was visited.

At the project site, drill pads were observed from the ongoing drilling campaign, collar locations were clearly marked. Surface geology was observed, obvious mineralization was observed in and around open pit exposure which is consistent with the current geologic interpretation of the project.

At the geologic office the QP observed core storage area, historic core storage area and the core processing and logging facility.

Verification samples were not collected. Drilling and sampling conditions were observed to be consistent with industry standards.

9.3.2 Previous Audits

In 2014, IMC Group Consulting Ltd (IMC) prepared a Competent Person's Report (CPR) for the Rotem, Oron and Zin phosphate operations. IMC prepared the CPR based on observations and data collection during site visits to the operations in February 2014.

IMC reviewed the practices and estimation methods undertaken for reporting of mineral resources and reserves in accordance with Guide 7 and other internationally recognised resource and reserve codes. All resource and reserve estimates were initially prepared by ICL Rotem, and subsequently reviewed by IMC. Such review is supported by evidence obtained during IMC's site visits and observations and are supported by details of exploration results, analyses, visual inspection, and other evidence and take account of all relevant information supplied by the management of ICL Rotem.

IMC verified the integrity of the data capture process, as well as the internal data coherence and was satisfied that these were completed to an acceptable industry standard. Further, IMC were satisfied that the methods of exploration, sampling, analysis and estimation of mineral resources and reserves is generally in accordance with international best practice.

9.3.3 Independent Sampling

The QP has not carried out any independent sampling for verification of grade or density data used for the mineral resource estimation.

9.3.4 Opinion on Data Adequacy

The QP was not directly involved in the exploration drilling and sampling programmes that formed the basis for collecting the data used in the geological modelling and mineral resource estimate for the Project. The QP has had to rely upon forensic review of the exploration programme data, documentation and standard database validation checks to ensure the resultant geological database is representative and reliable for use in geological modelling and mineral resource and reserve estimation.

The QP is not aware of any other limitations on nor failure to conduct appropriate data verification.

9.4 DSW

9.4.1 Procedures

Site visits by one of the QP's authoring this report were conducted in January 2022. The project site, process operations, and technical office was visited.

At the project site, pumping, sampling, and recovery activities were observed which is consistent with the current understanding and interpretation of the project.

9.4.2 Independent Sampling

The QP has not carried out any independent sampling for verification of grade or quality data used for the MRE.

9.4.3 Limitations on Data Verification

The QP was not directly involved in the sampling programmes that formed the basis for collecting the data used in the mineral resource estimate; however, the QP's representative was able to observe sample preparation methods while in progress on production samples during the 2022 site visit. The QP has had to rely upon forensic review of the sample data, documentation and standard validation checks to ensure the data is reliable for use in mineral resource and reserve estimation.

The QP is not aware of any other limitations on nor failure to conduct appropriate data verification.

9.4.4 Opinion on Data Adequacy

The QP considers that the sampling data are generally adequate for resource estimation. There are no additional limitations to the exploration data, analysis, or exploration database for use in Resource modelling and declaration of Mineral Resources.

9.5 YPH

9.5.1 Exploration and Mineral Resource Data Verification

9.5.1.1 Exploration Data Compilation

All available exploration drilling data, including survey information, downhole geological units, sample intervals and analytical results, were compiled by the QP and loaded into centralised Microsoft (MS) Excel based database. Most of the exploration data was extracted from a series of MS Excel files provided by YPH.

Compiled drilling data for the Haikou deposit comprised 300 drill holes totalling 23,915m of drilling and containing 5,253 analytical samples for P_2O_5. Compiled supporting documentation for the Haikou drilling data included internal report documents with hardcopy of the summary drilling data including the collar positions and type of samples collected.

Collar survey and downhole geological unit intervals, sample intervals and analytical results were imported into Vulcan drillhole database system to facilitate visual inspection of each individual drill holes as well as to allow for a review of correlations of geological units and mineralised zones between adjacent drill holes during the data validation and interpretation processes.

9.5.1.2 Exploration Data Validation

All drill hole logs are recorded by logging geologists on formatted paper sheets, then transcribed into MAPGIS before transferred to Microsoft (MS) Excel. Data and observations entered into the logging sheets have been reviewed for transcription or keying errors or omissions by senior ICL and YPH geologists prior to importing the data into the MS Access drill hole database. The QP evaluated the tabular data compiled for errors or omissions as part of the data validation procedures described in the following section.

The QP performed data validation on the drill hole database records using available underlying data and documentation including but not limited to documented hardcopies. Drill hole data validation checks were performed in Vulcan using a series of in-built data checks to evaluate for common drill hole data errors including, but not limited to, data gaps and omissions, overlapping lithology or sample intervals, miscorrelated units, and other indicators of data corruption including transcription and keying errors.

Several minor errors, omissions, or proposed revisions were identified during the review process; these included typographic errors and omission of some data and observations, as well as some re-correlations of geological units to honour the grade data. In each instance, the error, omission, or revision was reviewed and updated accordingly.

The QP verified the authenticity of the drill hole data during the November 2021 site visit. The purpose of the site visit was to review the project site, geology, current, and previous exploration methods, and results and identify any concerns and provide recommendations for consideration by YPH.

During the site visit, the QP's representatives visited the core shed and inspected several available core trays. These included some remnants of drill cores from ZK17-02, ZK20-J1, ZK04-06, ZK29+-J2 and ZK8+-3.

9.5.2 Limitations on Data Verification

The QP was not directly involved in the exploration drilling and sampling programmes that formed the basis for collecting the data used in the geological modelling and Mineral Resource estimates for the Project; however, the QP's representative was able to observe sample preparation methods while in progress on production samples during the 2021 site visit. The QP has had to rely upon forensic review of the exploration programme data, documentation and standard database validation checks to ensure the resultant geological database is representative and reliable for use in geological modelling and Mineral Resource and Reserve estimation.

The QP is not aware of any other limitations on nor failure to conduct appropriate data verification.

9.5.3 Opinion on Data Adequacy

The QP has validated the data disclosed, including collar survey, down hole geological data and observations, sampling, analytical, and other test data underlying the information or opinions contained in the written disclosure presented in this TRS. The QP deems that the data has been generated with appropriate industry standard procedures, were accurately transcribed from the original source and are suitable for the purpose of preparing geological models and a Mineral Resource estimate. Data that could not be verified to this standard were reviewed for information purposes only but were not used in the development of the geological models or Mineral Resource estimates presented in this TRS. Such data includes channel samples obtained from trenches and production faces and floors.

To further enhance the verification process, QP recommends twinning drill hole pairs as part of any future pre-production or infill drilling programmes to allow for a more robust view of sample representativeness.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Boulby

10.1.1 Overview

The processing of polyhalite is undertaken on site and the behaviour of the material including its amenability to crushing, screening and production of final product streams is well documented. The relatively consistent nature of the geology and mineralogy, as well as plant data from 2017 to 2020, indicates that there is no significant difference in recovery or amenability to processing across the known deposit extents.

10.1.2 Plant Feed Grade and Final Product Grade Relationship

The process of crushing and screening of the material results in preferential segregation of minerals due to their differing physical properties. Daily plant feed head grades are now regularly measured using a recently installed XRF Analyser and significant work is underway to better identify halite and other impurities at the mining face.

Plant data has been investigated from Dec 2017 – April 2020 and is shown in Figure 10.1. The data demonstrates that Granular and Standard products are distinctly separate populations. Granular products are upgraded by an average of 0.4% K_2O whilst the Standard products are downgraded by an average of 0.3% K_2O relative to the run of mine.

This implies that the Granular products are "enriched" at the direct expense of the Standard material. The suggested mechanism for this is that halite is substantially softer than polyhalite and is therefore more likely to be crushed to a finer grain size and report to the Standard material. This is demonstrated by chlorine analysis for the final products in 2020 (Figure 10.2) which show that on average, chlorine in granular is reduced by 1.2% Cl and chlorine in standard is increased by 1.5% Cl relative to the calculated run of mine Cl grade.

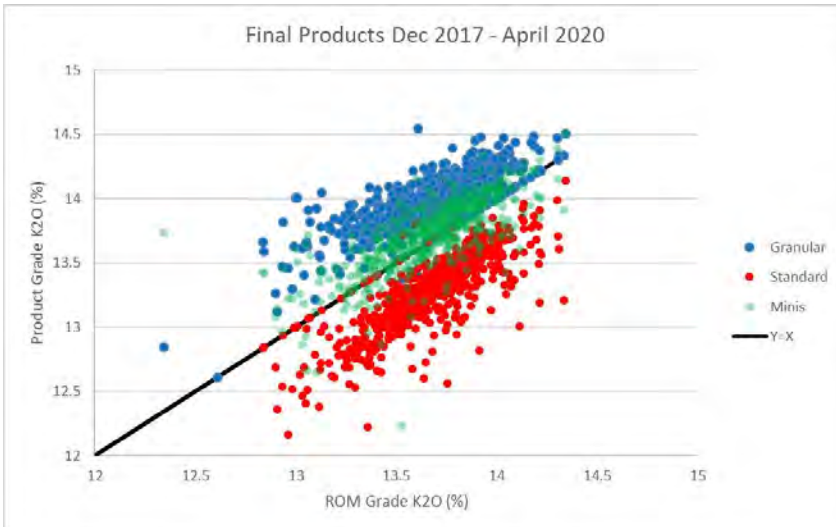


Figure 10.1: Final products (K20%) December 2017- April 2020

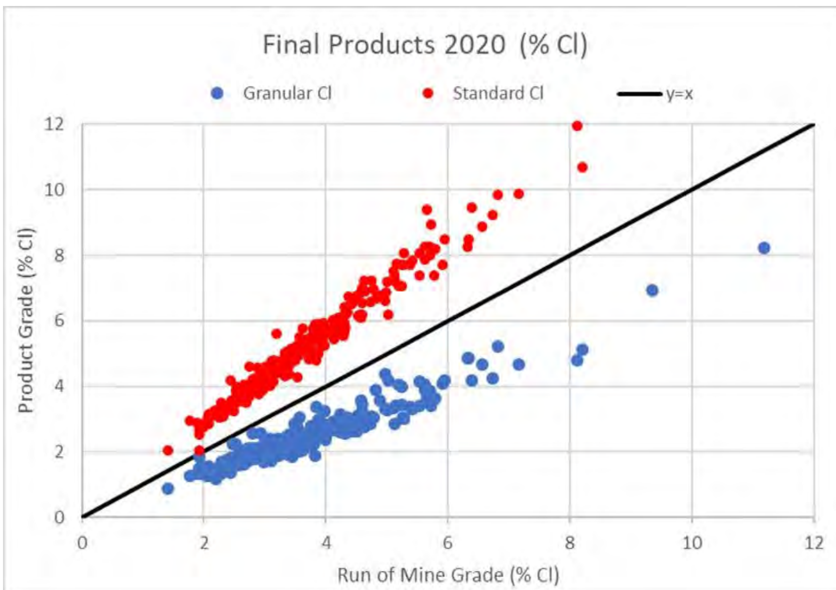


Figure 10.2: Final Products 2020 (%Cl)

This analysis can be used to estimate the run of mine grade required to meet the final product specifications. Final product specifications vary somewhat based on the markets into which they are sold. For this technical report, the minimum K_2O (%) for granular polysulphate is taken as 14% and for polysulphate standard is 13%. The maximum allowable Cl (%) is taken as 3% for polysulphate granular and 5% for polysulphate standard.

Using the average relationships outline above, the average run of mine grade to achieve the product specifications is a minimum of 13.6% K_2O and a maximum of 3.5% Cl. The granular relationship is the controlling factor for the K_2O (13.6% + 0.4% = 14%) whereas the standard relationship is the controlling factor for the Cl (3.5% + 1.5% = 5%). These elemental values are equivalent to approximately 87% Polyhalite and 6% Halite.

10.1.3 Discussion

The QP is of the opinion that the data derived from the testing data described above are adequate for the purposes of Mineral Resource estimation. The processing of polyhalite is undertaken on site and the behaviour of the material including its amenability to crushing, screening and production of final product streams is well documented. The relatively consistent nature of the deposit, and plant data from 2017 - 2020, indicates that based on current understanding there is no significant difference in recovery or amenability to processing.

10.2 Cabanasses and Vilafruns

The operations are mature operations with a long history of processing potash mineralisation and therefore no additional mineral processing or metallurgical testing has been undertaken. A description of the recovery methods used at the operations is contained in Section 14.3.

10.3 Rotem

The operations are mature operations with a long history of processing phosphate mineralisation and therefore no additional mineral processing or metallurgical testing has been undertaken. A description of the recovery methods used at the operations is contained in Section 14.4.

10.4 DSW

The operations are mature operations with a long history of processing potash mineralisation and therefore no additional mineral processing or metallurgical testing has been undertaken. A description of the recovery methods used at the operations is contained in Section 14.5.

10.5 YPH

10.5.1 Overview

The process design was based on the metallurgical test work performed by several laboratories.

Considerable test work was undertaken since 1978 by the several testing facilities to investigate the recovery of phosphate from the Haikou mineralization. The programmes included mineral processing investigations using screening, size separation, and reverse-flotation to concentrate the different ore types and grades.

10.5.2 Material Characterisation, Mineralogy and Metallurgy

The average P_2O_5 content of grade I + II + III ore bodies in Block's 1, 2, 3 and 4 of Haikou phosphate mine is 23.2%, 23.1% and 22.6% respectively. It is a low-grade phosphate rock deposit, but the raw ore can be successfully beneficiated.

In 1978, selected samples were taken from the first and second mining areas of the Haikou Phosphate Mine and sent to the Bureau of Mines of the United States Department of the interior for beneficiation testing.

During 1978-79, the Chemical Mine Design Institute of the Ministry of chemical industry carried out washability tests on samples from upper and lower ore beds in the third and fourth mining areas.

In 2007, the Research and Development centre of Yunnan Phosphating Group Co. Ltd. completed flotation tests on Haikou low-grade ore.

The chemical and mineral composition of the different ore types was identified and concluded that the ores in the first and second mining areas are mainly composed of phosphate minerals, dolomite, and quartz. Banded dolomitic Phosphorite (primary), pseudooolitic Phosphorite (weathered) and bioclastic Phosphorite (weathered) were identified. Significant carbonate leaching occurs by weathering, with the formation of surface pores. The P_2O_5 content of the pure collophanite mineral (fluoroapatite), determined by electron microprobe, is 37-38%. The phosphate minerals are associated with quartz and dolomite, disseminated throughout the ore as very fine particles. Table 10.1 shows the mineral analysis for mining areas 1 and 2.

Table 10.1: Results of Mineral Sampling – Mining Blocks 1 and 2

Ore sample	Content (%)						
	P_2O_5	CaO	SiO_2	MgO	Fe_2O_3	Al_2O_3	F
Mixed sample in West Area	22.0	35.0	25.0	1.70	2.00	2.00	2.60
Mixed sample in East Area	21.2	35.2	22.9	2.91			
Upper ore bed in West area	25.4	36.7	28.6	1.03	1.73	2.24	3.11
Lower ore bed in West Area	20.4	32.6	28.7	3.26	1.77	2.75	2.52
Upper ore bed in East Area	23.4	37.2	20.7	3.12			
Lower ore bed in East area	19.0	34.1	23.6	5.15			
Ore sample	**Content (%)**					**Content (ppm)**	**Content (%)**
	Na_2O	K_2O	CO_2	Organic carbon	S	U_2O_3	Cl
Mixed sample in West Area	0.08	0.08	4.00	0.10	0.02	21	
Mixed sample in East Area							
Upper ore bed in West area	0.27	0.08	2.62		0.13		0.016
Lower ore bed in West Area	0.19	0.09	7.44		0.091		0.014

10.5.3 Beneficiation Testing and Results

Ore samples were tested by the Albany Metallurgical Research Centre in the United States. The first batch was 250kg, for the East and West areas, and the second batch of samples was 500kg, for the upper and lower ore beds in the East and West areas. The test results are described as follows.

After scrubbing and sizing, the P_2O_5 content of + 0.3mm fraction is 30.3%, corresponding to a weight of 37.9%, P_2O_5 recovery was 49.2%, with 0.91% MgO content. To further improve the grade, the +25mm size is screened out resulting in 31% P_2O_5 and 0.7% MgO, in 33% of weight. The P_2O_5 recovery rate is 43%. For the 0.3-0.038 mm fraction, the P_2O_5 content only reaches 22.9% – 23.0%, therefore a suitable product can only be achieved after flotation with the minus 0.038 mm fraction discarded.

Table 10.2 and Table 10.3 show flotation results for the 0.300 × 0.038mm and 0.150 × 0.038mm samples.

Table 10.2: Carbonate-silicate Flotation Results for 0.300 × 0.038mm

Products	Heavy measure (%)	Content (%)			Distribution rate (%)			CaO/ MgO	Chemicals dosage (kg/t)		
		P_2O_5	SiO_2	MgO	P_2O_5	SiO_2	MgO		fatty acid	amine	Al_2SiF_6
Screening concentrate (2.54×0.3 mm)	34	31	16	0.7	44	21	19	1.4			
Flotation concentrate (0.3×0.038 mm)	21	28	23	0.5	25	19	9	1.4			
Carbonate flotation	2	26	8	5.5	2	1	7	1.8	0.16		0.12
SiO_2 flotation	7	10	77	0.2	3	20	1	1.3		0.2	
Primary slimes -0.038 mm	26	18	27	2.2	27	39	64	1.7			
Total concentrates	55	30	19	0.7	69	40	28	1.4			

Table 10.3: 0.150 × 0.038mm Carbonate-silicate Flotation Results (Block 2)

Products	Weight (%)	Content (%)				Distribution rate (%)				CaO / P_2O_5
		P_2O_5	CaO	SiO_2	MgO	P_2O_5	CaO	SiO_2	MgO	
Phosphate concentrate	25.7	36.6	49.8	5.1	0.50	39.8	38.0	3.9	12.5	1.35
Carbonate flotation	16.8	22.2	34.6	28.5	2.30	15.6	17.3	14.2	40.3	1.56
Primary SiO_2 flotation	2.6	11.1	15.5	66.9	0.70	1.2	1.2	5.2	2.0	1.40
Secondary SiO_2 flotation	35.6	13.7	19.1	63.9	0.40	20.7	20.2	67.5	15.9	1.39
SiO_2-Concentrate	11.5	32.6	45.7	12.3	1.00	15.9	15.6	4.2	12.2	1.40
Slimes Scrub	7.8	20.6	33.4	21.6	2.10	6.8	7.7	5.0	17.1	1.62
Total	**100.0**	**23.6**	**33.7**	**33.7**	**0.90**	**100.0**	**100.0**	**100.0**	**100.0**	**1.43**
Mixed concentrates	37.2	35.4	48.5	7.3	0.60	55.5	53.0	8.1	24.2	1.37

10.5.4 Tests and Results of Block 1 Samples

Flotation tests were carried out on the feed, on 0.3 - 0.038mm (Table 10.4 and Table 10.5).

Table 10.4: Carbonate and Silicate Flotation Results for the Block 1

Products	Weight (%)	Content (%)				Distribution rate (%)				$CaO:P_2O_5$ Ratio
		P_2O_5	CaO	SiO_2	MgO	P_2O_5	CaO	SiO_2	MgO	
0.038 mm concentrate	62.4	29.5	41.5	16.3	1.4	80.8	75.9	34.1	50.4	1.41
-0.025 mm concentrate	52	29		16	1.6	64		37	30	
-0.038 mm concentrate	36	32		12	1.5	50		19	18	
0.30 mm concentrate	10	24		18	3.8	10		7	12	

Table 10.5: Flotation Results for the Block 1 and Block 2 samples

Product Name	Weight (%)	Grade (%)			Distribution rate (%)			Dosage (kg/t) to feed
		P_2O_5	SiO_2	MgO	P_2O_5	SiO_2	MgO	
Phosphate concentrate	47.5	30.4	17.7	1.1	65.7	29.6	28.3	H_2SiF_6:0.23
Carbonate floats	2	16.1	11.7	9.5	1.5	0.7	7	Fatty acids, fuel oil 0.49
Silica tailings	14.5	9.5	68.5	0.8	6.6	32.4	5	
25 mm waste	5	18.1	16.0	6.7	4	3.6	16.5	NaOH:0.02
-0.038 mm Slimes	31	16.5	26.3	3.2	22.2	33.7	43.2	Amine: 0.25
total	100.0	22.2	27.5	2.1	100.0	100.0	100.0	Na_2SiO_3:0.08

10.5.5 Second Batch 500kg Mineral Test Results

Additional beneficiation tests were carried out using, scrubbing classification, scrubbing, desliming, and flotation, roasting water quenching scrubbing desliming, roasting water quenching, desliming grinding flotation and acidification.

According to the beneficiation results of phosphate rock in Blocks 1&2, scrubbing and desliming were adopted to remove the 0.038mm fraction, which is beneficial to the post-treatment of beneficiation products. For products with high MgO content, leaching was beneficial in reducing the MgO content in concentrate. According to the test results, flotation played a small role in the whole beneficiation scheme, since the concentrate grade was not greatly improved, with poor MgO removal. Scrubbing and desliming mainly achieved improvements in concentrate grade and MgO removal.

10.5.6 Testing Block 3 Mineralisation

Samples were taken according to different ore types, and location, by weight, and P_2O_5 content.

During additional exploration of the III mining area, the average P_2O_5 content of various ores was 23.23%, and the average P_2O_5 content of washability tests was 21.70%. Considering mining dilution, the test samples are representative.

Beneficiation test results demonstrated that with ore grades of 21.85 - 21.68 % P_2O_5, concentrates of 34.55 - 33.07% are obtained after a 200 mesh grinding and a closed circuit flotation (rougher and cleaner). Recoveries ranged 85.95 - 85.56% with a P_2O_5 content in the tailings of 6.7 - 7.1%.

The beneficiation test shows that the ore washability in the Block 3 is good. With sodium carbonate as regulator S (808) as gangue mineral inhibitor and pulp waste liquid as phosphate mineral collector, phosphate minerals and gangue minerals can be effectively separated by flotation.

The test shows that the process with –200 mesh content of 90% is suitable for the selected raw ore. As for the high content of MgO in the concentrate product (2.43%), it can be further processed to meet the requirements of high-efficiency phosphate fertilizer production.

10.5.7 Selective Tests for Block 4

In July 1979, the chemical mine design institute of the Ministry of chemical industry and Yunnan Chemical geological team jointly formulated the sampling principles and methods by field investigation. Two samples of upper and lower ore beds were prepared.

The principal minerals in the ore are collophanite, followed by crystalline apatite and fibrous collophanite. Gangue minerals are mainly carbonate, quartz and chalcedony, followed by feldspar, muscovite, sericite, pyrite, iron, etc.

Beneficiation test procedure and results revealed that rock and mineral identification data, the mineral composition, and ore embedding characteristics of the ore in the fourth mining area are basically consistent with the ore properties in the first, second, and third mining areas. The direct flotation process with S (808) as the inhibitor of gangue minerals has obtained better separation indexes. Therefore, to determine the ore washability test in Block 4, the technical route is still the direct flotation process with sodium carbonate as regulator and sodium silicate and S (808) as inhibitor.

From flotation testing of the ores in the IV mining area, concentrates of 31.75% and 31.05 P_2O_5 were obtained for the higher and lower beds with yields of 75.98 - 75.72%.

10.5.8 Flotation Test of Low-Medium Grade Phosphate Rock

The Haikou deposit is a large, bedded phosphate rock in shallow sea facies. The main mineral is collophanite, with small amounts of microcrystalline apatite; the secondary minerals are dolomite, quartz, calcite, feldspar, chalcedony, and a small amount of tourmaline, glauconite, muscovite and carbonaceous argillaceous matter. The main chemical components are P_2O_5, CaO and SiO_2, followed by CO_2, MgO, Fe_2O_3, Al_2O_3 and F. According to the chemical composition, the ore type is a silico-calcareous phosphorite. According to the ore structure, the main types in the upper and lower ore beds are oolitic or pseudo oolitic phosphorite, banded phosphorite, sandy phosphorite and bioclastic phosphorite, followed by striped phosphorite, gravelly phosphorite and siliceous phosphorite. The rock and mineral identification shows that the collophanite is oolitic, pseudo oolitic, spheroidal or sandy debris, and the oolitic particles include quartz and dolomite. The edge of collophanite is recrystallized and surrounded by fibrous fine-grained apatite into a ring belt, and the cement is collophanite or phosphate and iron argillaceous. Quartz, dolomite, and calcite are mostly euhedral or semi euhedral grains, which are closely distributed with collophanite. They mutually form sandy structure, pseudooolitic structure, cemented structure, and colloidal structure and bioclastic structure. The ore structures are massive, banded or striped, and breccia structures.

Collophanite: it is mainly produced in pseudo oolitic structure, and the main embedded particle size range is about 0.05 - 0.3mm, belonging to fine-grained embedded. The intercalation relationship between collophanite and gangue minerals is complex. First, collophanite contains fine and fine impurity inclusions, mainly dolomite, followed by quartz, a small amount of limonite, clay minerals, clay, etc; Second, the metasomatism of collophanite and gangue is common, and the gangue is mainly dolomite, quartz, clay minerals, etc. Third, some collophanite is disseminated by iron, carbon argillaceous and other clays as fine particles, or mixed and polluted along the edge of collophanite particles. The banded and pseudo oolitic types have relatively enriched output of collophanite, especially the banded and pseudo oolitic types in the upper layer have higher enrichment degree, and collophanite contains less impurities, and the washability of the upper layer is better than that of the lower layer. The relative content of collophanite in minerals is 50.30%.

Siliceous minerals: they are produced in detrital quartz, enriched in sandy structure, cemented by dolomite, collophanite, clay minerals, etc. in other types of ores, they are mostly distributed in the matrix. Collophanite generally has fine-grained quartz inclusions, and a few are metasomatic continuous structure with collophanite. The particle size is 0.02 - 0.4mm, and the particle size of inclusion quartz is about 0.01 - 0.1mm. A small amount of chalcedony is produced in fibrous and petal shape; Sericite, biotite and Muscovite are dispersed, with particle size of 0.01 - 0.06mm and relative content of 15%.

Carbonate minerals: mainly dolomite, which is fine-grained and fine-grained aggregate, embedded in collophanite in the form of cement and connected with collophanite. Some dolomite is mixed with limonite and carbonaceous argillaceous, and a small amount of calcite is also aggregated and cemented with dolomite in collophanite. The crystal particle size is generally 0.051 - 0.2mm. The relative content of dolomite is 22.6%.

Due to the high content of SiO_2 and MgO in Haikou phosphate ore, the minerals and gangue material are fine and difficult to separate. The testing shows that using a 4# collector and a reverse flotation process in alkaline medium can ensure product quality.

a) Haikou mine uses 4# collector and adopts reverse flotation process. The indexes obtained in the primary roughing process of reverse flotation are: concentrate yield 54.10%, P_2O_5 30.10%, MgO 0.67%, SiO_2 16.90%, recovery 81.91% and CaO / P_2O_5 1.38.
b) The alkaline process is used for the Haikou ore. Because grinding is greater than 98% of – 200 mesh, flotation requires small air charge, long flotation time, stable pulp pH value (pH = 9.5-10.0); the process is easy to control.
c) For Haikou medium and low-grade phosphate rock, direct flotation is adopted. MgO inhibitors are added in the flotation operation. Some inhibitors have a certain effect on magnesium removal, and some can improve the efficiency of positive flotation, but the MgO in the concentrate cannot be reduced to about 1.0%.
d) Using 4# collector, the flotation temperature can adapt to a wide range (between 10-20 degrees), without solidifying.

The concentrate quality for flotation of middle and low-grade phosphate ores in Haikou should be about 29.0% P_2O_5, about 1.0% MgO, with a 57.0% concentrate yield and 85.0% recovery.

10.5.9 Discussion

The QP is of the opinion that the data derived from the testing data described above are conventional and adequate for the purposes of Mineral Resource estimation given the style of deposit. Considerable test work at several laboratories since 1978 have completed metallurgical test work to evaluate recovery of phosphate, including investigations using screening, size separation, and reverse-flotation to concentrate the different ore types and grades, on which the process design for YPH has been derived.

11 MINERAL RESOURCE ESTIMATES

11.1 Introduction

ICL Group Ltd. has engaged WAI and Golder to complete an audit of the Mineral Resource Estimate (MRE) for the properties that are the subject of this Technical Report. This Technical Report Summary provides a mineral resource estimate and classification of resources reported in accordance with the SEC New Mining Rules. WAI and Golder worked closely with ICL in the preparation and review of data including 3D wireframes and block models (excepting DSW) that represented the deposit mineralisation using proprietary resource modelling software. The methods and results of the resource estimation processes are summarised in the following subsections.

The Mineral Resource estimate for the properties reported here in accordance with the SEC S-K 1300 regulations. For estimating the Mineral Resources, the following definition as set forth in the S-K 1300 Definition Standards adopted December 26, 2018 was applied.

Under S-K 1300, a Mineral Resource is defined as:

> *"… a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A Mineral Resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled."*

The Mineral Resources presented in this section are not Mineral Reserves and do not reflect demonstrated economic viability. The estimates of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently assumed by ICL at the various properties. Estimates of Inferred mineral resources have significant geological uncertainty, and it should not be assumed that all or any part of an Inferred mineral resource will be converted to the Measured or Indicated categories. Mineral resources that are not mineral reserves do not meet the threshold for reserve modifying factors, such as estimated economic viability, that would allow for conversion to mineral reserves. There is no certainty that all or any part of this Mineral Resource will be converted into Mineral Reserve. All figures are rounded to reflect the relative accuracy of the estimates and totals may not add correctly.

The Mineral Resource estimates presented in this report are based on the factors related to the geological and grade models presented in this section, and the criteria for reasonable prospects of eventual economic extraction as described. The Mineral Resource estimates may be affected positively or negatively by additional exploration that expands the geological database and models on the properties described. The Mineral Resource estimates could also be materially affected by any significant changes in the assumptions regarding forecast product prices, mining efficiency, process recoveries, or production costs. If the price assumptions are decreased or the assumed production costs increased significantly, then the cut-off grade must be increased and, if so, the potential impacts on the Mineral Resource estimates would likely be material and need to be re-evaluated.

The Mineral Resource estimates are also based on assumptions that required (mining) permits continue to be granted on as required basis and there would be no adverse material change in certain critical assumptions that would otherwise materially and adversely affect the Mineral Resource estimates for the properties; potentially reducing to zero. Examples of such material changes include unexpected excessive taxation, or regulation of mining activities that become applicable to the existing mining project. Except as described in this section, the QPs do not know of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimates.

11.2 Boulby

11.2.1 Summary

The Boulby Mineral Resource estimate presented below was carried out using data gathered from exploration drilling to produce a 3D model and associated grade estimates using Datamine Studio RM. Data was verified and imported into Studio RM from the exploration database. Wireframe surfaces were generated for base and top of polyhalite mineralisation and sample data was composited and domained based upon vertical distance from the base of seam reflecting the change in mineralogy noted in mine workings and drill core. Areas to be estimated were limited by interpretation of the location of major structural features and ability to predict continuity of polyhalite occurrence.

Estimation was carried out into a block model generated at a suitable scale to reflect drillhole spacing with sub-blocking to fit against variation in polyhalite seam limits and the vertical zonation used with definition of domains. Estimation was carried out using ordinary kriging or inverse distance weighting as the primary methodology depending on availability of data in the various regions. The estimated grades were validated, and a density was applied to the model based upon analysis of drill core samples.

The overall polyhalite seam model was restricted to areas deemed to have expectations of eventual economic extraction by selection of possible 7m thick mining horizons using Datamine's Mineable Shape Optimiser (MSO) and application of cut-off grade based upon the minimum K_2O grade appropriate for processing to achieve the final product specification.

Mineral Resource classification was applied based on drillhole spacing, confidence that could be placed on interpretation of continuity of mineralisation, confidence that could be placed on exploration data and the quality of the bock model (judged by reconciliation against mined tonnes). Reporting of the Mineral Resource took into account mining depletion to end of 2021.

11.2.2 Data Used

Only data gathered from longhole drilling carried out prior to 2018 has been used in the production of this Mineral Resource estimate. Whilst further longhole drilling has been completed after this date, analysis of samples gathered by that drilling was halted pending the implementation of a new QA/QC system. Whilst these samples have recently been processed, they have not yet been included in to reinterpretation and an update of the Mineral Resource estimate.

Data gathered from the sub-vertical exploration holes drilled from the overlying potash workings have not been used in this resource estimate due to concerns with the accuracy of the location of data points.

11.2.3 Domaining

A set of wireframe surfaces denoting top and base of the polyhalite mineralisation were generated from all available data points from drilling and a set of digitised contours interpreted by Boulby geologists. These wireframe surfaces were combined to form a polyhalite domain within which sample data was selected and coded.

11.2.4 Geostatistics

Drillhole data within the polyhalite domain was composited on a stratigraphic rather than a more traditional downhole basis. This methodology was employed due to the length of samples taken (3m), the changing inclination of the hole traces as they passed through the polyhalite and changes in dip of the seam over the lateral extent of the drillhole intersection through the polyhalite whilst taking in to account the sub-horizontal nature of the polyhalite and the stratified nature of mineralisation with a trend of changing grades seen from the base of seam upwards and an assumption that this trend is parallel to the base of seam. The base of seam wireframe was translated vertically upwards in a series of 1m steps with drillhole samples split against these increments and coded based upon their distance from base of seam. This allowed composite samples to be created of equal true thickness, and therefore support, in intervals through the seam whilst fitting with geological observations during mining operations that show the predominant control on grade is height above base of seam. An example section showing this methodology is shown in Figure 11.1.

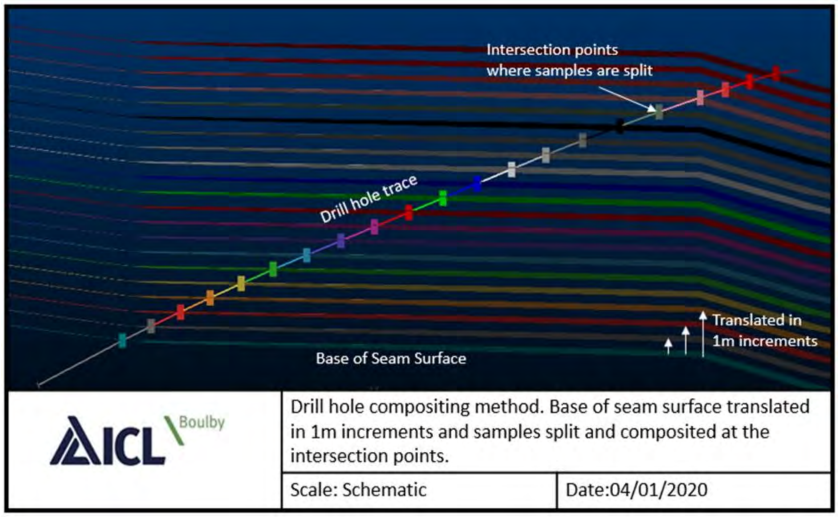


Figure 11.1: Example Section Showing Drillhole Sample Compositing Method

A review of declustered sample data and structural trends resulted in further domaining of the polyhalite in to eastern (lower grade) and western (higher grade) zones within which there are four further domains defined (as shown in Figure 11.2):

- Domain 1: A transitional/gradational zone within 1 meter of the base of seam
- Domain 2: A lower, high grade section (P3) polyhalite 4
- Domain 3: Transitional/gradational change to lower grade P2 polyhalite
- Domain 4: The upper, more variable and lower grade P2 polyhalite more commonly banded with halite

A variographic study was carried out to provide input to grade estimation and to help understand and define grade continuity. Robust directional variograms were not attained in any domain (likely due to the variable spacing and orientation of drilling). In the western area Domain 2 (lower seam) downhole variograms were used to model nugget effect and all available data was used to generate omnidirectional variograms for potassium, sodium, and chlorine. For all elements a two structure variogram model was applied with a shorter-range structure at approximately 50m and longer structure at 200m. This longer-range structure is interpreted to reflect the overall good lateral continuity seen in the polyhalite seam. At this stage, due to a lack of reliable close spaced data, the impact on grade continuity at short scales of variable thickness halite bands is not well understood but is likely reflected by the initial short-range structure.

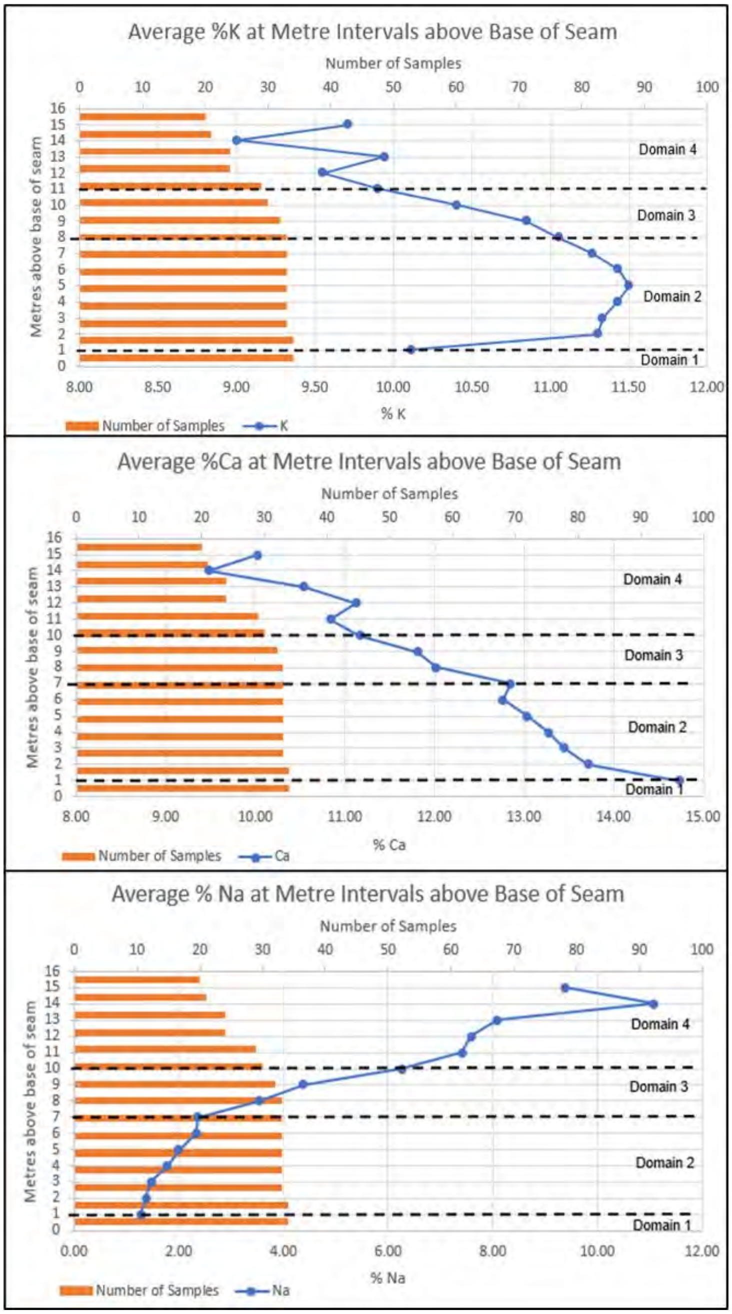


Figure 11.2: Mean Vertical Zonation of K, Na and Ca

11.2.5 Block Model

A 3D block model was generated using the polyhalite seam wireframe as limits. To achieve accurate volumetric modelling and coding for the laterally continuous but vertically thin domains an initial block model with parent cells of 25m x 25m x 1m and 3.125m x 3.125m sub-celling allowed in easting and northing with a true ft vertically against constraining wireframes was generated and coded for stratigraphic layer, mined out areas, sterilised areas etc. Prior to grade estimation, and to reflect the sometimes wide drillhole spacing, the prototype of this sub-blocked model was altered so that parent blocks were 100m x 100m x 1m, but the sub-blocking and coding detail was retained.

11.2.6 Density

A density values were calculated based on the weighted averages of the mineral constituents of each sample. This method was based upon analysis of 100 drill core samples where density was measured by the Archimedes method (in saturated brine) and calculated by assessment of assayed mineralogy. The two methods gave comparable results for individual sample intervals and calculated was therefore chosen for use across the polyhalite. The comparison in methods is very good with an average difference of 0.02 g/cm^3 which is 0.5% of an average measured density of 2.77g/cm^3.

11.2.7 Grade Estimation, Validation and Reconciliation

Grade estimation was carried out using ordinary kriging as the primary for the western region lower seam domain where reasonably robust variograms were achieved. All other domains were estimated using inverse distance weighting squared as the primary methodology.

The boundary between the western and eastern regions was treated as a soft boundary for sample selection, but the estimation method applied depended on which region the block resided.

The boundary between vertical (stratigraphic domains) was treated as semi-soft except for the footwall transitional domain (Domain 1) which is 0-1m above the base of seam. This footwall domain was treated as a hard boundary due to the sharp change in grade often observed in this zone. For all other domains, analysis and validation of test estimates determined that the best validation occurred allowing one sample (a single 1m composite) from above and below the boundary to be included in the estimation. For example, a block lying 4m above the base of seam only used samples from 3-5 metres above base of seam to produce an estimate. This was achieved by setting up sub-zone values which were used as key fields to estimate each horizon in turn.

Grade control samples were only used in the estimation of blocks within 50m of existing mine workings, corresponding to the range of the first structure in the semi-variogram model. This ensured an estimate reflective of available data close to existing excavations, whilst limiting influence of grade control data across wider areas.

The search ellipse used for sample selection during estimation was non-rotated and expanded in three estimation passes, if requirements were not met in initial passes, with an initial search radius of 200m in X and Y. The Z axis was also set to 200m and the control of selection of samples was achieved by using the coding of stratigraphic levels.

Validation of grade estimates against input data was carried out visually in sectional and plan views, statistically by domain and graphically using swath plots. An example section of visual validation of grade is shown in Figure 11.3.

Reconciliation of the estimate was carried out against production data from mine hoist and process plant data.

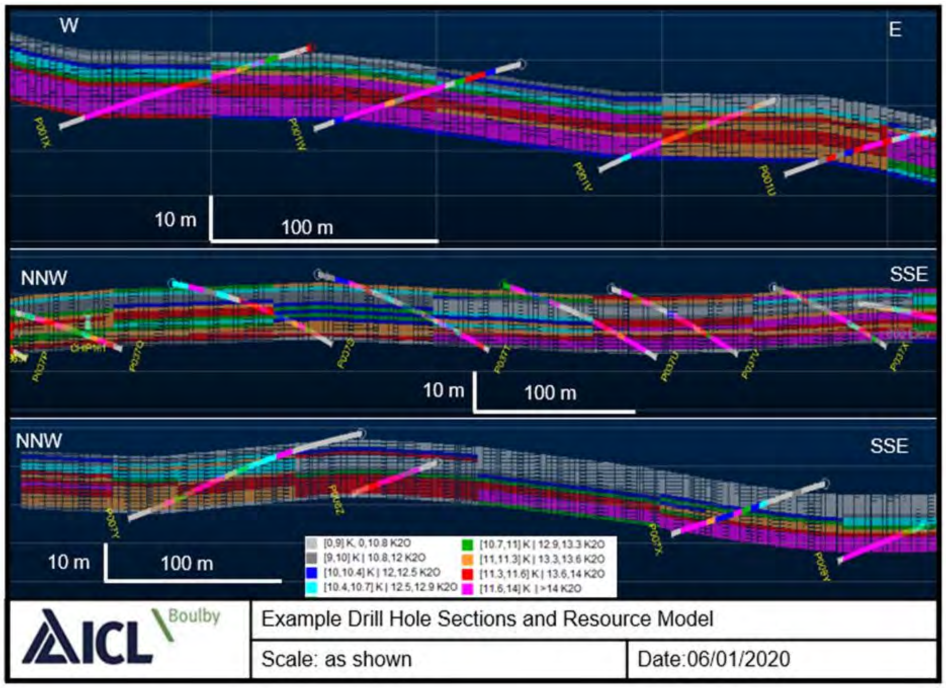


Figure 11.3: Example Visual Validation of Estimated K grade against Input Drillhole Composite Data

11.2.8 Mineral Resource Classification

Mineral Resource classification is based upon a number of factors:

- Quality of data
- Drillhole spacing
- Assessment of geological and grade continuity
- Quality of block model

No measured mineral resources have been classified in this Mineral Resource estimate. The QP is of the opinion that a lack of a full set of QA/QC samples and a lack of robust close spaced sample points that would allow better prediction of variation in halite content on a production panel by panel basis precludes the estimation of measured mineral resources at this time.

Indicated mineral resources were initially classified where blocks were estimated by a minimum of three data points located within the initial 200m search radius. These boundaries were then refined to remove areas where ability to predict seam or grade continuity was deemed difficult by Boulby geologists due to the interpretation of geological structures or other hard boundaries (such as the edge of the seismic quiet zone). Other small, isolated areas were also downgraded to inferred to avoid patchy areas of indicated material that would be difficult to access and mine. The QP is of the opinion that an indicated classification for the remaining areas was deemed appropriate even without robust QA/QC because of good reconciliation of the model against production data on an annual basis.

All other areas where the polyhalite seam has been interpreted were classified as inferred. The QP is of the opinion that the limits of inferred material are reasonable based upon interpretation of continuity of the polyhalite seam from the 3D seismic survey and structural features identified from that, and from wide spaced drill data.

11.2.9 Resource Definition and Cut-Off Grade

Datamine Mineable Shape Optimiser (MSO) was used to define optimum (based upon estimated potassium content) 7m thick sections through the polyhalite block model. This height equates to the maximum possible mining thickness (including milling) that can be achieved in the polyhalite. Appropriate mining parameters, including a restriction on mining gradient) were also used as input to the MSO process. As is not uncommon for industrial minerals, the commodity price is not always applied and the cut-off grade is rather based on the geological/mineralogical properties and processing efficiency to produce the required specification of product. Notwithstanding, a Polyhalite price of US$120/t is reflected in the Company economic evaluation of the operation to determine reasonable prospects of eventual economic extraction (RPEEE). This is considered reasonable based on currently available information including a high-level Potash Analytics market report prepared by Argus Media[10] on behalf of the Company.

After selection of optimum mining horizons through MSO, a cut-off grade was used to further limit Mineral Resources. A cut-off grade of 10.7% K (equivalent to 12.9% K_2O) was applied. This cut-off grade is used as a lower cut-off for selection of material that can be processed to achieve a final product.

Plant feed grade is estimated by calculating a tonnage weighted average of the final products streams. Analysis of this data shows that to achieve a granular product of 14.0% K_2O, a plant feed grade and hence run of mine grade of 13.6% K_2O (11.3% K or 87% Polyhalite equivalent) is required.

Mining at ICL Boulby typically takes place for three different areas simultaneously which allows for a crude blending of material to occur, mainly at belt transfer points where streams of material coalesce. This allows grades lower than 13.6% K_2O to be mined provided that other mining areas are at a higher grade.

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[10] Argus is an independent provider of price information, consultancy services, conferences, market data and business intelligence.

The cut-off grade of 12.9% K_2O used for the resource estimate was determined by considering the minimum possible grade that could be mined and homogenised by the current system if a lower grade area was balanced by two mining areas that had average and reasonably higher than average grade. This approach is in line with the observations of current practices, reconciliation of plant data and typical grade variation of the mining panels during day-to-day production.

The MSO run, application of a cut-off grade and earlier removal of areas deemed unmineable due to being situated in pillar areas or other sterilised zones ensured that material reported as a Mineral Resource has reasonable prospects of eventual economic extraction and acts as a reasonable base for application of modifying factors to indicated mineral resources for estimation of reserves.

11.2.10 Mineral Resource Statement

The Mineral Resource Estimates for Boulby are classified as defined by the JORC Code (2012). A summary of the Mineral Resource statement is shown in Table 11.1. Mineral Resources are reported exclusive of Mineral Reserves.

Table 11.1: Summary of Mineral Resources for Boulby

Classification	Tonnes (Mt)	Grade (% K_2O)
Measured	-	-
Indicated	24.0	13.7
M + Ind	**24.0**	**13.7**
Inferred	17.3	13.5
Total	**41.3**	**13.6**

Notes:

1. The effective date of the Mineral Resource Estimate is 31st December 2021.
2. Mineral Resources have been estimated in accordance with the guidelines of the JORC Code (2012). Mineral Resources are reported in compliance with S-K 1300.
3. Mineral Resources are reported exclusive of any Ore Reserve.
4. Mineral Resources that are not Mineral Reserves do not currently have demonstrated economic viability.
5. All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.
6. Mineral Resources are a 7m thick horizon optimized for grade (% K) whilst ensuring mining gradients do not exceed achievable gradients.
7. Mineral Resources are reported using an average measured density of 2.77g/cm^3.
8. Mineral Resources are based on an assumed 100% metallurgical recovery.
9. Mineral Resources are reported using a cut-off grade of 10.7% K, or 12.9% K_2O Equivalent, which reflects the current ability to blend, homogenize and upgrade material as part of mine sequencing and processing.
10. K_2O is an equivalent value calculated from the estimated K based on atomic mass and ratio of K in the compound K_2O. The factor used is K_2O = K (%) x 1.2046.
11. Polyhalite, Halite and Anhydrite are theoretical values calculated from the elemental analysis under the assumption that all elemental K is contained within Polyhalite.
12. Grade values represent the water-soluble elements (or their theoretical equivalents) of material in the ground and have not been adjusted to reflect final product grades.

11.2.11 Qualified Person Opinion

The mineral resource estimate is well-constrained by three-dimensional wireframes representing geologically realistic volumes of mineralization. Exploratory data analysis conducted on assays and composites shows that the wireframes represent suitable domains for mineral resource estimation. Grade estimation has been performed using an interpolation plan designed to minimize bias in the estimated grade models.

Mineral resources are constrained and reported using economic and technical criteria, as presented above, such that the mineral resource has a reasonable prospect of economic extraction.

Resources are presented at a cut-off grade and are further constrained by applying Datamine Mineable Shape Optimiser to define optimum (based upon estimated potassium content) 7m thick sections through the polyhalite block model. Taken together, these two constraints constitute reasonable prospects for economic extraction of the mineralization. The phrase 'reasonable prospects for economic extraction' implies a judgment by the QP in respect to the technical and economic factors likely to influence the prospects of economic extraction.

The QP believes that this mineral resource estimate for Boulby is an accurate estimation of the in-situ resource based on the data available, and that the available data and the mineral resource model are sufficient for mine design and planning.

11.3 Cabanasses and Vilafruns

11.3.1 Introduction

The MRE has been prepared in accordance with the guidelines of the JORC Code (2012). The following sections detail the methodology used by ICL Iberia to produce these estimates.

11.3.2 Mineral Resource Estimate Data

Data used in the MRE for Cabanasses included all underground and surface drilling up to a cut-off date of 31 October 2021. At the time of the database cut-off date:

- The final underground drillhole in the database containing both lithology and assay data was C305F;
- Underground drilling at C306A had been completed and lithology data for this drillhole was included in the database, however, assaying was yet to be undertaken;
- Underground drilling at C306B was on-going and no lithology or assay information was available at the time of the database cut-off;
- The final surface drillhole in the database containing both lithology and assay data was SAG-1;
- Surface drilling at SAG-2 had been completed, however, logging, sampling and analysis of the drill core had yet to be completed; and
- Surface rotary-percussion drilling at SAG-3 had been completed to a depth of 576m prior to commencing surface diamond core drilling to intersect the mineralised seams (expected around 800m).

At Vilafruns only underground drilling data is available. The final drillhole in the database is V077D completed in 2016. No further drilling has been undertaken at Vilafruns since this time.

The Cabanasses and Vilafruns drillhole databases were provided to WAI in Microsoft® Excel format for review.

11.3.2.1 Data Transformations

At Cabanasses the European Terrestrial Reference System 1989 (ETRS89) Zone 31N is used by ICL Iberia for all topographic surveys, collar locations and mine surveys. Elevations are referenced to the collar of Shaft 2 located at 368.7masl. At Vilafruns the European Datum System 1950 (ED50) Zone 31N is used and elevations are referenced to masl.

11.3.2.2 Software

The Cabanasses and Vilafruns databases are stored in in-house developed Microsoft® Access databases. The databases can be exported to AutoCAD® format for geological interpretation and first-stage 2D geological modelling. Further geological modelling (3D) is undertaken using Vulcan® along with block modelling, statistical analysis, compositing, grade estimation, resource classification and evaluation. Data used in the MRE's were reviewed by WAI using Datamine® and Supervisor® software.

11.3.2.3 Drillhole Databases

The drillhole databases contain relevant information for each drillhole including collar details, downhole survey information, geological logging and assay grades. Macros within the database allow the generation of a hole path, position of samples and position of important markers such as base and top of seams from the collar position and downhole survey information. These co-ordinates can be output to AutoCAD® or commercial mining software packages for exploration and mine planning purposes. The exploration database also contains information on the angle of intersection of the seam for each sample and is used to calculate true thickness of potash for each intersection and a length weighted average for overall KCl grade based on individual sample grades (see section 11.3.6). A summary of the drillhole database used by ICL Iberia in the MRE is provided in Table 11.2.

Table 11.2: Sample Database Files Provided by ICL Iberia	
Cabanasses	**Vilafruns**
• sondeos_nov21_dhd_collar.csv • sondeos_nov21_dhd_surveys.csv • sondeos_nov21_dhd_assays.csv • sondeos_nov21_dhd_litho.csv	• vilafruns_sondeos_bt_dhd_collar.csv • vilafruns_sondeos_bt_dhd_surveys.csv • vilafruns_sondeos_bt_dhd_assays.csv • vilafruns_sondeos_bt_dhd_litho.csv

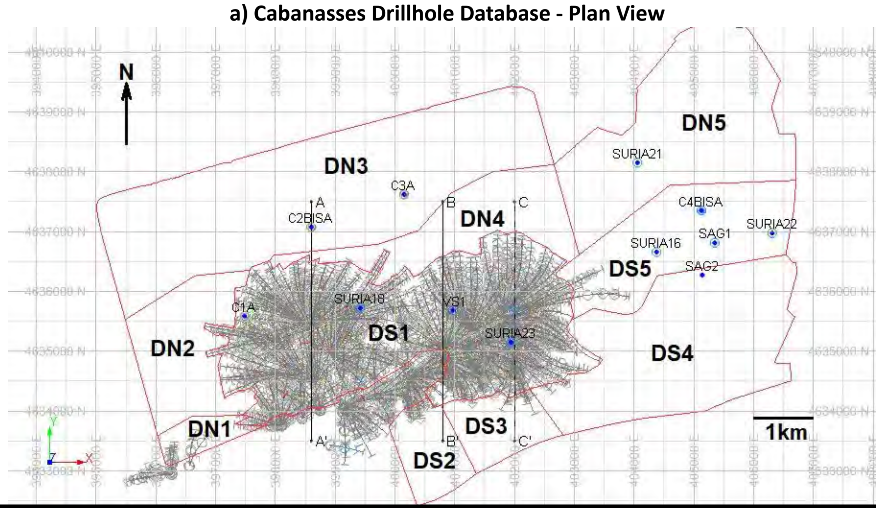
A description of the data contained within the databases is summarised in Table 11.3.

Table 11.3: Description of Database

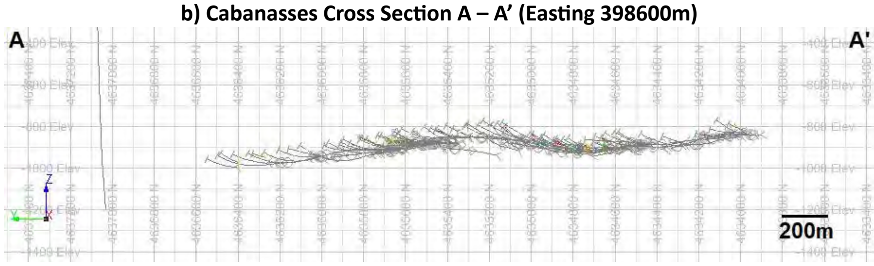
Field	Description	Reference
HoleID	Drillhole number	Collar
East, North, Elevation	X-Coordinate, Y-Coordinate, Z-Coordinate	Collar
Length	Maximum drillhole length	Collar
Year	Year of drilling	Collar
Type	Surface or underground drillhole	Collar
Depth	Depth of downhole survey measurement	Survey
Bearing	Downhole survey azimuth	Survey
Dip	Downhole survey inclination	Survey
Capa	Lithology	Lithology
Bou	Initial simplified lithology logging (A: Seam A; B: Seam B; T: Transformada Zone; SAL: Halite)	Lithology
KCl	Potassium Chloride Grade (%)	Assay
Ca	Ca2+ Grade (%)	Assay
$MgCl_2$	Magnesium Chloride Grade (%)	Assay
KClcorr	KCl grade adjusted for carnallite content and dissolution of drill core	Assay
Bound	Updated simplified lithology logging	Assay

Plan view and cross sections of the drillholes in the Cabanasses and Vilafruns databases are shown in Figure 11.4 and Figure 11.5, respectively.

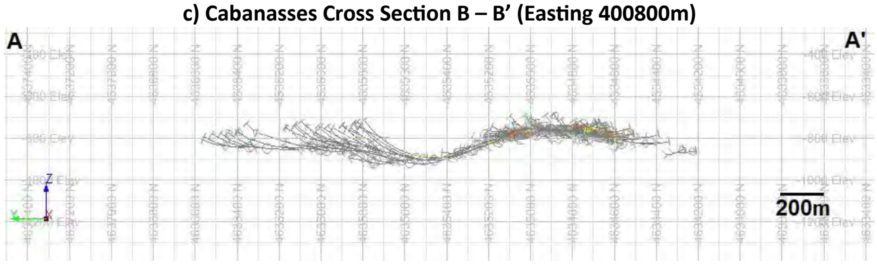
a) Cabanasses Drillhole Database - Plan View



b) Cabanasses Cross Section A – A' (Easting 398600m)



c) Cabanasses Cross Section B – B' (Easting 400800m)



d) Cabanasses Cross Section C – C' (Easting 402000m)

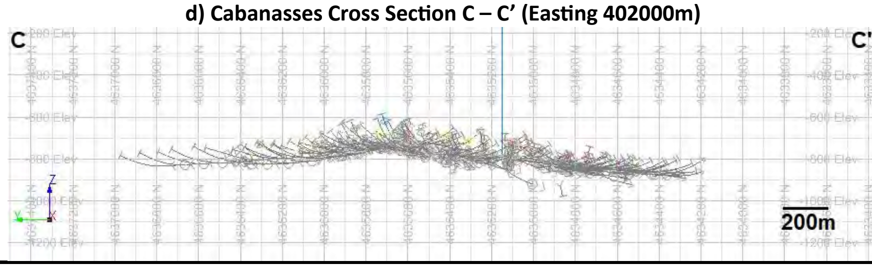
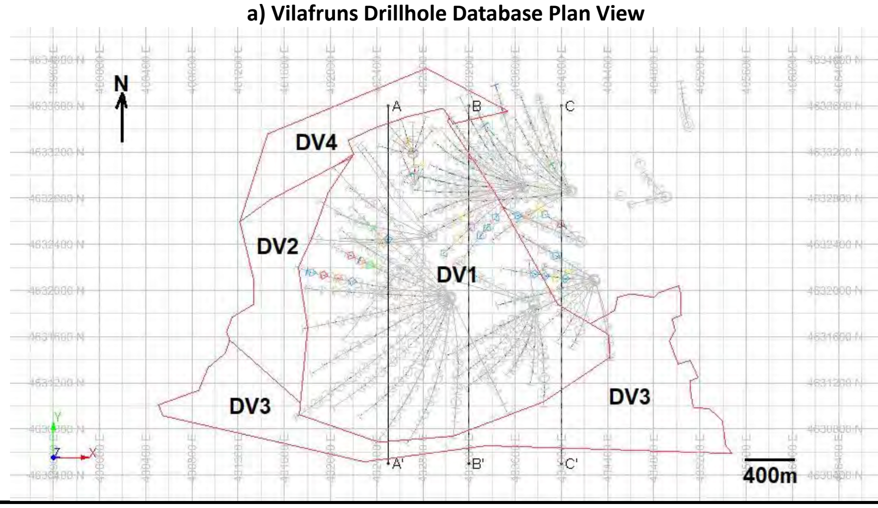
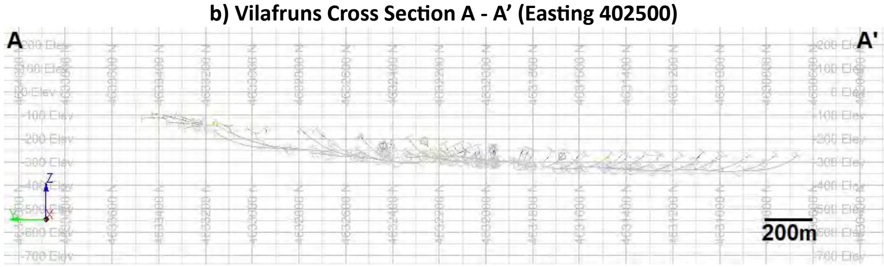


Figure 11.4: Plan View and Cross Sections of Drillholes for Cabanasses

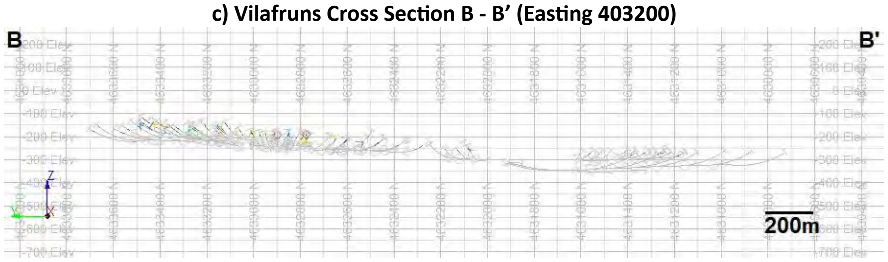
a) Vilafruns Drillhole Database Plan View



b) Vilafruns Cross Section A - A’ (Easting 402500)



c) Vilafruns Cross Section B - B’ (Easting 403200)



d) Vilafruns Cross Section C - C’ (Easting 404000)

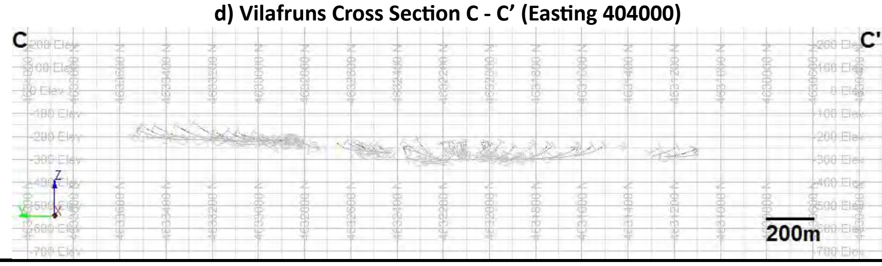


Figure 11.5: Plan View and Cross Sections of Drillholes for Vilafruns

11.3.3 Geological Interpretation

11.3.3.1 Stratigraphy and Lithology

A summary of the stratigraphy and respective database lithology codes is shown in Table 11.4. The majority of underground drilling intersects the footwall, mine and hangingwall packages whereas surface drilling can include the complete stratigraphic sequence.

Table 11.4: Summary of Stratigraphy and Database Lithology Codes

Formation	Unit	Series	Description	Thickness	Lithology Code
Solsona	U17	Upper Series	Sandstones, conglomerates, lutites and marls	?	-
	U16	Intermediate Series	Sandstones, lutites and marls	?	-
	U15	Transition Series	Red mudstone, sandstones and limestones	250-300m	-
Artés	U14	Marker Horizon	Limestones	5m	-
	U13	Súria Beds	Limonites and sandstones with interbedded limestones	150-200m	-
	U12	Marker Horizon	Microconglomeritic sandstone	5m	-
	U11b	Marker Horizon - "Calizas del Castillo o del Tossal"	Limestones	5m	-
	U11a	Marker Horizon - "Calizas del Mas Torquer"	Limestones	5m	-
	U10	"Capas de Súria"	Limonites and sandstones with interbedded limestones	100m	U_8-10
	U9	Marker Horizon - "Calizas del Cogullo"	Limestone	5m	U_8-10
	U8	"Capas de Súria"	Limonites and sandstones with interbedded limestones	150m	U_8-10
	U7	Marker Horizon - "Yesos de la Estacion"	Massive gypsum, lutite and halite	20-50m	U_7
Castelltallat / Súria	U6	"Unidad Lacustre del Tordell"	Limonites, marls and layers of limestone	150-200m	U_6
Barbastro	U5	"Miembro Arcilloso-Evaporitico Superior"	Limonites and marls, centimetric layers of gypsum, halite, thin layers of limestone	30-40m	U_5
Cardona	U4	Hangingwall Package	Halite (with clay partings)	30-50m	U_4
	U4		Carnallite interbedded with halite ("CAPA C")	5-20m	C
	U4		Halite	5-15m	ST; ST+T
	U4		Carnallite	3-7m	CAR; CARN; MCAR; NI-CAR; TE
	U4	Mine Package	Transformada (altered carnallite)	1-2m	T; B+T
	U3		Seam B ("CAPA B")	2-3m	B; B+T
	U3		Sal Entrados (middle halite)	3-6m	S2; SMSS2
	U3		Seam A ("Capa A")	4-5m	A; AS; CR; EA; EB; S60
	U2	Footwall Package	Semi-massive halite	10-20m	SMS; SMS+EA
	U2		Massive halite	100-500m	SM; SM/SMS
	U1	Marker Horizon	Basal Anhydrite	10-15m	ANH
Igualada	U0	"Margas de Igualada"	Grey-blue marls with beds of limestone	>1,000m	-

The lithological logging is reviewed by ICL Iberia following the return of KCl assays from the laboratory. A field ("bound") within the assay database contains a version of the simplified lithology logging and is updated by ICL Iberia to reflect the KCl assays and the geological interpretation. The bound field contains the following simplified lithology codes which are used to assist with modelling of the mineralised zones wireframes:

- A: Seam A;
- B: Seam B;
- T: Transformada Zone; and
- SAL: Halite.

11.3.3.2 Mineralised Zone Wireframes

Initial geological interpretation is undertaken on paper cross-sections which are digitised into 2D format in AutoCAD®. Surfaces depicting the top and bottom of Seams A and B are digitised. At Cabanasses the top surface of Seam B also includes the Transformada zone (located in the hangingwall) as KCl grades are similar between these two zones. The 2D surfaces are then imported into Vulcan® and 3D wireframes are generated. The geological interpretation is regularly updated by ICL Iberia to include information from mapping of underground production headers.

The base of Seam B surface for Cabanasses is shown in Figure 11.6 and Figure 11.7 and the base of Seam B surface for Vilafruns is shown in Figure 11.8.

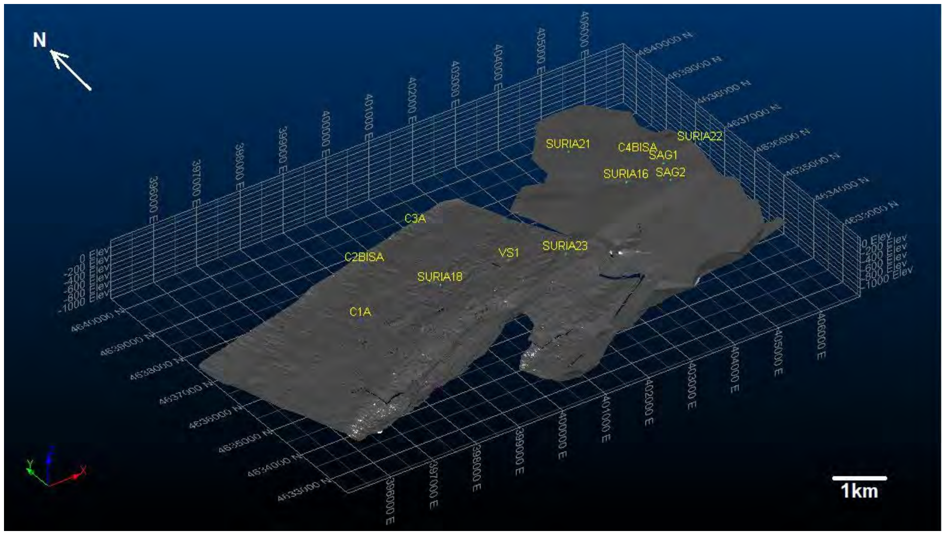


Figure 11.6: Base of Seam B Surface for Cabanasses and Showing Surface Drilling

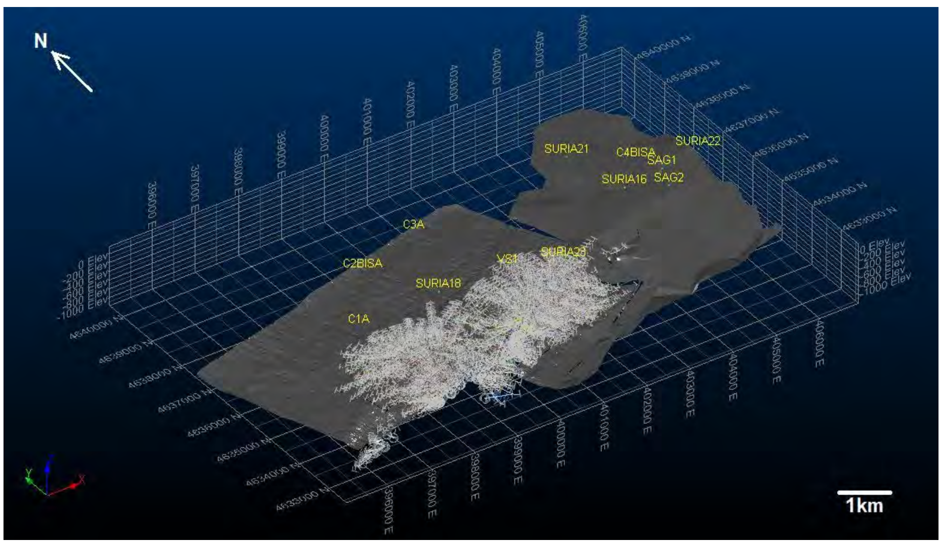


Figure 11.7: Base of Seam B Surface for Cabanasses and Showing Surface and Underground Drilling

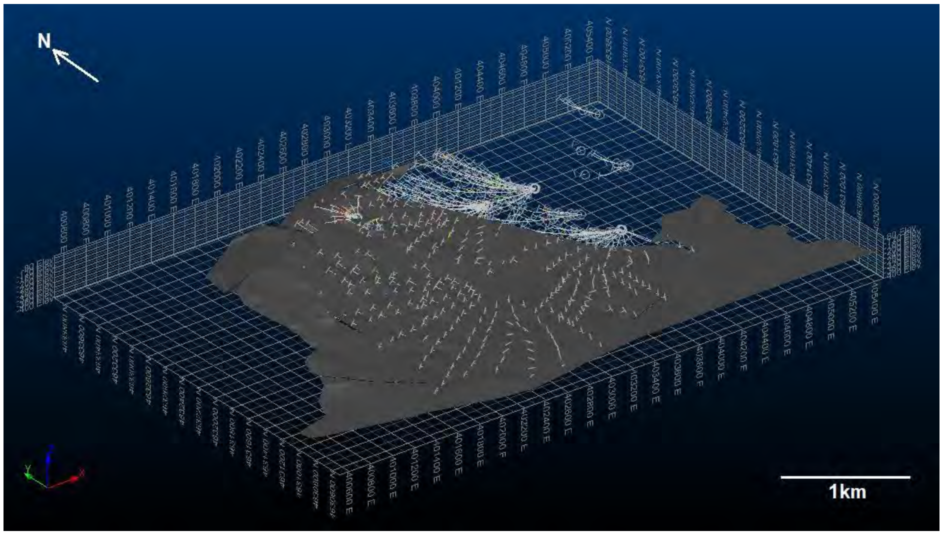


Figure 11.8: Base of Seam B Surface for Vilafruns and Showing Underground Drilling

11.3.3.3 Domaining

The mineralised zone wireframes are sub-divided by ICL Iberia into domains based on practical mining areas and consideration of the geological structure. The domains defined by ICL Iberia for Cabanasses and Vilafruns is shown in Figure 11.9.

A summary of the surface area and seam thicknesses of the domains is shown in Table 11.5.

Table 11.5: Summary of Domains for Cabanasses and Vilafruns

Mine	Domain	Surface Area (km^2)	Seam A Average Thickness (m)	Seam B Average Thickness (m)
Cabanasses	DN1	0.7	3.1	2.1
	DN2	3.5	5.1	2.6
	DN3	13.1	3.1	1.3
	DN4	4.0	4.3	2.7
	DN5	7.9	1.7	0.6
	DS1	10.8	5.8	2.9
	DS2	1.3	3.0	1.7
	DS3	1.8	3.0	2.1
	DS4	8.6	3.6	1.9
	DS5	4.9	8.1	2.7
Vilafruns	DV1	5.0	4.3	2.1
	DV2	0.8	4.4	2.1
	DV3	2.5	2.0	1.8
	DV4	2.5	4.3	2.1

Note: Seam B at Cabanasses includes Transformada zone

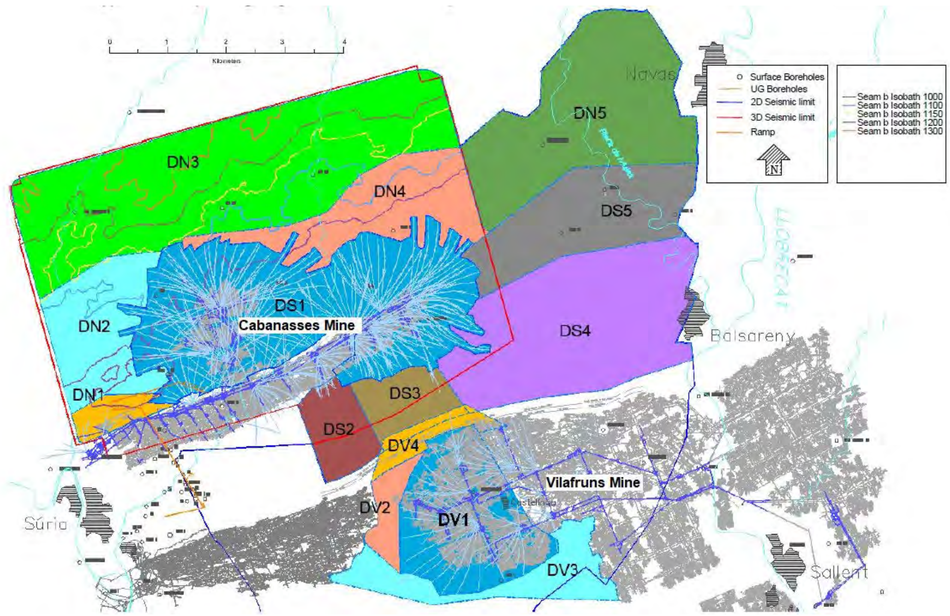


Figure 11.9: Domain Definition at Cabanasses and Vilafruns

The domains are treated as soft boundaries during grade estimation and any drillholes located up to 100m beyond the boundary of the domain can be included in the estimation of the domain.

The domains are considered by WAI to be generally appropriate. Some instances of vertical off-set of the mineralised zone wireframes are evident at the boundaries of adjacent domains (i.e. the mineralised zones are not always vertically continuous between domains). It is recommended that when drilling occurs near to domain boundaries, the mineralised zones for both domains should be updated so as to form a continuous wireframe surface. In addition, instances of drillhole intersections with economic KCl grades that are not included within the modelled potash seams (due to being off-section during geological interpretation) should be reviewed by ICL Iberia.

11.3.4 Drillhole Data Processing

The wireframes of the top and bottom surfaces of the potash seams were used to select the drillhole samples for further data processing. The samples were coded by the principal domains and the KClcorr (%) grades (i.e. KCl grades adjusted for carnallite content and core dissolution) were used in the MRE.

11.3.5 Grade Capping

No grade capping of KClcorr (%) grades is undertaken by ICL Iberia as no significant outlier values are evident in the selected samples. Summary statistics, probability plots and histograms of KClcorr (%) for Seams A and B in Domain DS1 at Cabanasses are shown in Table 11.6, Figure 11.10 and Figure 11.11.

Table 11.6: Summary Statistical Analysis of KCl (%) [CORR] for Selected Samples at Cabanasses (Domain DS1)

Seam	№ of Samples	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient of Variation
A	10,074	0	89.44	24.26	276.18	16.62	0.68
B	5,266	0	90.07	38.20	213.12	14.60	0.38
Seam B includes Transformada Zone							

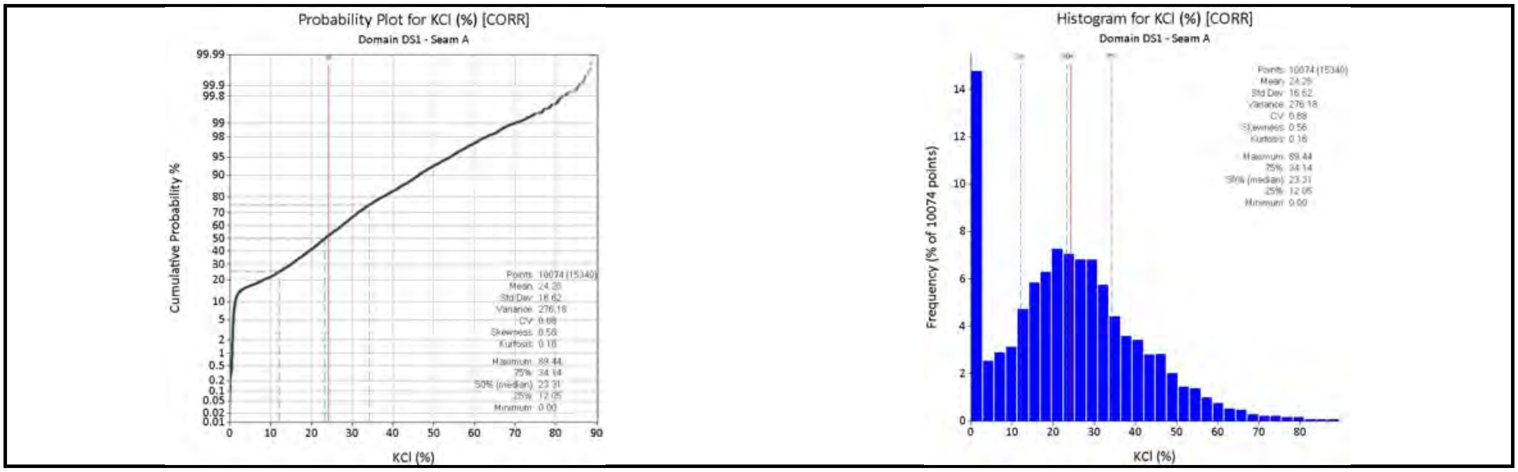


Figure 11.10: Probability Plot and Histogram of KClcorr (%) for Seam A Domain DS1 at Cabanasses

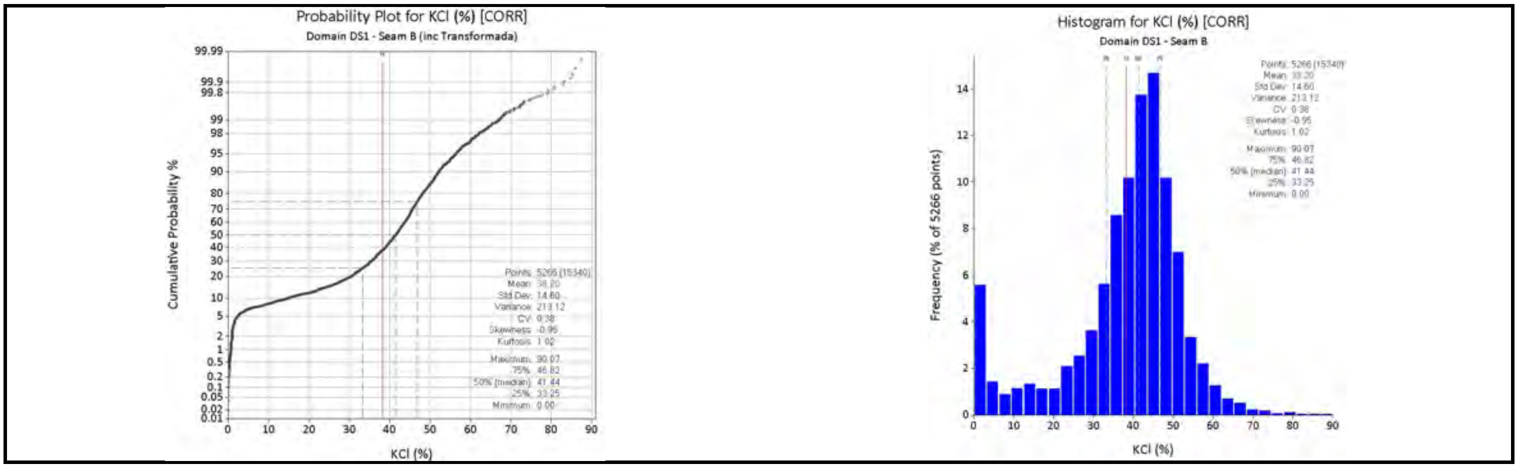


Figure 11.11: Probability Plot and Histogram of KClcorr (%) for Seam B Domain DS1 at Cabanasses

Summary statistics, probability plots and histograms of KClcorr (%) for Seams A and B in Domain DV1 at Vilafruns are shown in Table 11.7, Figure 11.12 and Figure 11.13.

Table 11.7: Summary Statistical Analysis of KCl (%) [CORR] for Selected Samples at Vilafruns (Domain DV1)

Seam	№ of Samples	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient of Variation
A	1,133	0.33	84.51	23.99	285.15	16.89	0.70
B	558	0.13	88.46	39.72	261.56	16.17	0.41

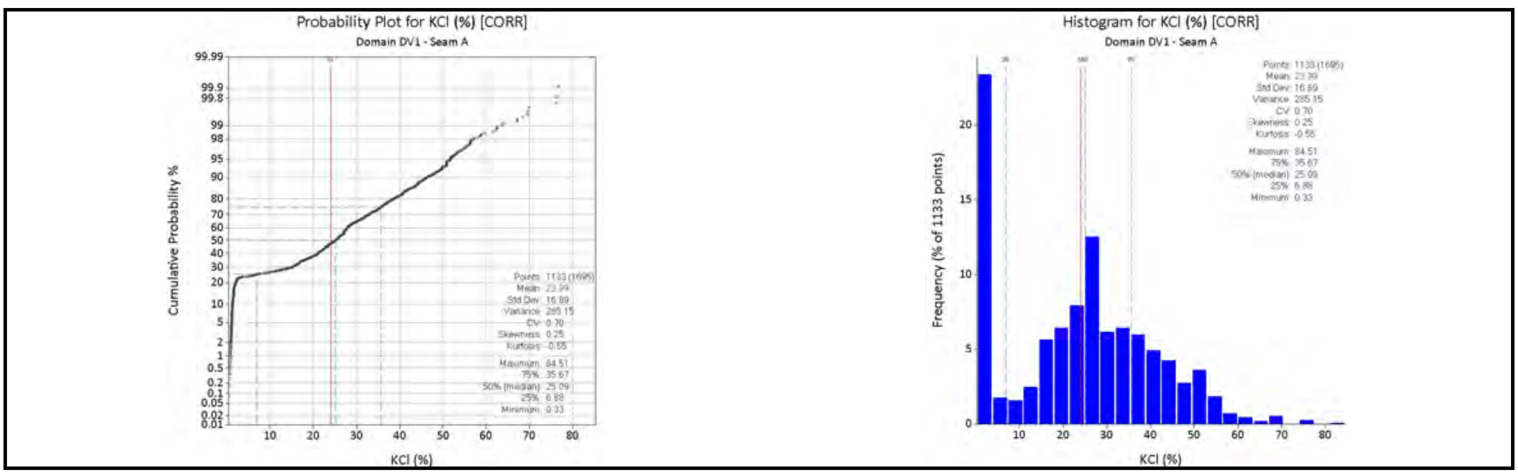


Figure 11.12: Probability Plot and Histogram of KClcorr (%) for Seam A Domain DV1 at Vilafruns

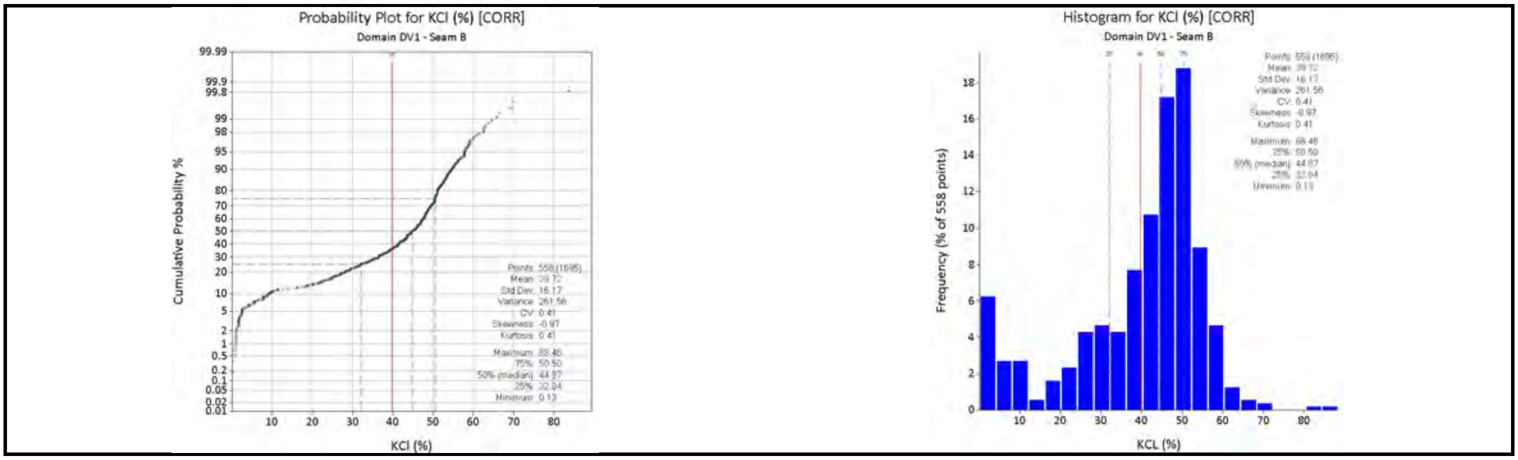


Figure 11.13: Probability Plot and Histogram of KClcorr (%) for Seam B Domain DV1 at Vilafruns

11.3.6 Compositing

For each drillhole, samples located within the seams were composited to produce a single composite sample over the entire thickness of the seam. True thickness and KClcorr (%) grade were calculated as shown in Figure 11.14. Seam boundaries were honoured during the compositing process (i.e. samples from Seam A, could not be composited with samples from Seam B and vice versa).

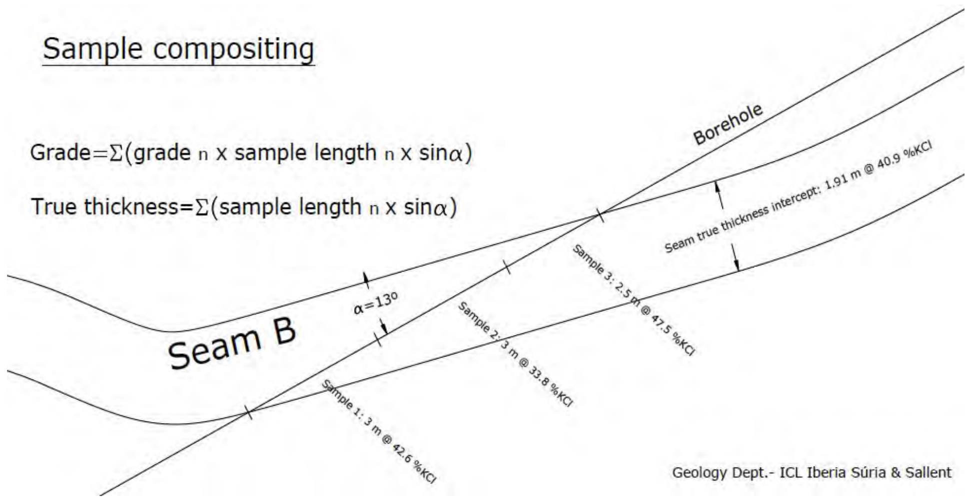


Figure 11.14: Calculation of Grade and True Thickness during Sample Compositing

11.3.7 Variography

Variography was attempted for the ICL Iberia deposits to define continuity of grade and provide input parameters for grade estimation. However, robust directional variograms were not attained in any domain and is likely the result of variable drilling orientations and sample intersection angles.

11.3.8 Block Modelling

Block models defining the mineralised domains were constructed by ICL Iberia in Vulcan® using the domain wireframes which were used to assign codes to the blocks for the principal domains. Separate models were constructed for each domain and the model prototypes are shown in Table 11.8. The block size selected was based on practical considerations for the mine design. The models were rotated to 72° to align with the general strike of the deposits.

Table 11.8: Block Model Prototypes

Mine	Domain	Block Model Origin Coordinate (m)			Number of Parent Blocks			Block Size (m) [X x Y x Z]	
		X	Y	Z	X	Y	Z	Parent	Sub-Cell
Cabanasses	DN1	396163.745	4633057.252	-1100	180	70	49	20 * 20 x 20	1 x 1 x 1
	DN2	396025.343	4633443.594	-1120	240	250	24	20 x 20 x 20	1 x 1 x 1
	DN3	395506.39	4635406.312	-1210	385	110	15	20 x 20 x 20	1 x 1 x 1
	DN4	398407.123	4634914.788	-1040	510	200	40	20 x 20 x 20	1 x 1 x 1
	DN5	403085.086	4636571.26	-860	420	310	32	20 x 20 x 20	0.5 x 0.5 x 0.5
	DS1 (north)	397296.675	4633547.558	-1040	350	270	43	10 x 10 x 10	1 x 1 x 1 (Seam A) 0.5 x 0.5 x 0.5 (Seam B)
	DS1 (south)	400697	4633519	-1040	300	300	45		
	DS2	400331.596	4632356.001	-970	120	180	48	20 x 20 x 20	1 x 1 x 1
	DS3	401151.938	4632850.748	-960	190	140	52	20 x 20 x 20	1 x 1 x 1
	DS4	402597.383	4633119.697	-870	500	250	50	20 x 20 x 20	1 x 1 x 1
	DS5	402883.169	4635266.893	-850	450	190	32	20 x 20 x 20	1 x 1 x 1
Vilafruns	DV1	401083.484	4629089.868	-310	470	380	24	10 x 10 x 10	0.5 x 0.5 x 0.5
	DV2								
	DV3								
	DV4	401200.964	4632559.279	-420	260	100	34	10 x 10 x 10	0.5 x 0.5 x 0.5

Block models are rotated to 72 degrees strike; and
Where overlap of DS1 (north) and DS1 (south) block models exists, the DS1 north model takes precedence (the DS1 south model in this area is excluded from resource classification).

11.3.9 Density

Density measurements are undertaken at the Cabanasses laboratory on samples of drill core from the underground drilling. The Archimedes method is used for density determination with a brine solution used instead of fresh water to prevent sample dissolution. A total of 582 density measurements have been taken from the various lithologies encountered in the footwall, mine and hangingwall packages. Of these, a total of 340 measurements were taken from Seams A and B (including Transformada zone) and histograms of these are shown in Figure 11.15. A global bulk density of 2.1t/m^3 is used by ICL Iberia in the MRE for the potash seams and is considered by WAI to be generally appropriate based on the density test work. A density of 2.1t/m^3 is also used by ICL Iberia for halite and 1.65t/m^3 is used for carnallite.

a) Cabanasses – Seam A **b) Cabanasses – Seam B**

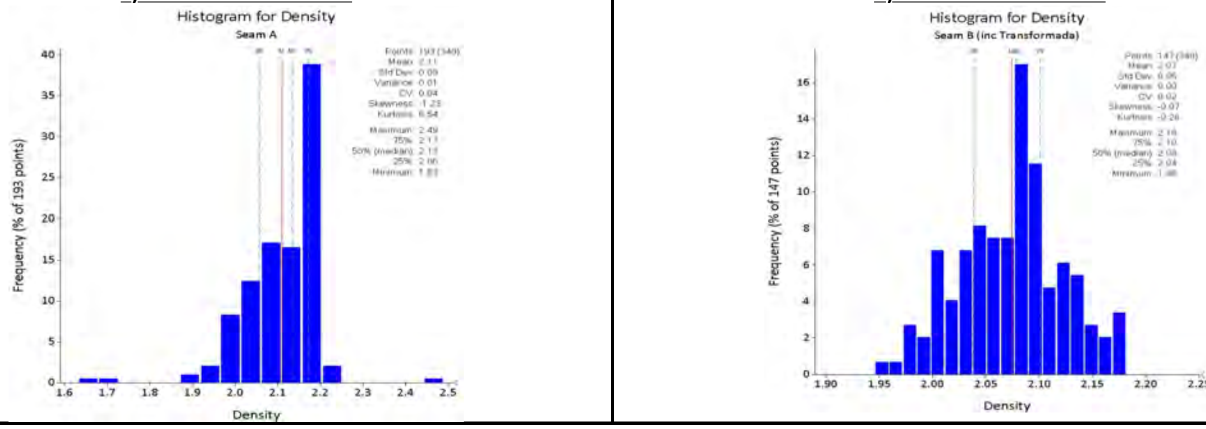


Figure 11.15: Histograms of Density Measurements from Cabanasses for Seam A and Seam B

11.3.10 Grade Estimation

11.3.10.1 Estimation Parameters

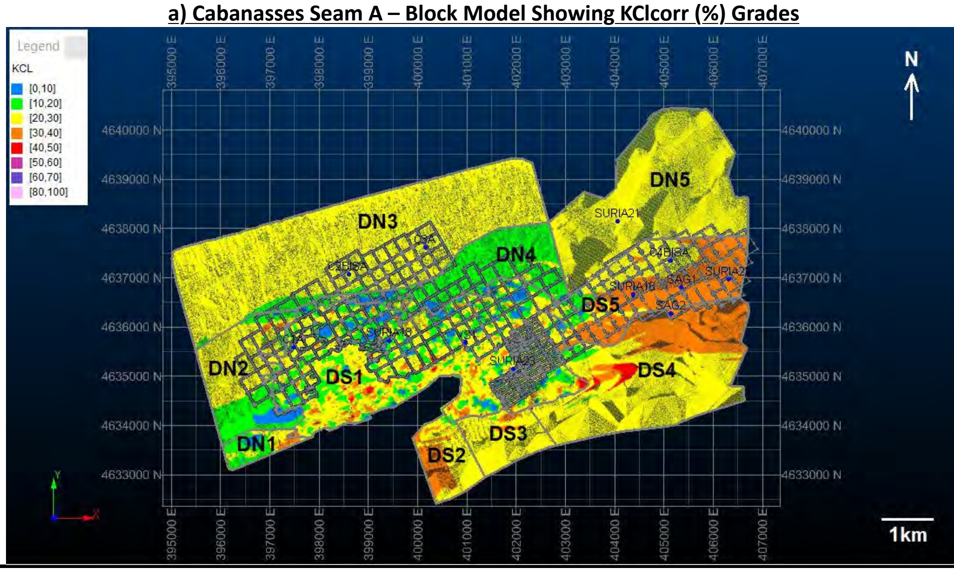
Grade estimation was undertaken for KClcorr (%) and was performed on the potash seams within each domain. Seams A and B were treated as hard boundaries and as such, composites from the other seam were excluded from the grade estimation. However, the domains were treated as soft boundaries and any drillholes located up to 100m from the domain boundaries could be included in the estimation. Inverse power distance (squared) estimation method was used as the principal estimation method for all domains. Grade estimation was run in a three-pass plan, the second and third passes using progressively larger search radii to enable the estimation of blocks unestimated on the previous pass. A minimum of 1 and a maximum of 10 composites were used for each estimation pass. Unfolding of the block model and composites was carried out prior to grade estimation. A summary of the search ellipses used in the grade estimation is shown in Table 11.9.

Table 11.9: Summary of Search Parameters				
Mine	**Domain**	**Search 1 (m)**	**Search 2 (m)**	**Search 3 (m)**
Cabanasses	DN1	200 x 150 x 150	600 x 300 x 250	1,800 x 900 x 600
	DN2	200 x 150 x 150	1,000 x 400 x 150	3,000 x 1,700 x 250
	DN3	300 x 200 x 200	2,500 x 1,800 x 250	5,000 x 3,000 x 350
	DN4	200 x 150 x 150	1,200 x 500 x 250	3,400 x 1,500 x 500
	DN5	200 x 150 x 150	2,500 x 1,800 x 350	5,000 x 3,000 x 900
	DS1	100 x 100 x 50	250 x 250 x 75	400 x 400 x 100
	DS2	200 x 150 x 150	900 x 700 x 300	2,200 x 2,000 x 700
	DS3	200 x 150 x 150	900 x 600 x 400	2,200 x 2,200 x 1,000
	DS4	200 x 150 x 150	1,800, 1,200 x 300	6,500 x 3,500 x 700
	DS5	200 x 150 x 150	900 x 400 x 250	2,400 x 1,200 x 600
Vilafruns	DV1	120 x 80 x 50	250 x 150 x 75	400 x 250 x 100
	DV2	200 x 150 x 90	450 x 250 x 120	1,200 x 700 x 200
	DV3	200 x 150 x 90	600 x 350 x 150	1,600 x 1,300 x 300
	DV4	150 x 100 x 75	350 x 200 x 100	1,000 x 600 x 150
Search ellipses orientated at 72 degrees (along strike).				

11.3.10.2 Spatial Grade and Thickness Distribution

The spatial distribution of KClcorr (%) grades and seam thickness in the block model were reviewed by WAI and are shown in Figure 11.16 and Figure 11.17, respectively (also shown are the domains and the proposed mining panels). Overall, as is consistent with the geological understanding, KClcorr (%) grades are observed to be generally lower in Seam A than Seam B while the thickness of Seam A is generally greater than Seam B.

a) Cabanasses Seam A – Block Model Showing KClcorr (%) Grades



b) Cabanasses Seam B – Block Model Showing KClcorr (%) Grades

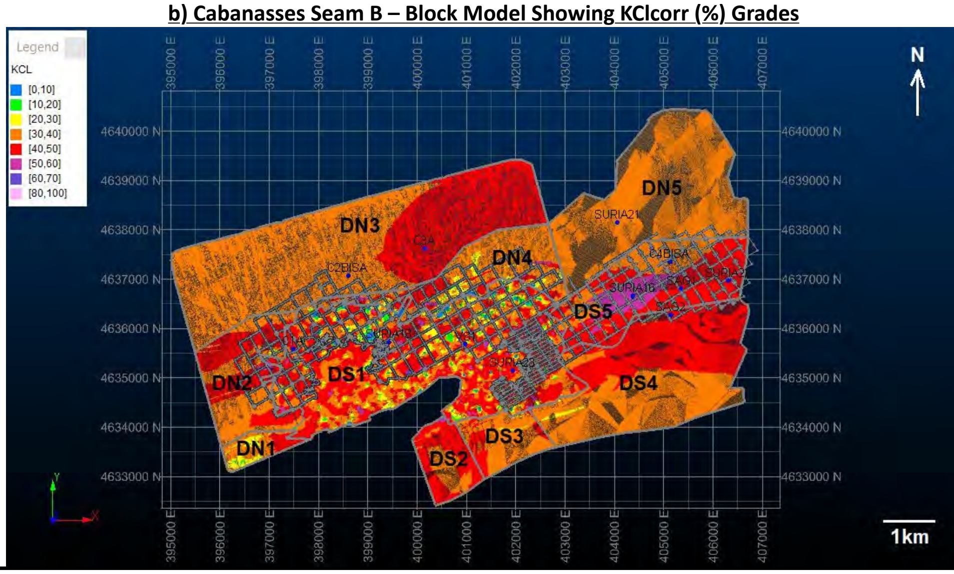
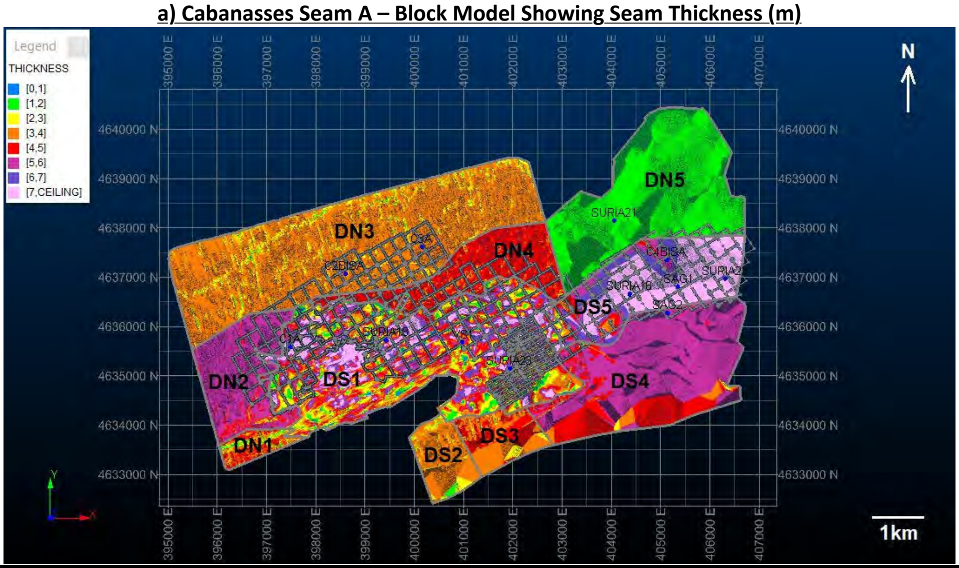


Figure 11.16: Block Model Showing Spatial Distribution of KClcorr (%) at Cabanasses

a) Cabanasses Seam A – Block Model Showing Seam Thickness (m)



b) Cabanasses Seam B – Block Model Showing Seam Thickness (m)

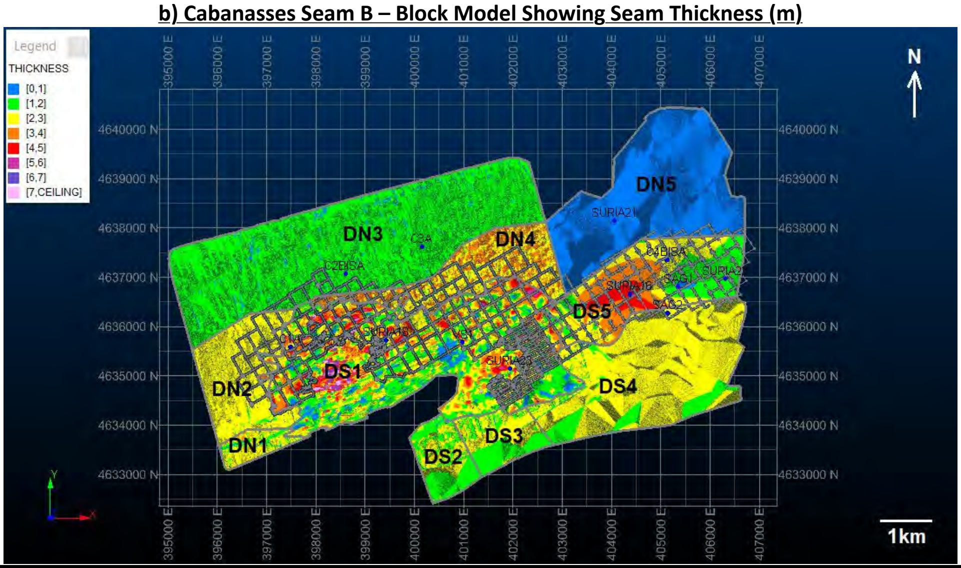


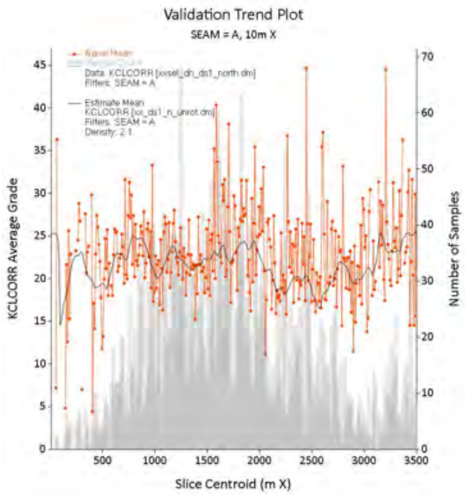
Figure 11.17: Block Model Showing Spatial Distribution of Seam Thicknesses (m) at Cabanasses

11.3.10.3 Grade Estimation Validation

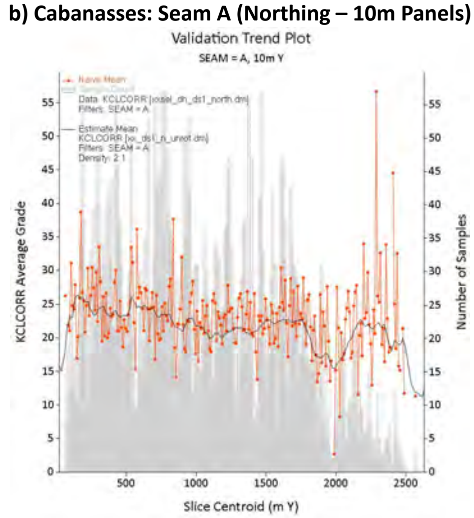
Following grade estimation, a statistical and visual assessment of the block model was undertaken in order to: 1) assess successful application of the estimation passes; 2) to ensure that, as far as the data allowed, all blocks within mineralisation domains were estimated; and 3) the model estimates performed as expected.

The model validation methods used included: an on-screen visual assessment of drillhole and block model grades; a statistical grade comparison and SWATH Analysis as shown in Figure 11.18.

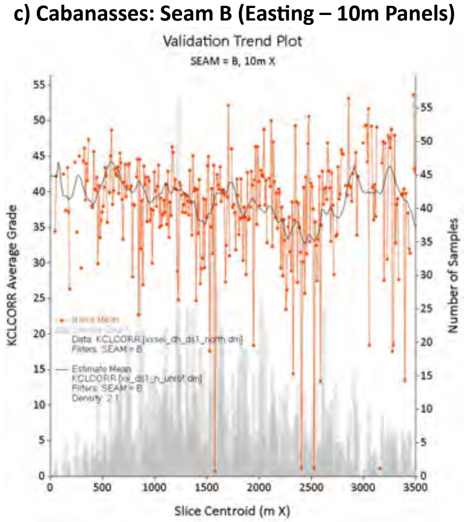
a) Cabanasses: Seam A (Easting – 10m Panels)



b) Cabanasses: Seam A (Northing – 10m Panels)



c) Cabanasses: Seam B (Easting – 10m Panels)



d) Cabanasses: Seam B (Northing – 10m Panels)

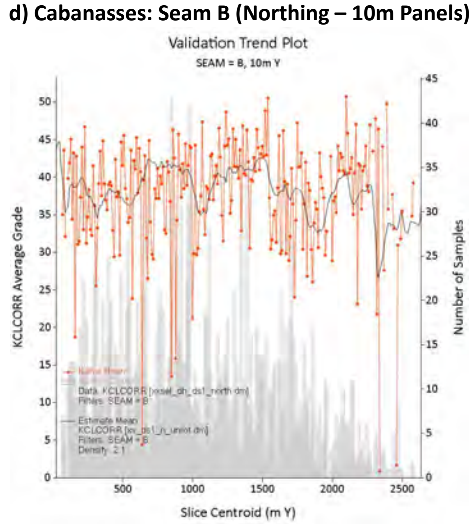


Figure 11.18: Example SWATH Analysis for KClcorr (%) in Domain DS1 (north) at Cabanasses

Overall, WAI considers that globally no indications of significant over- or under-estimation were apparent in the model nor were any obvious interpolation issues identified. From the perspective of conformance of the average model grade to the input data, WAI considers the grade estimation by ICL Iberia to adequately represent the sample data used.

11.3.11 *Reconciliation with Mining Production Data*

Half year reconciliations are undertaken by ICL Iberia based on the end of year resource models. Production data including broken tonnes, hoisted tonnes and KCl grade are recorded while waste material stowed underground is estimated as a percentage of the total broken tonnes. Mining losses are estimated as the difference between broken, stowed and hoisted tonnes. A mining dilution factor is applied, and the hoisted tonnes and grade (excluding dilution) are calculated and compared with the resource model. A summary of the reconciliation for H1 2021 and 2020 at Cabanasses is shown in Table 11.10. Further information on historical reconciliations is contained in Section 9.2.

Table 11.10: Summary of Reconciliation of Cabanasses Resource Model with Mining Production Data

	Broken	Stowed	Hoisted		Mining Losses		Mining Dilution (Factor)	Hoisted (Excl. Dilution)		Resource Model	
Unit	**Tonnes**	**Tonnes**	**Tonnes**	**KCl (%)**	**Tonnes**	**%**	**%**	**Tonnes**	**KCl (%)**	**Tonnes**	**KCl (%)**
Cabanasses - H1 2021											
Seam A	841,198	100,944	642,118	20.7	98,136	15.3	13	558,642	23.8	938,249	23.3
Seam B	1,074,038	150,365	819,854	28.1	103,819	12.7	28	590,295	39.0	592,709	38.2
Cabanasses - 2020											
Seam A	1,158,968	91,701	941,402	20.8	125,865	13	16	790,778	24.8	1,118,560	22.9
Seam B	1,192,431	112,079	968,584	28.1	111,768	12	29	687,695	39.6	703,630	38.3

Stowed material estimated based on percentage of broken material as follows:

- H1 2021 - Seam A: 12%; Seam B: 14%; and
- 2020 – Seam A: 8%; Seam B: 9%.

Resource model dates used for reconciliation as follows:

- H1 2021 – 31st December 2020 resource model
- 2020 – 31st December 2019 resource model

Overall, the reconciliation for Seam B shows the resource models compare well with production data:

- For H1 2021, the resource model is within 0.4% of the reported hoisted tonnes (excluding dilution) and KCl grades are similar (39.0% KCl verses 38.2% KCl);
- For 2020, the resource model is within 2.3% of the reported hoisted tonnes (excluding dilution) with slightly lower KCl grades (39.6% verses 38.3%).

The reconciliation for Seam A shows the resource model grades to compare well:

- For H1 2021, resource model KCl grade of 23.3% verses reported hoisted grade of 23.8% KCl;
- For 2020, resource model KCl grade of 22.9% verses reported hoisted grade of 24.8% KCl.

However, tonnages for Seam A compare less well, with the resource model showing significantly higher tonnes than the hoisted tonnes (40.5% higher for H1 2021 and 29.3% higher for 2020). The reasons for this discrepancy are the result of lower mining recoveries of Seam A due to geotechnical factors such as safe drift dimension sizes and the requirement for a crown pillar between Seam A and Seam B (i.e. where the Seams are in close proximity, extraction of Seam B is prioritised due to higher grades while the upper part of Seam A will be left as a crown pillar).

11.3.12 Mineral Resource Depletion and Non-Recoverable Resources

Mined-out areas and non-recoverable (sterilised) resources consist of the following:

- Mined-out areas based on underground mine survey data;
- Resources located in close proximity to essential mine infrastructure (shafts and decline) are considered as non-recoverable and includes:
    - 200m safety pillar around Shaft IV; and
    - 200m safety pillar around the Cabanasses decline.
- Resources located around the traces of completed surface drillholes are sterilised for safety reasons. These resources are not mined so as to prevent the drillhole trace from acting as a potential ingress of water into the mine:
    - For historical drillholes a radius of 50m from the drillhole trace is considered as non-recoverable;
    - For recent drillholes which have been surveyed with modern downhole survey equipment, a radius of 25m is used.
- Resources located within 200m of the Tordell Fault are sterilised to prevent possible water ingress on this major thrust zone. This zone is known to be structurally complex and it is thought the potash is absent from this area due to deformation. The safety pillar is wider in the north than the south, as in the south the fault plane is below the potash workings; and
- Areas identified as being below a cut-off grade of 10% KCl and areas of low seam thicknesses are also considered by ICL Iberia as non-recoverable (see section 11.3.13).

Mined-out areas are removed from the block model prior to resource evaluation using wireframe solids which define the mine survey. Non-recoverable resources are coded in the block model using wireframe solids which are flagged as Unclassified Mineral Resources.

11.3.13 Cut-Off Grades for Mineral Resource Reporting

Mineralisation above a cut-off grade of 10% KCl is considered by ICL Iberia to have reasonable prospects for economic potential based on Company economic evaluation. Below this cut-off grade it is considered unlikely that the mineralisation will ever be targeted for mining. As is not uncommon for industrial minerals, the commodity price is not always applied and the cut-off grade is rather based on the geological/mineralogical properties and processing efficiency to produce the required specification of product. Notwithstanding, a potash price of US$291/t FOB is reflected in the Company economic evaluation of the operation to determine RPEEE.

As such, a cut-off grade of 10% KCl along with the following minimum seam thickness criteria is used by ICL Iberia for the reporting of Mineral Resources:

Seam B:
- 1m for zones with dip angles of 5° to 14°
- 0.5m for flat lying zones (<5° dip)

Seam A:
- 2m for steeply dipping of 5° to 14°
- 1m for flat lying zones (<5° dip)

11.3.14 Mineral Resource Classification

The Mineral Resource classification methodology was reviewed by WAI considering the confidence in the drillhole data, the geological interpretation, geological continuity, data spacing and orientation, spatial grade and thickness continuity and confidence in the Mineral Resource estimation.

11.3.14.1 Drillhole Data

Prior to February 2019, no formal QA/QC programmes were implemented by ICL Iberia. To verify the quality of the drillhole data completed prior to this date, a data verification review was completed by WAI (Section 9.2). Overall, the data verification confirmed the integrity of the data in the drillhole databases, and these were considered suitable for use in the MRE.

11.3.14.2 Geological Interpretation and Geological Continuity

The geological interpretation is well understood and includes significant operational experience. The deformation (folding) of the potash seams observed in the ICL Iberia deposits, results in a higher level of geological complexity compared with similar deposit types. However, the overall, geological continuity of the seams within the near-mine area has been confirmed by seismic surveys, underground drilling and mining experience. Beyond the near-mine area, overall geological continuity has been confirmed by seismic surveys and surface drillholes.

11.3.14.3 Data Spacing and Orientation

Underground drilling using Long Hole Drilling ("LHD") is the main method of near mine exploration and is undertaken at a spacing of 80 – 150m. The drilling method results in low intersection angles within the potash seams, however, this is corrected for by ICL Iberia to better reflect true thickness and grade. The on-going reconciliation studies by ICL Iberia demonstrate the spacing and orientation of the LHD drilling is fit for purpose. Surface drilling is used as step-out drilling to define resources beyond the near-mine area and is undertaken with a spacing of up to 1,700m. Surface drilling is near vertical and intersects the potash seams as close to perpendicular as possible.

11.3.14.4 Spatial Grade Continuity

The higher level of geological complexity associated with the ICL Iberia deposits results in generally higher variabilities of grade and thickness of the potash seams compared with other potash deposits. However, ICL Iberia has been successful in managing this variability through operational experience and mine planning.

11.3.14.5 Classification

The following criteria are used by ICL Iberia for the classification of Mineral Resources at Cabanasses and Vilafruns:

- Measured Mineral Resources: are classified at DS1 and DV1 based on a drillhole spacing of 80 – 150m. In addition, these areas have a significant production history and are subject to on-going reconciliation studies;
- Indicated Mineral Resources: halo the Measured Mineral Resources within areas confirmed by surface drilling and/or seismic survey data. Drillhole spacings within areas of Indicated Mineral Resources are up to 1,700m;
- Inferred Mineral Resources: halo the Indicated Mineral Resources within the remaining licence area and are covered by seismic data or limited surface drilling.
- Unclassified Mineral Resources: include non-recoverable resources or areas of low grade or seam thickness and are further described in Section 11.3.12. Non-recoverable resources were excluded by ICL Iberia from the MRE.

Mineral Resource classification was set in the block model by ICL Iberia using wireframe perimeters. A plan view of the Mineral Resource classification for Cabanasses and Vilafruns is shown in Figure 11.19.

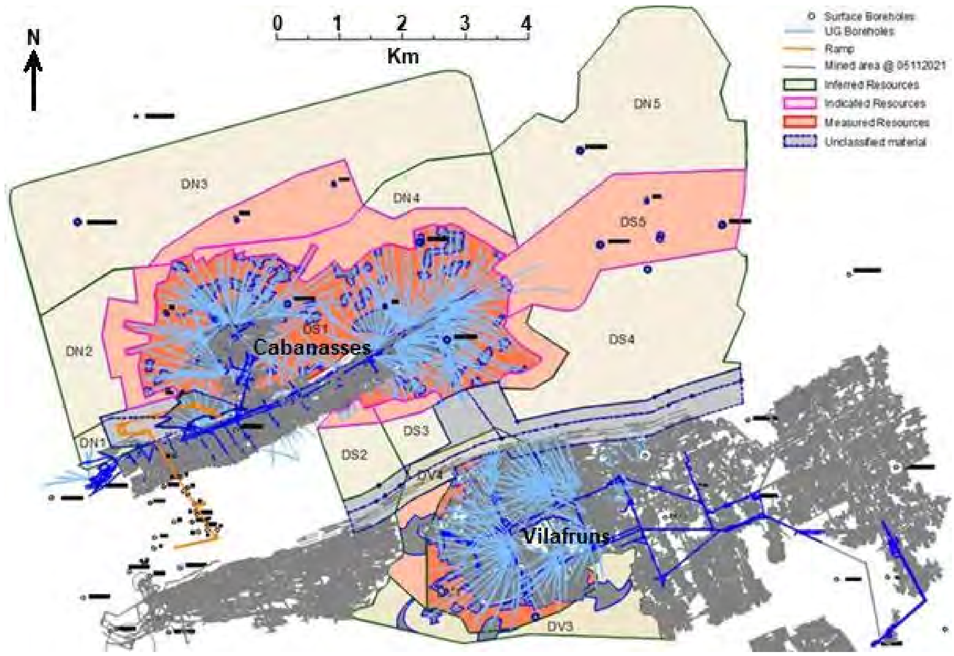


Figure 11.19: Mineral Resource Classification [Measured Resources in Red, Indicated Resources in Pink, Inferred Resources in Cream and Unclassified Resources in Grey]

WAI considers the Mineral Resource classification used by ICL Iberia to be appropriate in terms of the geological understanding, available exploration data and production history of the deposits and is considered suitable for the purposes of mine planning.

11.3.15 Mineral Resource Statement

The Mineral Resource Estimates for the Cabanasses and Vilafruns Deposits are classified in accordance with the JORC Code (2012). The effective date of the Mineral Resource Estimate is 31st December 2021. A summary of the Mineral Resource statement is shown in Table 11.11.

The stated Mineral Resources are not materially affected by any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues, to the best knowledge of the author. There are no known mining, metallurgical, infrastructure, or other factors that materially affect this Mineral Resource estimate, at this time.

Table 11.11: Summary of Mineral Resources for Cabanasses and Vilafruns						
	Cabanasses		Vilafruns		Total	
	Tonnes (Mt)	KCl (%)	Tonnes (Mt)	KCl (%)	Tonnes (Mt)	KCl (%)
Measured	83.9	25.7	12.6	31.0	96.5	26.4
Indicated	51.4	23.3	9.4	32.1	60.8	24.7
Measured + Indicated	**135.2**	**24.8**	**22.0**	**31.5**	**157.2**	**25.7**
Inferred	330.5	29.1	30.7	28.9	361.3	29.1

Notes:

1. Mineral Resources are reported at a cut-off grade of 10% KCl and the following thickness criteria:
   a) Seam B minimum thickness:
      i) 1m for zones with dip angles of >5°;
      ii) 0.5m for flat lying zones (<5° dip).
   b) Seam A minimum thickness:
      i) 2m for zones with dip angles of >5°;
      ii) 1m for flat lying zones (<5° dip).
2. Mineral Resources are reported using a cut-off grade of 10% KCI.
3. Mineral Resources are reported using a dry density of 2.1t/m^3.
4. Mineral Resources are based on an assumed 85.5% metallurgical recovery.
5. Tonnages and grades refer to estimated contained mineralisation in the ground and have not been adjusted for mining dilution, mining losses or processing recovery.
6. The effective date of the Mineral Resource Estimate is is 31st December 2021
7. Mineral Resources have been estimated in accordance with the guidelines of the JORC Code (2012). Mineral Resources are reported in compliance with S-K 1300.
8. Mineral Resources are reported exclusive of any Ore Reserves.
9. Mineral Resources that are not Mineral Reserves do not currently have demonstrated economic viability.
10. All figures are rounded to reflect the relative accuracy of the estimate, and numbers may not sum due to rounding.
11. The Mineral Resource Estimate has not been affected by any known environmental, permitting, legal, title, taxation, socio-political, marketing or any other relevant issues.

11.3.16 Qualified Person Opinion

The mineral resource estimate is well-constrained by three-dimensional wireframes representing geologically realistic volumes of mineralization. Exploratory data analysis conducted on assays and composites shows that the wireframes represent suitable domains for mineral resource estimation. Grade estimation has been performed using an interpolation plan designed to minimize bias in the estimated grade models.

Mineral resources are constrained and reported using economic and technical criteria such that the mineral resource has a reasonable prospect of economic extraction.

Resources are presented at a cut-off grade and are further constrained within domains outlining potential mining areas. Taken together, these two constraints constitute reasonable prospects for economic extraction of the mineralization. The phrase ‘reasonable prospects for economic extraction’ implies a judgment by the QP in respect to the technical and economic factors likely to influence the prospects of economic extraction.

The QP believes that this mineral resource estimate for Cabanasses and Vilafruns is an accurate estimation of the in-situ resource based on the data available, and that the available data and the mineral resource model are sufficient for mine design and planning.

11.4 Rotem

11.4.1 Overview

The Rotem geological department uses GIS software (ArcGIS) for database management, AutoCAD as a drawing tool and Surfer 8 and Vulcan for 2D and 3D geological modelling respectively. Each of the fields in the sites has a Vulcan model which is updated and depleted annually.

The Vulcan models hold all information required for reporting of Mineral Resources and guiding mining operations. In a potential new mining area, a complete geological report is compiled based on all available drill hole data and geological surface mapping. Information includes a location map with field concession boundary, drill site locations, topography, typical geological stratigraphy, geological maps and sections, phosphate seams contour isopachs and seam thickness. Other study information is used to represent other relevant mining and processing information such as overburden thickness contours, overburden to seam ratios and deleterious elements such as silica and magnesium content of the P seams.

The descriptive logging (alongside seam coding) and assay data is used to create combined models containing both physical (lithological) and chemical data. Over 200 units are recognised by the geologists for descriptive input into the geological model and for domaining purposes in Vulcan. Wireframe surfaces are created for each of the major phosphate seams with further sub-division as required.

Grade estimation for P_2O_5 and all necessary deleterious elements is carried out by inverse distance weighting. Variography has not been used for grade estimation but is used by the geological department as a basis for determining optimum drillhole spacing across the deposits.

In-situ (geological) resource tonnages and grade are estimated, as well as stripping ratios. Overburden is calculated by volume. Density is applied by domain with mean values assigned prior to resource reporting. Details of the procedure of the density test work are not available but the work was carried out by Technion and Magama, technical institutes based in Israel. A summary of the density values (mean) is presented in Table 11.12.

Table 11.12: Summary of Density Data for Rotem			
Area	**Layer**	**Density (mean value)**	**Density Value Used in Resource Estimate**
Oron	Upper Phosphate	1.96	1.9
	Middle Phosphate	1.93	1.8
	Lower Phosphate	1.89	1.8
Zin	All	1.8	1.8
Rotem	All	1.77	1.8

11.4.2 Cut-off Grade for Mineral Resource Reporting

A cut-off grade of 20% to 25% P_2O_5 is applied depending on the processing characteristics of the phosphate rock and the existing mineral processing method. The cut-off grade differs for each mine in accordance with the beneficiation process and enrichment capacity. Thus a cut-off grade of 20% P_2O_5 and lower is applied at Oron, after it has been proven that the required quality can be reached. A cut-off grade of 23% P_2O_5 is applied at Zin, and a cut-off grade of 25% P_2O_5 is applied at Rotem. The cut-off grade for Oron is lower because Rotem has the appropriate beneficiation process for phosphate rock with limestone, which characterizes the white phosphate and, therefore, the beneficiation process, through the flotation process, is extremely efficient. The cut-off grade for Rotem is higher because the beneficiation process has a limited grinding and flotation system, and only medium to high grade phosphate can be fed (which is appropriate for the existing Reserves at Rotem). The cut-off grade for Zin is slightly higher than that of Oron because of the presence of marl and clay that reduces the efficiency of the enrichment process. The overall P_2O_5 is estimated at 59% for Oron, 56% for Zin, and 54% for Rotem. As is not uncommon for industrial minerals, the commodity price is not always applied and the cut-off grade is rather based on the geological/mineralogical properties and processing efficiency to produce the required specification of product. Notwithstanding, the Company economic evaluation, to determine RPEEE, applies a three year average FOB Ashdod market prices in the Negev as of December 31, 2021 are as follows: US$686/t P_2O_5 for green phosphoric acid, US$1,374/t for WPA, US$1,283/t for MKP, and US$153/t for GSSP.

11.4.3 Mineral Resource Statement

In line with SK 1300 guidelines, Mineral Resources are reported exclusive of any Ore Reserves.

The PERC Code (2021) states in Appendix 4, A4-10 that "Public Reports must make clear the 'permitted' or 'non-permitted' status of the Industrial Mineral Resources and Industrial Mineral Reserves, and, in addition, Industrial Mineral Reserves must only be quoted where the operator has legal control."

In reporting Mineral Resources for Rotem, this report therefore differentiates between 'permitted' and 'non-permitted' Mineral Resources in the following manner:

- Permitted Mineral Resources: No permitted Mineral Resources are reported. No material classified as a Mineral Resource is located within the boundaries of the current mine plan or is to be extracted within the limit of the current mining permit.
- Non-Permitted Measured Mineral Resources: Reported as total estimated contained phosphate. This material is located within the concession boundaries but is not currently included within the mine plan (mineral reserves) due to known inefficiencies with processing, the presence of infrastructure preventing easy extraction or geological issues such as steep dip or high dilution.
- Non-Permitted Indicated Mineral Resources: Reported as total estimated contained phosphate. This material is located within the concession boundaries but is not currently included within the mine plan (mineral reserves) due to known inefficiencies with processing, the presence of infrastructure preventing easy extraction or geological issues such as steep dip or high dilution. Indicated Mineral Resources have been drilled and modelled but to a lower degree of confidence than Measured Mineral resources.

The Mineral Resource estimate split by mine and area is shown in Table 11.13.

Table 11.13: Mineral Resource Estimate by Mine and Area

Mine	Area	Type	Classification	Tonnes (Mt)	Grade (% P_2O_5)
Zin	Hor-Hahar	Bituminous	Measured	2.0	27.5
	Saraf	Bituminous	Measured	6.5	
	Hagor	Bituminous	Measured	9.5	
	Alef 6	Low organic	Measured	3.0	
Oron	Area 5	Brown	Measured	35.0	27.5
	Area 6	Brown	Measured	20.0	
	4BetGimel	Brown	Measured	15.0	
Rotem	Tamar	Low organic & high organic & bituminous	Measured	3.7	27.5
	Rotem South	Low organic & high organic & bituminous	Measured	3.0	
	Zefa Bituminous	Low organic & high organic & bituminous	Measured	150.0	
	Hatrurim	Low organic & high organic & bituminous	Indicated	10.0	26.0
			Total Measured	**247.7**	**27.5**
			Total Indicated	**10.0**	**26.0**

The overall Mineral Resource estimate for the Rotem, Oron and Zin mines combined is shown in Table 11.14.

Table 11.14: Summary of Mineral Resources for Rotem				
Status (Following Guidelines of the PERC Code Section A4-10)	**Classification**	**Product**	**Tonnes (Mt)**	**Grade P_2O_5 (%)**
Non-Permitted	Measured	Phosphate	247.7	27.5
Non-Permitted	Indicated	Phosphate	10.0	26.0
Non-Permitted	Inferred	-	-	-

Notes:

1. Mineral Resources are reported exclusive of any Ore Reserves.
2. Mineral Resources that are not Mineral Reserves do not currently have demonstrated economic viability.
3. Mineral Resources are reported using a cut-off grade of 23% P_2O_5 for Zin, 20% P_2O_5 for Oron, and 25% P_2O_5 for Rotem.
4. Mineral Resources are reported using a density of 1.8 or 1.9 t/m^3.
5. Mineral Resources are based on an assumed metallurgical recovery of 59%, 56%, and 54% (Oron, Zin and Rotem respectively).
6. The effective date of the Mineral Resource Estimate is 31st December 2021.
7. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
8. Mineral Resources for the Rotem project have been classified in accordance with the guidelines of the PERC Code (2021). Mineral Resources are reported in compliance with S-K 1300.

11.4.4 Qualified Person Opinion

The mineral resource estimates are constrained by wireframes, or quantity estimations, representing (geologically) realistic volumes of mineralisation. Data analysis conducted on sample assays shows that the wireframes represent suitable domains for mineral resource estimation. Grade estimation has been performed using appropriate methods to minimize bias in the estimated grade models.

Mineral resources are constrained and reported using economic and technical criteria such that the mineral resource has a reasonable prospect of economic extraction. The phrase 'reasonable prospects for economic extraction' implies a judgment by the QP in respect to the technical and economic factors likely to influence the prospects of economic extraction.

The QP believes that this mineral resource estimates presented for Rotem are an accurate estimation of the in-situ resource based on the data available, and that the available data and the mineral resource model are sufficient for mine design and planning.

11.5 DSW

11.5.1 Overview

The DSW is not a typical mining operation with a finite Mineral Resource, explored by drilling, to be estimated and classified, nor is it equivalent to a typical solution mining operation that would require an assessment of porosity and fluid flow.

However, even though the source of brine is renewed to a certain extent by inflow to the Dead Sea, the resource cannot be considered either fully renewable or infinite given that there are certain engineering, licensing, and environmental constraints. The Mineral Resource estimate as summarised and reported by WAI is therefore based on the following steps:

1) Determination of pumping rate of brines from northern Dead Sea area to ponds.
2) Determination of expected recovery of product as based upon:
    a) Ability to determine composition and consistency of supply
    b) Ability to predict consistency of evaporation and mineral precipitation
    c) Ability to predict consistency of split into various products
3) Determination of Mineral Resource classification is based upon:
    a) Any variation in supply composition
    b) Any variation in return flow of brines to Dead Sea to assess efficiency and consistency of process
    c) Variation in precipitation of mineral amounts
    d) Accuracy of sonar measurements in determining reconciliation
4) Consideration of the length of extraction licence held by ICL
5) Assessment of potential changes to any of the above factors during the remaining length of licence.

Furthermore, the DSW does not have a calculated COG rather a natural effect (of a cut-off grade) as the carnallite precipitates out of solution, and therefore the application of a COG is not considered appropriate for this form of deposit. The 'mining' does not selectively extract the carnallite, it precipitates out and sinks to the floor and the dredge harvests all of what it can (leaving a circa 20cm layer on the floor as a safety zone to avoid extracting essentially waste material). The mineral resource (and mineral reserve) is based on a volumetric estimate of solution pumped from the Dead Sea and the natural mineral content which over time is shown to be consistent (thus establishing a grade). Thus, the COG is 0% KCl. As is not uncommon for industrial minerals, the commodity price is not always applied and the cut-off grade is rather based on the geological/mineralogical properties and processing efficiency to produce the required specification of product. Notwithstanding, a potash price of US$255/t FOB is reflected in the Company economic evaluation of the operation to determine RPEEE.

11.5.2 Volume of Brine

WAI were supplied with volume data for P88, the pump transferring brine from the northern Dead Sea basin to the salt ponds of the DSW. This data covers the time period from 2005 to 2021 and is summarised in Table 11.15. During this time period a mean value of 411.89 million m^3 per year was pumped from the northern Dead Sea basin to the ponds. However, this volume has generally increased over time with the volumes from 2016-2021 all higher than this mean figure.

Table 11.15: Pumping Rate from Northern Dead Sea to Ponds			
Year	**P88 Pumping (Mm^3/year)**	**Year**	**P88 Pumping (Mm^3/year)**
2005	385.00	**2014**	377.20
2006	378.00	**2015**	375.10
2007	348.41	**2016**	417.60
2008	389.60	**2017**	422.00
2009	406.30	**2018**	431.60
2010	409.40	**2019**	436.51
2011	447.90	**2020**	454.69
2012	459.80	**2021**	443.00
2013	406.70		
Minimum Amount	**348.41**		
Mean 2005-2021	**411.89**		
Maximum Amount	**459.80**		

11.5.3 Precipitation and Recovery of Product

11.5.3.1 Composition and Consistency of Brine Pumped

For the period 2005-2021, WAI were supplied with measured KCl content of the feed waters from the northern Dead Sea area. KCl content of the northern Dead Sea varies as a result of environmental factors (inflow rates, evaporation rates etc) but is seen to be reasonably consistent, with maximum and minimum KCl content in this time period within approximately 2% of the overall mean value of 12.69g/kg.

For the period 2005-2021, WAI were supplied with a calculation of tonnage of carnallite precipitation in the carnallite ponds by mass balance and KCl% in the precipitate material. Carnallite precipitation can vary depending on pond geometry, environmental factors, solution properties and other variables but averages approximately 19mt/year over this period. Carnallite precipitate chemistry is seen to be consistent with a mean value of 23% KCl.

In summary:

- KCl content of the source waters for the DSW operations is reasonably consistent.
- Estimated tonnage of carnallite varies year-by-year and can be affected by multiple environmental and technical factors.
- KCL content of precipitated carnallite is consistent.
- KCL content of end brines returned to the northern Dead Sea shows some variation.
- It is not possible to calculate an exact ratio of precipitated carnallite to volume of water pumped into the ponds due to outside factors and some variation must be expected.

11.5.4 Extraction License

Mineral Resources must have reasonable expectations of eventual economic extraction. A key input to the consideration of the reporting of Mineral Resources is therefore the length of the licence allowing abstraction of waters from the northern Dead Sea basin to the DSW.

DSW was granted a concession to utilise the resources of the Dead Sea and to lease the land required for its plants in Sodom for a period ending on March 31, 2030.

11.5.5 Assessment of Potential Future Variation

In assessing Mineral Resources for the DSW, it is important to consider future outside impact on what is a dynamic system. The primary factor that could impact on the source brines is the continuing drop in the sea level of the northern Dead Sea area the effect this might have on the chemistry of the Dead Sea waters.

The Dead Sea level has been in decline due to human activity since the 1930s with a more rapid decline since the late 1960s (see Figure 11.20). A reduction in inflow below the levels of evaporation has led to a water deficit in the system with an average drop in sea level of approximately 1m per year.

Water deficit as a result of reduced inflow has the result of changing chemistry of the remaining brine. The concentration of KCl has increased over time (at a rate of +0.05%/year over 20 years) and the concentration of NaCl has decreased because of halite deposition in the northern Dead Sea basin.

This reduction in water level with associated changes in water chemistry are predicted to continue. The increased KCl content of the Dead Sea brine is predicted to cause potash production from the DSW to increase at a rate of an additional 11.5kt per year from 2020 with an increased potash production of approximately an additional 230kt over current rates by 2040 (Figure 11.21).

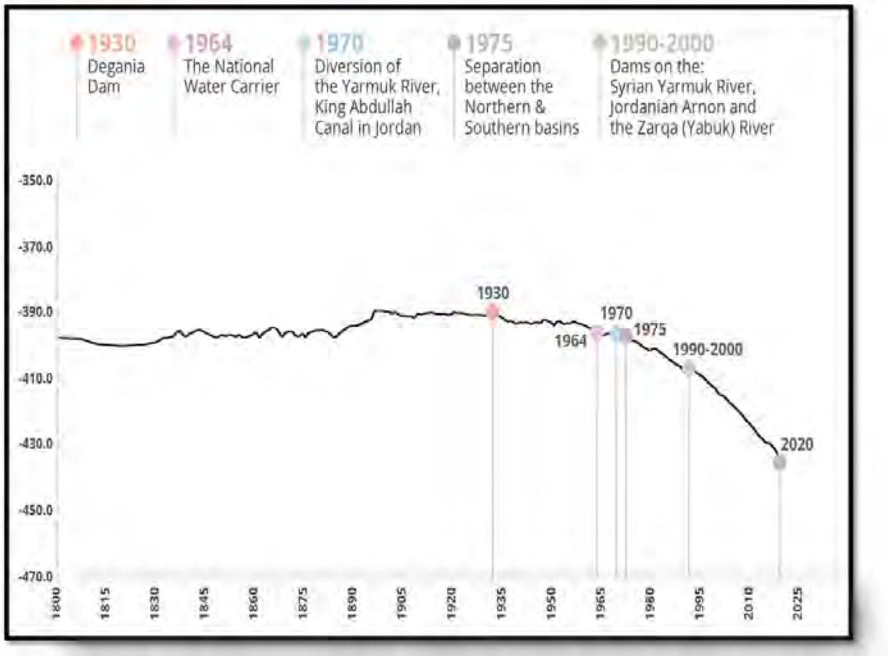


Figure 11.20: Reduction in Dead Sea Level Over Time

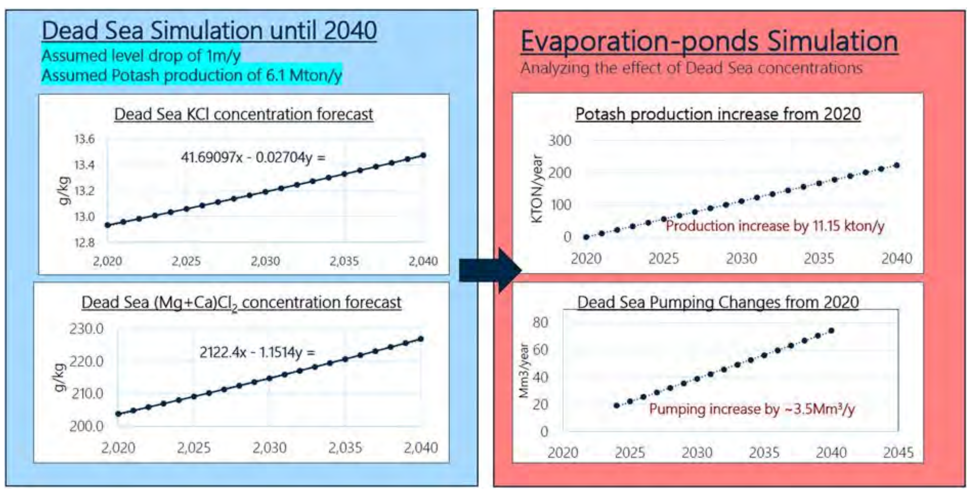


Figure 11.21: Prediction of Increase in Potash Production Over Time at DSW Due to Increased KCl and Reduced NaCl Concentration in Dead Sea Brines

Figure 11.22 sets out in detail the ICL predictive models for the period 2022 to 2210 for recovery of KCl and Dead Sea water levels based upon the assumptions for potential future variation in water inflow as set out in Section 11.5.5.

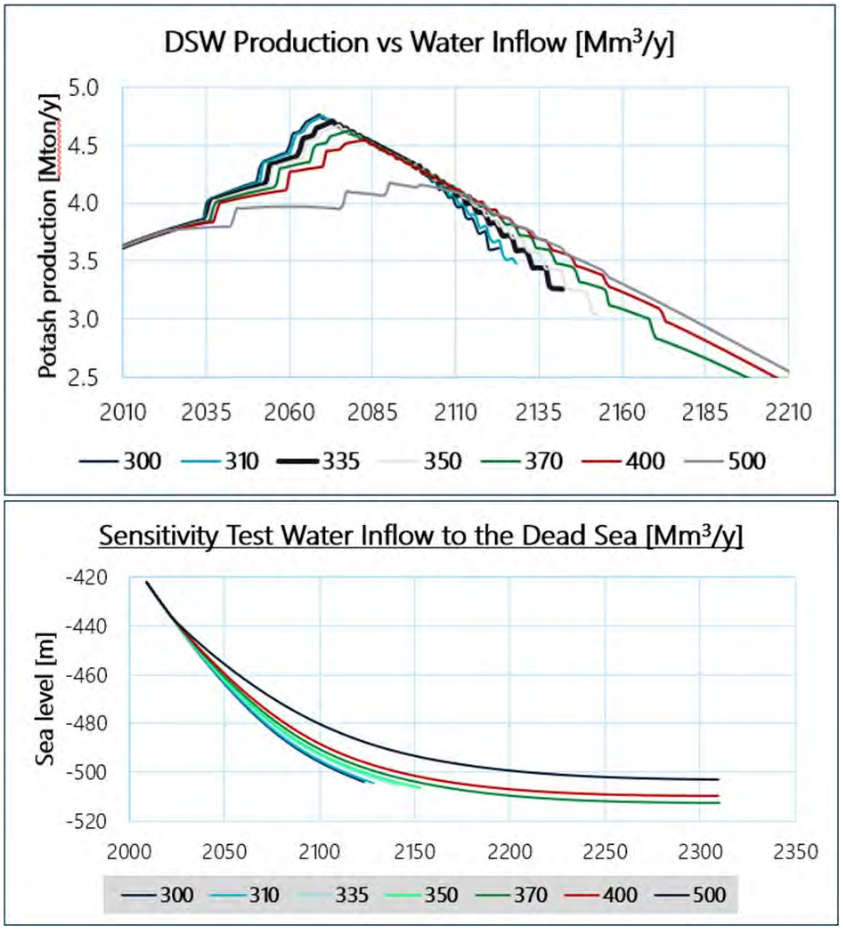


Figure 11.22: ICL Predictive Models of Dead Sea Level Reduction (Botom) and Estimated Recovered KCl (top) Against Water Inflow

11.5.6 Mineral Resource Estimation Process

The Mineral Resource estimation process carried out by WAI can be summarised as follows:

- Assessment of water chemistry analysis;
- Assessment of validation of annual pumping and production rates;
- Assessment of predicted changes in production in the future; and
- Assessment of licence duration.

In determining the Mineral Resource, WAI assumes that production will follow the ICL predictive models. The ICL predictive models follow an assumed base case for water inflow to the Dead Sea of 335 Mm^3/year but consider potential variation between 300 and 500 Mm^3/year (Figure 11.22). In line with base case predictions for Dead Sea recharge, Potash (KCl) production is estimated as shown in Table 11.16. Predictions are split into time periods to match Mineral Resource classification as described in section 11.5.7.

Table 11.16: Assumptions for Potash Production at DSW as Basis for Mineral Resource Estimate					
Period		Potash Production [Mtpa]			
Start	Finish	Average	First Year	Last Year	Maximum
2022	2030	3.824	3.733	3.905	3.905
2031	2042	4.044	3.912	4.159	4.159
2043	2110	4.474	4.169	4.159	4.759
2110	2133	3.882	4.155	3.534	4.155

11.5.7 Mineral Resource Classification

WAI has classified the DSW Mineral Resources following the guidelines of the Pan European Reserves and Resources Reporting Committee (PERC) Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves. The PERC Code (2021) uses the following definitions for classifying Mineral Resources:

- A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the Mineral deposit. Geological evidence is derived from the detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. A Measured Mineral Resource may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.
- An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the Mineral deposit. Geological evidence is derived from the adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.
- An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

In assessing the appropriate Mineral Resource classification for the DSW, WAI have considered:

- The source of brines from the northern Dead Sea area is of a reasonably consistent chemical composition.
- The brine moves through ponds in a regular sequence with decreasing NaCl and increasing KCl concentration. Chemical content is measured at appropriate points between or within ponds on a regular basis.
- Carnallite precipitation begins at a known point from pond 13 onwards where KCl content is 20g/kg.
- The return water from pond 36 to northern Dead Sea basin is measured at 5g/kg with little variation indicating some consistency in the evaporation/precipitation process.
- The amount of carnallite precipitated in a pond depends on known or measurable/predictable factors including pond geometry (area and depth), environmental considerations (temperature, radiation, wind speed and humidity) and the chemical content of the solution at that pond.

Variation in the process has been recorded but is monitored and future changes can be predicted based on these monitored tends. The largest impact is likely to come from reducing sea levels in the northern Dead Sea area. During assessment of Mineral Resource classification, the following points are considered:

- Dead Sea water levels have reduced since the 1930s with a more rapid decline from the 1960s largely due to a reduction in inflow because of diversion of water for agricultural use.
- Drop in sea level (currently approximately 1.1m/year) has led to measurable changes in composition (decrease in NaCl and increase in KCl).
- Continued drop and changes to chemical composition expected to result in increase in production of 10kt additional potash per year in the future for ICL.
- Predictive models (Figure 11.22) based upon various assumptions of inflow rates, show reasonable correlation in the period 2022 to 2042 with divergence between the models in the period 2043 to 2110 and in the period after 2110.

It is accepted that during the course of Mineral Resource estimation a great deal of numeric data is used that is based upon averages over annual increments. During classification of Mineral Resources, WAI has considered the following:

- Cycle times of dredgers from start to end of pond is so long (0.5 to 3 years) that mean values for evaporation rates, chemical compositions etc are acceptable.

Given the points above, WAI considers that the classification of the Mineral Resources at the DSW as Measured, Indicated and Inferred Mineral Resources is appropriate.

- WAI considers that the predicted extraction for the period 2022 to 2042 should be considered as Measured. During this period, the modelled KCl production rates based upon predictions of ranges of water inflows show consistency.
- WAI considers that the predicted extraction for the period 2043 to 2110 should be considered as Indicated. In line with PERC guidelines, application of modifying factors to support planning and evaluation of economic viability could be carried out and evidence for proportion of the overall Mineral Resource estimated as indicated is based on current and past sampling and also predictive models based upon observed trends from that sampling. Indicated resources would be classified where predictive models were determined to show wider potential variation from the base case predictions than those considered for measured Mineral Resources.
- WAI considers that the predicted extraction for the period 2110 to 2133 should be considered as Inferred. In line with PERC guidelines, inferred Mineral Resources have been assigned where predictive models show wider variation than those considered for both measured or indicated Mineral Resources. Following PERC guidelines it is expected that the majority of the inferred resource could be upgraded to a higher classification at a later date. None of the predictive models show such a variation that only a minority of the estimated contained KCl could be expected to be recovered.

The QP considers that evidence to support the resource estimate is derived from appropriate sampling and analysis and the application of suitable predictive models and that the process of mineral precipitation is well understood and consistent enough to support detailed mine planning after application of appropriate modifying factors for those Mineral Resources classified as Measured and Indicated.

11.5.8 Mineral Resource Statement

In line with SK 1300 guidelines, Mineral Resources are reported exclusive of any Ore Reserves.

The PERC Code (2021) states in Appendix 4, A4-10 that "Public Reports must make clear the 'permitted' or 'non-permitted' status of the Industrial Mineral Resources and Industrial Mineral Reserves, and, in addition, Industrial Mineral Reserves must only be quoted where the operator has legal control."

In reporting Mineral Resources for the DSW, this report therefore differentiates between 'permitted' and 'non-permitted' Mineral Resources in the following manner:

- Permitted Mineral Resources: No permitted Mineral Resources are reported. The current operating licence for the DSW extends to 2030. All potential extraction covered within this time frame is considered within the Ore Reserve statement for the DSW.
- Non-Permitted Measured Mineral Resources: The total KCl estimated to be produced in the period 2031 to 2042.
- Non-Permitted Indicated Mineral Resources: The total KCl estimated to be produced in the period 2043 to 2110.
- Non-Permitted Inferred Mineral Resources: The total KCl estimated to be produced in the period 2110 to 2133.

Table 11.17: Summary of Mineral Resources for the DSW					
Status (Following Guidelines of the PERC Code Section A4-10)	Classification	Product	Tonnes (Mt)	Grade KCl (%)	Contained KCl (Mt)
Non-Permitted	Measured	KCl	225	20.0	44.48
Non-Permitted	Indicated	KCl	1,500	20.0	299.76
Non-Permitted	Inferred	KCl	445	20.0	89.29

Notes:

1. Mineral Resources are reported exclusive of any Ore Reserves.
2. Mineral Resources are not reported to a cut-off grade and assumed 100% recovery.
3. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
4. The effective date of the Mineral Resource is 31st December 2021.
5. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
6. Mineral Resources for the DSW project have been classified in accordance with the guidelines of the PERC Code (2021). Mineral Resources are reported in compliance with S-K 1300.

11.5.9 Qualified Person Opinion

The mineral resource estimates are constrained by wireframes, or quantity estimations, representing (geologically) realistic volumes of mineralisation within ponds. Grade estimation has been performed using appropriate methods to evaluate the average composition within the ponds.

Mineral resources are constrained and reported using economic and technical criteria such that the mineral resource has a reasonable prospect of economic extraction. The phrase 'reasonable prospects for economic extraction' implies a judgment by the QP in respect to the technical and economic factors likely to influence the prospects of economic extraction.

The QP believes that this mineral resource estimate presented is an accurate estimation of the in-situ resource based on the data available, and that the available data and the mineral resource model are sufficient for mine design and planning.

11.6 YPH

11.6.1 Key Assumptions, Parameters, and Methods

11.6.1.1 Geological Modelling Methodology and Assumptions

The data used in the development of the geological interpretation included drill hole data and observations collected from 300 core drill holes, supplemented by surface mapping of outcrops and faults performed by YPH personnel. Regional scale public domain geological maps and studies were also incorporated into the geological interpretation.

The QP assumed that the mineralised zones are continuous between drill holes as indicated by the mapping of the surface outcrops and based on review of the drill hole data and previous reports. It was also assumed that grades vary between drill holes. This assumption of the geology was used directly in guiding and controlling the Mineral Resource estimation. The mineralised zones were modelled as stratigraphically controlled phosphate layers. As such, the primary directions of continuity for the mineralisation are horizontally within the preferentially mineralised upper and lower geological phosphate units. It should be noted that Haikou mine has been operating over past 40 years leading to a great understanding of the continuity and exposure of substantial proportion of mineralised faces in all four block areas, adding a great confidence to the geological interpretations used for Mineral Resource reporting.

The primary factor affecting the continuity of both geology and grade is the lithology of the geological units. Phosphate mineralisation is favourably concentrated as phosphorite of sandy, oolitic, pseudo-oolitic and bioclastic in nature, separated by overburden siliceous dolomite above the upper layer, interburden sandy dolomite in between and barren base rock of dolomite nature below the lower phosphate layer.

Additional factors affecting the continuity of geology and grade include the spatial distribution and thickness of the host rocks, which have been impacted by both syn-depositional and post-depositional geological processes (i.e., localized faulting, erosion).

11.6.1.2 Geological Modelling Database

Geological logging data includes individual intervals that have been logged by lithology and subsequently classified into barren or upper and lower phosphate layers given the logged geology and the P_2O_5% assay results using a nominal cut-off grade of 15%, defined to separate potential ore from waste.

Furthermore, the upper and lower phosphate layers are sub-divided to three grade categories as follows:

- Grade I (High grade) – with P_2O_5% content ≥30%
  This category of phosphate is weathered and most of the carbonates have been dissolved and removed from the rock during the long geologic events. It is soft and easy to mine, requiring no blasting. However, its occurrence is in small patches requiring a highly selective mining approach. The portion of this phosphate, also known as oolitic or sandy phosphate, is below 10%. It is directly fed to scrubbing facilities.
- Grade II (Medium grade) – with P_2O_5% content ≥24% and < 30%
  Harder phosphate material requires blasting and crushing prior to scrubbing for further upgrade. 25% of the interpreted mineralised samples fall into this category.
- Grade III (Low grade) – with P_2O_5% content ≥15% and < 24%
  This is the hardest rock and require crushing, grinding and beneficiation via flotation facilities at Haikou mine site.

Using the above criteria, the sample data was further divided to the three grade categories as illustrated in Table 11.18.

<table>
<tr><th colspan="9">Table 11.18: Example Drill Hole Classification of Phosphate Layers to Grade I, II, and III Categories on Drill Hole ZK08-05</th></tr>
<tr><th colspan="4">Name: ZK08-05</th><th colspan="5">East: 8200.5 North: 11988 RL: 2381.64</th></tr>
<tr><th>From</th><th>To</th><th>Length</th><th>P_2O_5</th><th>Al</th><th>Geology Log</th><th>Layer code</th><th>Interpretation</th><th>Interpretation</th></tr>
<tr><td>0</td><td>18.76</td><td>18.76</td><td></td><td></td><td>Siltstone</td><td>INT1</td><td rowspan="5">INT1
Over-burden</td><td rowspan="5">Waste</td></tr>
<tr><td>18.76</td><td>32.9</td><td>14.14</td><td></td><td></td><td rowspan="4">Argillaceous
Siltstone</td><td>INT1</td></tr>
<tr><td>32.9</td><td>35.88</td><td>2.98</td><td></td><td></td><td>INT1</td></tr>
<tr><td>35.88</td><td>46.22</td><td>10.34</td><td></td><td></td><td>INT1</td></tr>
<tr><td>46.22</td><td>51.09</td><td>4.87</td><td>2.58</td><td>86.18</td><td>INT1</td></tr>
<tr><td>51.09</td><td>51.94</td><td>0.85</td><td>26.18</td><td>28.78</td><td rowspan="3">Sandy
Phosphorite</td><td>PH1</td><td rowspan="11">PH1
Upper Phosphate</td><td>II</td></tr>
<tr><td>51.94</td><td>53.23</td><td>1.29</td><td>21.92</td><td>41.83</td><td>PH1</td><td>III</td></tr>
<tr><td>53.23</td><td>54.05</td><td>0.82</td><td>14.22</td><td>59.43</td><td>PH1</td><td>Waste</td></tr>
<tr><td>54.05</td><td>54.8</td><td>0.75</td><td>28.68</td><td>20.8</td><td rowspan="4">Banding
Phosphorite</td><td>PH1</td><td rowspan="3">I</td></tr>
<tr><td>54.8</td><td>55.8</td><td>1</td><td>30.6</td><td>21.73</td><td>PH1</td></tr>
<tr><td>55.8</td><td>57.27</td><td>1.47</td><td>28.79</td><td>26.32</td><td>PH1</td></tr>
<tr><td>57.27</td><td>58.45</td><td>1.18</td><td>26.64</td><td>32.83</td><td>PH1</td><td>II</td></tr>
<tr><td>58.45</td><td>59.74</td><td>1.29</td><td>29.68</td><td>14.94</td><td rowspan="4">Shamoolitic
Phosphorite</td><td>PH1</td><td rowspan="4">I</td></tr>
<tr><td>59.74</td><td>61.08</td><td>1.34</td><td>33.98</td><td>14.76</td><td>PH1</td></tr>
<tr><td>61.08</td><td>62.08</td><td>1</td><td>35.03</td><td>12.3</td><td>PH1</td></tr>
<tr><td>62.08</td><td>62.83</td><td>0.75</td><td>36.05</td><td>8.63</td><td>PH1</td></tr>
<tr><td>62.83</td><td>63.99</td><td>1.16</td><td>10.61</td><td>57.82</td><td rowspan="7">Dolomite</td><td>INT2</td><td rowspan="7">INT2
Interburden</td><td rowspan="7">Waste</td></tr>
<tr><td>63.99</td><td>64.99</td><td>1</td><td>11.67</td><td>60.75</td><td>INT2</td></tr>
<tr><td>64.99</td><td>65.99</td><td>1</td><td>10.38</td><td>62.9</td><td>INT2</td></tr>
<tr><td>65.99</td><td>66.76</td><td>0.77</td><td>14.31</td><td>52.04</td><td>INT2</td></tr>
<tr><td>66.76</td><td>68.16</td><td>1.4</td><td>8.9</td><td>33.69</td><td>INT2</td></tr>
<tr><td>68.16</td><td>68.94</td><td>0.78</td><td>2.74</td><td>14.14</td><td>INT2</td></tr>
<tr><td>68.94</td><td>70.51</td><td>1.57</td><td>7.35</td><td>62.24</td><td>INT2</td></tr>
<tr><td>70.51</td><td>71.54</td><td>1.03</td><td>16.13</td><td>39.61</td><td rowspan="2">Bioclast
Phosphorite</td><td>PH2</td><td rowspan="5">PH2
Lower Phosphate</td><td>III</td></tr>
<tr><td>71.54</td><td>72.62</td><td>1.08</td><td>14.92</td><td>14.85</td><td>PH2</td><td>Waste</td></tr>
<tr><td>72.62</td><td>73.62</td><td>1</td><td>23.02</td><td>23.49</td><td rowspan="2">Sandy
Phosphorite</td><td>PH2</td><td>III</td></tr>
<tr><td>73.62</td><td>74.58</td><td>0.96</td><td>24.21</td><td>18.34</td><td>PH2</td><td>II</td></tr>
<tr><td>74.58</td><td>75.48</td><td>0.9</td><td>21.45</td><td>9.36</td><td>Banding
Phosphorite</td><td>PH2</td><td>III</td></tr>
<tr><td>75.48</td><td>80.56</td><td>5.08</td><td>6.35</td><td>33.66</td><td></td><td>INT3</td><td>INT3
Base Rock</td><td>Waste</td></tr>
</table>

11.6.1.3 Exploratory Data Analysis

Exploratory data analysis (EDA) was initially carried out on the geological modelling database using the raw sample data. The EDA involved statistical and geostatistical analysis of the verified data to allow for evaluation of the statistical and spatial variability of the model data. The EDA aided in understanding statistical and spatial trends in the data associated with the various geological domains. The EDA process also aided in the establishment of Mineral Resource categorisation parameters, all of which are discussed in subsequent sections of this Item.

11.6.1.4 Statistical Analysis

Descriptive statistics, histograms, box plots, probability plots, correlation matrices, and scatter plots were used to evaluate the geological and grade data as part of both the data validation and modelling process. Key findings from the statistical analyses are as follows:

- A good grade partitioning is noted based on P_2O_5% values, interpreted upper and lower phosphate domains and the three grade categories internal to phosphate layers. To maintain continuity some lower grade samples been included into the grade I category within both the upper and lower layers.
- Upper layer contains marginally higher grade P_2O_5 values and higher statistical variance compared to the lower layer. Differences become more pronounced once NBTU and HOM blocks are excluded.
- Upper phosphate layer P_2O_5% average grades steadily reduce moving from Block 1 to 4 and, with the exception of Block 4 where the statistical variance is at highest, the variability reduces proportional to the mean value.
- Lower phosphate layer P_2O_5% average grades show similar trend to that of the upper layer, but the grade of Block 4 appears higher than the other blocks and with much higher statistical variance (i.e., higher variability).

Minor elements include, Acid Insoluble (AI), Fe_2O_3, Al_2O_3, MgO, CaO, CO_2, SiO_2, and F. Most of the minor elements have been analysed on a composite sample support basis, often representing the full length of a given phosphate layer. With the exception of AI, no minor elements measurement appears to exist for Block 4.

MgO is important as a marker for the beneficiation potential in the flotation plant. Low MgO values indicate low beneficiation potential, since it is based on dolomite (Mg bearing mineral) removal. Fe_2O_3 and Al_2O_3 are also important, since they determine the quality of the principal downstream product, the phosphoric acid. The higher the Fe_2O_3, Al_2O_3 and MgO content in the concentrate the lower the phosphoric acid quality.

Statistical analysis of minor elements was carried out based on the full-length layer composite values. Key findings from the statistical analyses of minor element composite grades are as follows. Comments regarding the spatial trends exclude Block 4 (due to lack of measurements), NBTU, and HOM areas:

- AI on average is higher for upper layer compared to lower layer. AI has a week positive correlation with the P_2O_5% values but a strong positive correlation with both Al_2O_3% and SiO_2% values. AI's relationship with MgO and CO_2 are strong to weak negative correlation.

- F_2O_3 values show similar level of concentration for upper and lower layer. Slight isolated higher values are noted with the upper layer. Except for SiO_2 and CaO that show a strong a positive and negative strong correlation respectively for the upper layer only, there is no notable relationship between F_2O_3 and other elements.
- Similarly, there is no distinct difference in Al_2O_3 between upper and lower layer. Al_2O_3 has a mixed relationship with other elements these include strong positive correlation with AI, moderate negative correlation with MgO and CO_2 and moderate positive correlation with SiO_2% and F%. These relationships appear to be slightly weaker for the lower layer.
- MgO statistics Indicates a marginally higher concentration on lower layer but with far less variability, indicating that the MgO concertation is much more homogeneous in the lower layer. Some isolated high MgO pockets in upper layer promotes the variability for the upper layer. MgO appears to be inversely correlated to the P_2O_5% grades. That is, the higher the P_2O_5% grade the lower the MgO and therefore a higher beneficiation potential. Such negative, yet strong, correlation also exists with AI, Al_2O_3, SiO_2, and F. MgO also shows a strong positive correlation with CO_2.
- No distinct difference exists between upper and lower layer for CaO. A distinct feature associated with CaO is a strong negative correlation with F% which is even more pronounced with the lower layer. All other weak to strong correlations have been described in sections above.
- Extreme similarities in average grade of CO^2 between upper and lower layers however a greater variability is noted with the upper layer. CO_2 shows marked moderate to strong positive correlation with MgO. Its correlation with all other elements is of negative nature and ranges from week to moderate correlation.
- SiO_2 presents much stronger correlation with other elements on upper layer compared to the lower layer. Except for MgO, CaO, and CO_2 that are strongly and negatively correlated with SiO_2, all other elements show a positive and moderate to strong correlation with SiO_2.

11.6.1.5 Geostatistical Analysis

Semi-variograms (variograms) were generated for the purpose of evaluating the degree of continuity of key parameters for the upper and lower phosphate mineralisation units. Variogram analysis focused on evaluating the spatial continuity of P_2O_5% and thickness.

Directional variograms were generated by upper and lower phosphate layers and by Block. Blocks 3, NBTU and HOM were combined as one continuous zone and Blocks 1, 2 and 4 were combined as a second area. A combination of absolute variograms and correlogram were used. Data used for variographic purposes was the single composite data over the length of each of the upper and lower layers.

The experimental variograms were generated using lag distances (the separation distance between members of a sample pairing used to generate the experimental variogram) of 65m; this allowed for enough sample pairs to generate moderate to well defined variograms.

The experimental variograms were modelled using a two-structure spherical variogram model. A summary of the variogram model parameters for each combination is presented in Table 11.19. Example P_2O_5% and Thickness modelled variograms on lower layer and for each of the combined blocks 1,2,4 and block 3 are presented in Figure 11.23.

Table 11.19: Variogram Model Parameters

Variable	Layer	Area	Axis Direction	Nugget	Sill 1	Range 1	Sill 2	Range 2	Azimuth
Thickness	Upper	1,2,4	Major Axis	0.1	0.5	400	0.4	800	35
			Semi-Major Axis	0.1	0.5	200	0.4	400	125
		3	Major Axis	2.5	3	300	5	900	120
			Semi-Major Axis	2.5	3	200	5	500	40
	Lower	1,2,4	Major Axis	2.5	5	300	12.5	1500	55
			Semi-Major Axis	2.5	5	300	12.5	500	155
		3	Major Axis	0.1	0.5	200	0.4	600	120
			Semi-Major Axis	0.1	0.5	100	0.4	400	30
P_2O_5	Upper	1,2,4	Major Axis	2.5	5.9	280	9.1	750	20
			Semi-Major Axis	2.5	5	450	7	800	110
		3	Major Axis	2.5	6.3	150	6	950	120
			Semi-Major Axis	2.5	6.3	100	6	850	30
	Lower	1,2,4	Major Axis	2.5	6.3	290	7	650	50
			Semi-Major Axis	2.5	7.3	200	5	550	140
		3	Major Axis	2.5	2.3	100	5.5	350	145
			Semi-Major Axis	2.5	2.3	150	5.5	450	55

The P_2O_5% and Thickness variogram models show moderate to good directional anisotropy. The combined areas 1,2,4 and area 3 show major direction of continuity aligned approximately parallel to the expected anticline axis. There exists a degree of anisotropy between the major and semi-major axis variograms, where a lower continuity and increased variability is noted along the semi-major axis orientation.

The nugget in most models is relatively low at approximately 12% of the variogram sill (between 10% and 25%). This is attributed to the low degree of short-range grade data variability associated with both the P_2O_5% and Thickness.

Most units show relatively consistent anisotropic spatial variability, with long range variogram ranges, the distance at which the variogram reaches the sill and levels off, typically between 350m and 1,500m.

The variogram range distance is the distance beyond which there is no spatial correlation between members of a sample pairing. The variogram range is an important parameter in evaluating Mineral Resource categorisation parameters as it represents the spatial confidence of continuity of the thickness and grade parameters.

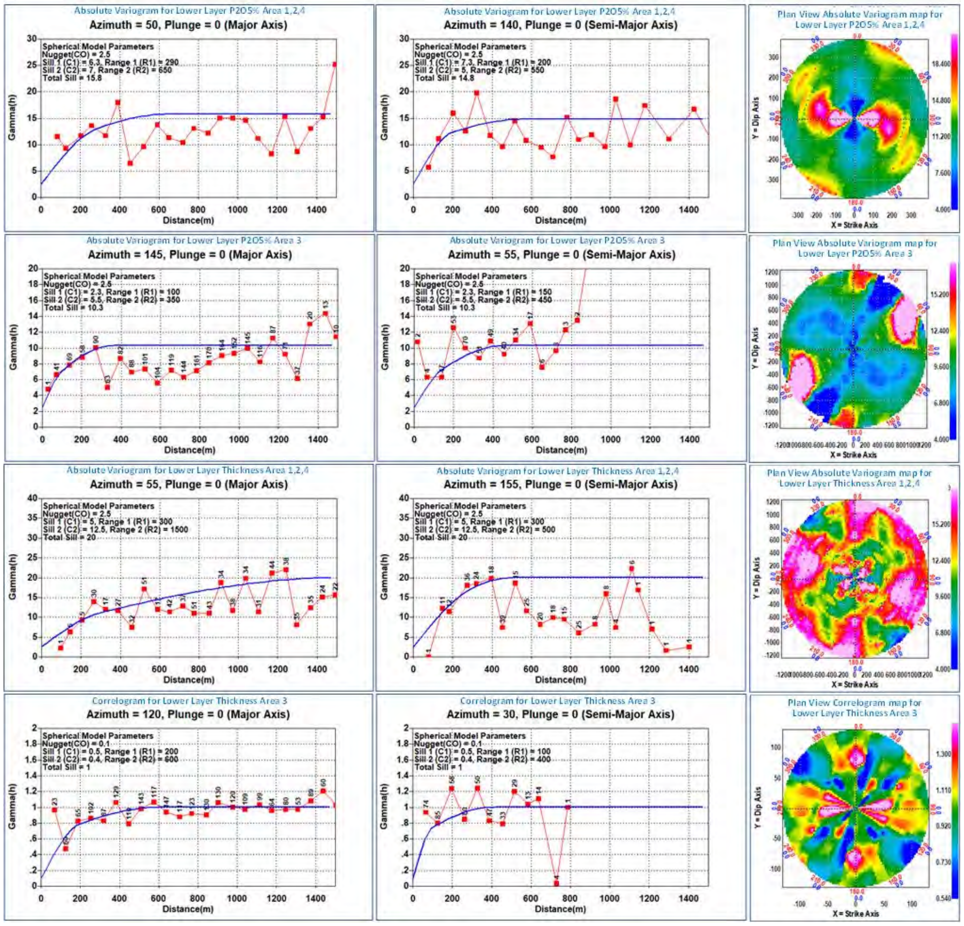


Figure 11.23: Example Major (left) and Semi-major Axis (middle) Variograms and Variogram Map (right) by Thickness and P_2O_5 % for Lower Layer within Blocks 1,2,4 and Block 3

11.6.1.6 Geological Modelling

Geological modelling and Mineral Resource estimation for the Project was performed under the supervision of the QP. The geological model was developed as a gridded surface stratigraphic model and a stratigraphically constrained grade model using combination of Vulcan griding and MAPGIS, which are computer-assisted geological, grade modelling, and estimation software applications.

The geological interpretation was used to control the Mineral Resource estimate by developing a contiguous stratigraphic model (all units in the sequence were modelled) of the host rock units deposited within the basin, the roof and floor contacts of which then served as hard contacts for constraining the grade.

The following sections provide details on the model extents as well as key components of the geological model developed, namely the topographic model, stratigraphic model, and the grade estimation.

11.6.1.7 Model Extents

The Haikou deposit Mineral Resource evaluation presented in this report covers an area of approximately 9.6022 km^2 within the Yuhucun Formation, where economic grade Phosphate bearing rocks are located. The Mineral Resource plan dimensions, defined by the spatial extent of the lower phosphate unit Mineral Resource limits, are approximately 4,250 m north-south by 4,250 m east-west. The upper and lower limits of the Mineral Resource span from surface, where the mineralised units outcrop locally, through to a maximum depth of 125 m below surface for the base of the lower mineralised layer.

11.6.1.8 Topographic Model

The topographic model for the Project is the September 2016 topographic surface developed using the Continuously Operating Reference Station (CORS) instrumentation with national network setup supplemented with the site continual mine excavation survey using GPS control points and survey total stations. In CORS infrastructure, the corrections are instantly sent to the positioned receiver (user end) from control centre which helps to find very accurate positioning in real time. CORS plays a major role in achieving centimetre accuracy positioning in many applications. The 2016 topographic data was loaded into Vulcan and inspected to ensure the data covered the area of interest and that it was free of obvious errors or omissions. The data was then triangulated and wireframed before used for gridding purposes.

Figure 11.24 provides the image of the triangulated 2016 topographic wireframe in relation to the lease boundary and the drill hole locations.

It is the QP's opinion that the topographic source data and the resultant topographic model are appropriate for use in developing the geological model and preparing Mineral Resource estimates for the Haikou Project.

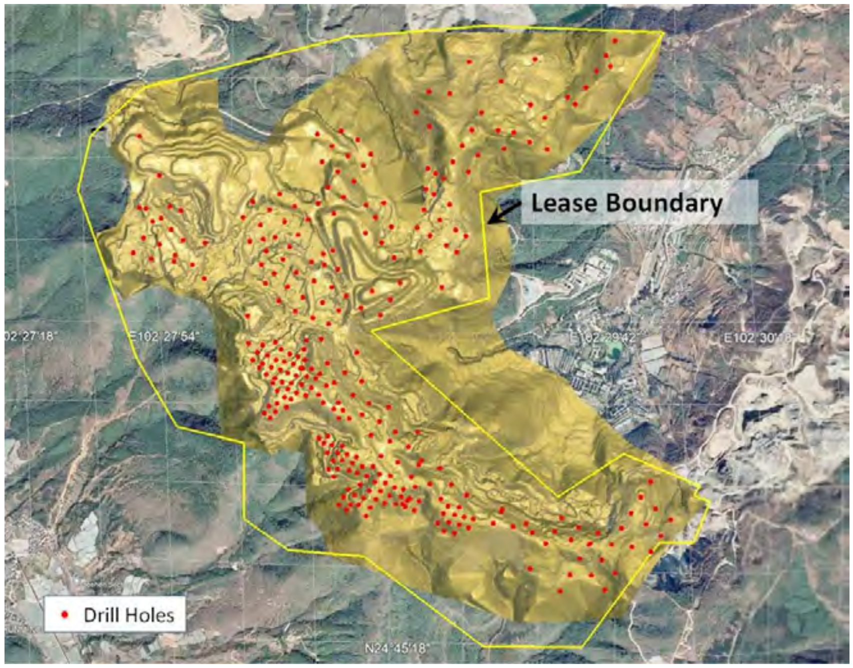


Figure 11.24: Triangulated 2016 Topography Wireframe with Drillhole Locations and Lease Boundary Superimposed

11.6.1.9 Stratigraphic Model

The stratigraphic and structural model for the Haikou deposit was developed using the Vulcan gridding application. Validated drill hole data was loaded into the model and then interpolated across a regularised grid using a Triangulation method; the grid cell size for the model was 5 m by 5 m.

Geological domaining in the model was constrained by the roof and floor surfaces of the upper and lower phosphate layers. The layer boundaries were modelled as hard boundaries, with samples used only within the unit in which they occurred. The geological units modelled are summarised in Table 11.20.

Structure grids for individual unit roofs, floors, and thickness were created on a by-unit basis for all units using the structural data (roof and floor intercepts) from the drill holes. The grids are essentially the x and y value from the regularised grid plus the structural parameter as the z value (elevation for roof and floor grids, thickness for thickness grids).

Table 11.20: Summary of Stratigraphic Units and Surfaces Modelled			
Layer	**Min**	**Max**	**Average**
2016 Topography			
Overburden (INT1)	0.48	25.5	4.04
Upper Layer Phosphate (PH1)	1.1	24.4	7.74
Interburden (INT2)	0.33	43.7	6.04
Lower Layer Phosphate (PH2)	0.55	25.8	6.78
Basement (INT3)	0.11	99. 8	5.12
Waste : ore – Upper Layer phosphate	0	7.5	0.57
Waste : ore – Lower Layer phosphate	0	84.6	4.13

Waste to ore ratio grids were used to limit the extent of the upper and lower phosphate minable boundaries. Any mineralised phosphate material greater than waste to ore ratio of 5 or thickness less than 1.0m were excluded from reporting and classification.

11.6.1.10 Grade Model

The grade model for the Project was developed using the MAPGIS grade assignment application and specifically developed Excel based systems. Each of the upper and lower phosphate layers were further subdivided to four categories of internal Grade I (High grade), Medium Grade II (Medium grade), Grade III (Low grade) and internal waste categories as explained in Section 11.6.1.1. Except for internal waste zones, each layer is generally divided into five grade zones, in which the Grade I category is in the centre while up to two Grade II and Grade III zones may occur above and below the Grade I zone. Gridding is used to define each of the roof and floor of the grade category zones, incorporating 0 m thickness should a specific grade category be absent.

The grade category surfaces as well as the limits of the upper and lower phosphate layer surfaces from the stratigraphic model are used to constrain the assignment of the grade values. Grade values are assigned within the grade zones using only samples intersected within those units. Grade assignment is by an area influence approach (Polygonal).

Assumptions relating to selective mining units were based on the interpretation that the phosphate mineralisation encountered is stratigraphically constrained and that waste, low grade, medium grade, and high grade material can be selectively separated by existing mining and processing methods.

In reality, and except for internal waste material, the entire thickness of interpreted phosphate layer is mined and processed as ore at an average grade. The subdivision by grade categories is only used for mine scheduling purposes to determine the beneficiation approach (i.e. scrubbing or grinding and flotation), a pseudo geometallurgical indicator.

11.6.1.11 Moisture Basis

The geological model and resultant estimated Mineral Resource tonnages are presented on a dry basis.

11.6.1.12 Density

The density values used to convert volumes to tonnages were assigned on a by-block, phosphate layer and P_2O_5 grade category using mean values calculated from all density samples collected from drill core since 1966. The density analysis was performed using the water displacement method for dry density determination. Table 11.21 provides summary of the density values for the Haikou deposit. Internal waste was assigned the same density as those defined for Grade III category.

Table 11.21: Summary of Density Data for Haikou Deposit

Area	Layer	Grade	Density
Block 1 and 2	Upper	I,II	2.62
	Upper	III	2.42
	Lower	I,II	2.55
	Lower	III	2.55
Block 3	Upper	I,II	2.26
	Upper	III	2.71
	Lower	I,II	2.27
	Lower	III	2.78
Block 4	Upper	I,II	2.35
	Upper	III	2.35
	Lower	I,II	2.29
	Lower	III	2.29

11.6.1.13 Model Review and Validation

The geological and grade model validation and review process involved visual inspection of drill hole data as compared to model geology and grade parameters using plan contour maps and cross-sections through the model. Postings of drill hole intercepts and grade values were visually compared against plan maps for the various unit roof and floor surfaces, unit thickness, and key grade parameters.

Along with visual validation via sections and plans, drill holes, and model values were compared statistically.

11.6.2 Basis for Establishing the Reasonable Prospects of Eventual Economic Extraction for Mineral Resources

11.6.2.1 Assumptions for Establishing Reasonable Prospects of Eventual Economic Extraction

As per S-K 1300, a key requirement in the estimation of Mineral Resources is that there must be a reasonable prospect for economic extraction of the Mineral Resources. The Mineral Resource estimate presented in this TRS was developed with the assumption that the mineralisation within the Mineral Resource reporting polygons, described further below, has a reasonable prospect for eventual economic extraction based on the following key considerations:

- The geological continuity of the mineralised layers and grade parameters demonstrated via the current geological and grade model for the Haikou deposit.
- The potential for selective extraction of the low grade, medium grade and high grade phosphate mineralisation intervals encountered in the upper and lower phosphate layers using current conventional open-pit mining methods.
- The potential to produce high grade phosphate concentrate and phosphoric acid products using current processing and recovery methods.
- The assumption that phosphoric acid produced by the project will be marketable and economic considering transportation costs and processing charges and that there will be continued demand for phosphoric acid.
- The assumption that the location of the project in the Yunan province of China would be viewed favourably when marketing Phosphoric acid products to potential domestic end users.

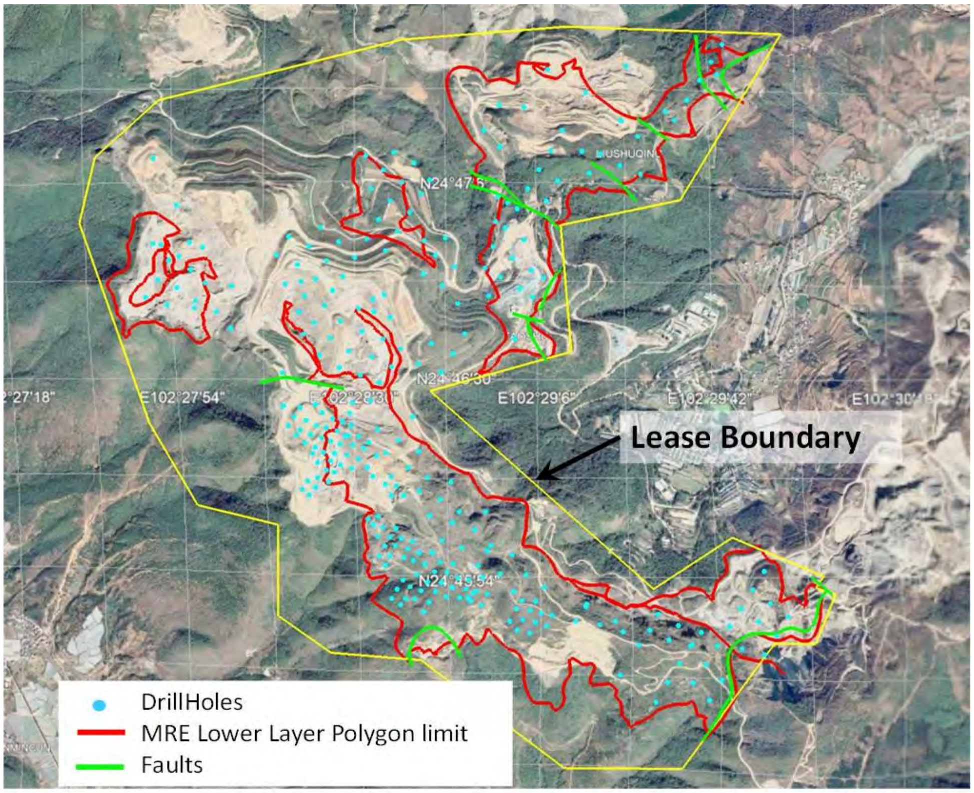
In summary, based on the exploration drilling and test work as well as modifying factors studies, phosphate mineralisation of potential economic interest exists on the Project and can potentially be mined and processed to recover phosphoric acid using existing industry standard mining and processing methods and equipment.

Additional detail on the key assumptions relating to establishing reasonable prospects of eventual economic extraction of the Mineral Resources are presented below.

11.6.2.2 Cut-Off Grade and Resource Limiting Boundaries

The Mineral Resource estimate was constrained by limiting boundaries as two-dimensional polygons developed for each of the upper and lower phosphate layers separated by Blocks 1, 2, 3, and 4. The limiting polygons are based on the following assumptions and constraints:

- Application of minimum cut-off grade of 15% P_2O_5. The choice of 15% P_2O_5 cut-off grade is largely dictated by the Yunnan region State Government and is based on the flotation ability to produce usable concentrate rock of to approximately 28.5% P_2O_5 which is average quality required to produce phosphoric acid in the Yunnan region. The minimum of 15% P_2O_5 cut-off grade is also a mining licence and lease condition. No commodity price is applied and as presented, the cut-off grade is rather based on the State requirement and the geological/mineralogical properties and processing efficiency to produce the required specification of product.
- Limiting polygons are cut to the natural topography. An end December 2021 forecast position has been developed and used for Mineral Resource and Mineral Reserve Reporting purposes. Figure 11.25 and Figure 11.26 illustrate the lower- and upper-layer limiting polygons used for Mineral Resource Reporting.
- Truncation by known local faults.



As is not uncommon for industrial minerals, the commodity price is not always applied and the cut-off grade is rather based on the geological/mineralogical properties and processing efficiency, and in the case of YPH State approval, to produce the required specification of product. Notwithstanding, the Company economic evaluation, to determine RPEEE, applies three year average market prices as of 31st December 2021 as follows: US$406/t for green phosphoric acid (MGA), US$931/t for white phosphoric acid (WPA), $1,024/t for MKP, US$211/t for GTSP, $328/t for NPS, US$268/t for MAP 55% and US$652/t for MAP 73%.

Figure 11.25: Lower Layer Limiting Polygons used for Mineral Resource Reporting as at 31 December 2021

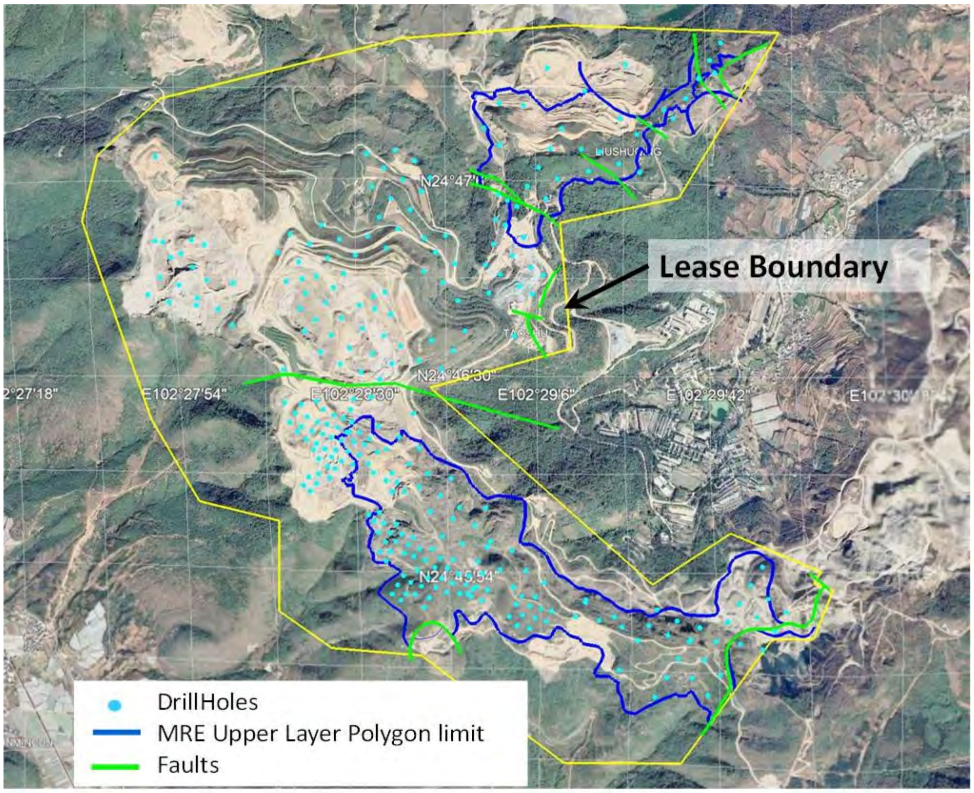


Figure 11.26: Upper Layer Limiting Polygons used for Mineral Resource Reporting as at 31 December 2021

11.6.2.3 Mining Factors or Assumptions

The Mineral Resource estimate was developed with the assumption that the phosphate mineralisation within the Mineral Resource layers, as described in the preceding section, has reasonable prospect for economic extraction using current conventional open-pit mining methods. Ore loss and dilution has been measured from mining operations and is presently estimated at an ore loss of 2.8% (absolute), with an estimated dilution of 1.9% (absolute). Average metallurgical recovery through the beneficiation plant is estimated at 89.3% (Source – YPH Haikou Mine 2020 Reserve Dynamic Survey Annual Report).

11.6.2.4 Metallurgical Factors or Assumptions

The metallurgical factors or assumptions used in establishing the reasonable prospects for eventual economic extraction of the Haikou phosphate mineralisation are based on results from metallurgical and material processing work from the 2005 Feasibility Study and subsequent actual production performance since inception and in case of the flotation since.

11.6.2.5 Environmental Factors or Assumptions

All environmental approvals are in place and all requirements relating to the ongoing licence to operate are satisfactory and complete and there are no known complaints or actions against the operation of which the QP is aware.

11.6.3 Mineral Resource Classification

Haikou Mineral Resource and Reserve classification has been initially made, by YPH site geologists and mining engineers, based on the GB/T 17766-1999 code on Classification of Resources/Reserves of Solid Fuels and Mineral Commodities, under the National Standard of the People's Republic of China (PRC Code).

The Classification approach uses three-digit coding that incorporates the following criterion.

- Economic Viability (1=Economic, 2M=marginal Economic, 2S=submarginal Economic and 3=intrinsic economic)
- Level of overall studies (1=feasibility study, 2=prefeasibility study, 3=geological study)
- Geological assurance established by mineral exploration (1=measured, 2=indicated, 3=inferred, 4=Reconnaissance)

Added to above, either as an outcome or as a requirement, is a final classification defined as Extractable Reserve, Basic Reserves or Resource. Table 11.22 outlines the 16 possible codes derived from PRC coding process.

Table 11.22: PRC Classification Scheme and Approximate Equivalence to PERC Minera Resource Classification

Geological Evaluation ---->	**Measured**			**Indicated**		**Inferred**	**Reconnaissance**
Level of overall study --->	**Feasibility (x1x)**	**Pre-feasibility (x2x)**	**Geological (x3x)**	**Pre-feasibility (x2x)**	**Geological (x3x)**		
Economic Viability							
Economic – With Mining Loss & Dilution 100	**Extractable Reserve 111**	**Extractable Reserve 121**		**Extractable Reserve 122**			
Economic – Without Mining Loss & Dilution 100b	**Basic Reserve 111b**	**Basic Reserve 121b**		**Basic Reserve 122b**			
Marginal Economic 2M00	**Basic Reserve 2M11**	**Basic Reserve 2M21**		**Basic Reserve 2M22**			
Submarginal Economic 2S00	**Resource 2S11**	**Resource 2S21**		**Resource 2S22**			
Intrinsically Economic 300			**Resource 331**		**Resource 332**	**Resource 333**	Resource 334
PERC Approximate Equivalence							
Measured Resources	**X**	**X**					
Indicated Resources			**X**	**X**	**X**		
Proved Reserves	**X**	**X**					
Probable Reserves	**X**	X	**X**	X	**X**		

Under the PRC code, the Resources and Reserves are in many ways interlocked and inseparable.

The Mineral Resource classification of Haikou deposit has been considered in accordance with the Pan-European Standard for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves Edition October 2021 (PERC), an international code in line with definitions established by the CRIRSCO (Committee for Mineral Reserves International Reporting Standards) International Reporting Template (the 'CRIRSCO International Reporting Template 2019') and the definition established by S-K 1300 ruling.

Under the PERC definition, the Mineral Resources are defined as:

"a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction".

The term 'reasonable prospects for eventual economic extraction' (RPEEE) applies to all reportable Mineral Resource categories and it implies:

"a judgement (albeit preliminary) by the Competent Person(s) regarding all Modifying Factors . Interpretation of the word 'eventual' in this context may vary depending on the commodity or Mineral involved."

The Mineral Resource is an estimate of mineralisation, which, under assumed and justifiable technical, economic and environmental, social, governance ('ESG') conditions, may, in whole or in part, become economically extractable.

Under the PRC reporting code, the RPEEE test is accounted for by two components of economic viability measure and the level of studies carried out.

Although the PRC code does not necessarily prevent reporting of the Mineral Resources where the test of the RPEEE fails, the code however provides with sufficient granularity to enable a judgement on separation of those that are likely to conform to the test from those that would not satisfy the test criterion.

Overall, with the exception of code 334 (i.e., intrinsic economic with geological level of study of reconnaissance exploration style), all other codes appear to conform to the test of RPEEE.

According to the PERC reporting code and in line with the S-K 1300 regulations, to reflect geological confidence, Mineral Resources are subdivided into the following categories based on increased geological confidence: Inferred, Indicated, and Measured, which are defined under PERC as:

Inferred Mineral Resource *is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling.*

Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Commonly, it would be reasonable to expect that most of the Inferred Mineral Resources would upgrade to Indicated Mineral Resources with continued exploration. However, due to the uncertainty of Inferred Mineral Resources, it cannot be assumed that such upgrading would always occur. Confidence in an Inferred Mineral Resource estimate is usually not sufficient to allow the results of the application of technical, economic and ESG parameters to be used for planning purposes.

Indicated Mineral Resource *is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.*

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralisation may be classified as an Indicated Mineral Resource when the nature, quality, amount and distribution of data are such as to allow confident interpretation of the geological framework and to assume continuity of mineralisation.

Confidence in the estimate is sufficient to allow the application of technical, economic, and ESG parameters, and enable an evaluation of economic viability.

Measured Mineral Resource *is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.*

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred.

Mineral Resource. A Measured Mineral Resource may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.

A Mineral Resource may be classified as a Measured Mineral Resource when the nature, quality, amount and distribution of data are such as to leave no reasonable doubt, in the opinion of the Competent Person(s) determining the Mineral Resource, that the tonnage and grade or quality of the mineralisation can be estimated to within close limits, and that any variation from the estimate would be unlikely to affect the potential economic viability significantly.

A Measured Mineral Resource requires a high level of confidence in understanding of the geology of the Mineral deposit.

Correlating the PERC Mineral Resource category definitions and expectations, to those defined by the PRC code, an approximate conversion of PRC codes to PERC categories of Measured, Indicated and Inferred is obtained. This is highlighted accordingly in Table 11.22.

It is however cautioned that depending on the QP(s) judgement and depending on type of commodity and style of mineralisation, parts or all of the assumed conversion may be downgraded to lower category. Following classes are specific examples:

- material classed as "sub-marginal economic" may be re-classed to indicated, inferred or defined as "unclassified". This may arise when, to QPs judgement, the future commodity price rise required to make such material economic is of an unacceptable level of rise or the reduction is process cost due to future improved technologies is way below acceptance.
- material classed as "Intrinsically economic" may be re-classed to inferred or defined as "unclassified". This due to excessive uncertainties in economic status of such material and insufficient justifications for the test of RPEEE.

For the Haikou deposit, YPH has originally adopted three distinct PRC based Resource/Reserve categories. These are defined as follows:

1) Basic Reserve of Economic value, supported with feasibility study and associated with measured geological confidence. Quantities exclude mining loss and dilutions (111b). This category is generally associated with the areas with drill spacing of 125m or less.
2) Basic Reserve of Economic value, supported by pre-feasibility level study and associated with indicated geological confidence. Quantities exclude mining loss and dilutions (122b). These are generally associated with areas with drill spacing of 125m to 250m.
3) Resource of Intrinsic Economic value, supported by geological investigations only of inferred geological confidence (333).

The Mineral Resource classification applied by the QP has considered the following:

- Conversion of the YPH PRC based classification to equivalent PERC classification as per Table 11.22. Based on this table the 111b category is directly translated to Measured Resource, 122b to Indicated Mineral Resource and 333 to Inferred Mineral Resource.
- As the entire interpreted upper and lower phosphate are interpreted at minable cut-off grade of 15% P_2O_5 and scheduled to be mined in their entirety as potential ore feed at an average P_2O_5% grade the continuity and variability of the upper and lower layer thickness that define the feed quantities become critical. As such, due consideration was given to the assessment of the reliability, spatial distribution, and abundance of data and continuity of upper and lower phosphate thickness parameters.

The assessment of the variability, continuity, data abundance in achieving Measured or Indicated categories was carried out using Kriging Relative Error methodology. The method involves a theoretical assessment of Relative Error of Estimation of thickness of each of the upper and lower phosphate layers in association with a given drill spacing configuration and mining parcel size.

Calculation of Relative Error of Estimation of thickness is dependent on.

- The variogram model parameters that are expected to quantify and convey spatial continuity and short scale variability. Parameters used for the current assessment are provided in Table 27 for thickness of upper and lower phosphate layers in two areas. A combined Blocks 1,2 and 4 as one area and Block 3 as second area.
- Drill spacing which accounts for quantity and proximity aspects. A range of drill spacing was assessed ranging from 25m to 300m by steps of 25m.
- The following criteria was used as a basis for evaluation which is a common industry practice:
- Measured Resources: <=15% Relative Error of estimation for quarterly ore parcels
- Indicated Resources: <=15% Relative Error of estimation for annual ore parcels.

Results are presented in Figure 11.27 for each of the upper and lower phosphate layers for A combined Blocks 1,2 and 4 as one area and Block 3 as second area. Intersection of 15% Error threshold (i.e., Reference – dashed horizontal green line) and the error curves provides the theoretical maximum drill spacing that achieves target categorisation. Table 11.23 provides summary of the target minimum drill spacing to achieve Measured and Indicated categories.

Comparing the theoretical targets to those specified by YPH on the basis of PRC coding provides confidence that the PRC based Mineral Resource classifications to equivalent PERC code is well within the confidence required by the QP and in accordance with the PERC code. Figure 11.28 shows a relative drilling distance for the Lower Phosphate layer. A large proportion of remaining material appears to be characterised by drilling well below 140m to150m spaced, required for Measured classification.

The following criteria was used as a basis for evaluation which is a common industry practice:

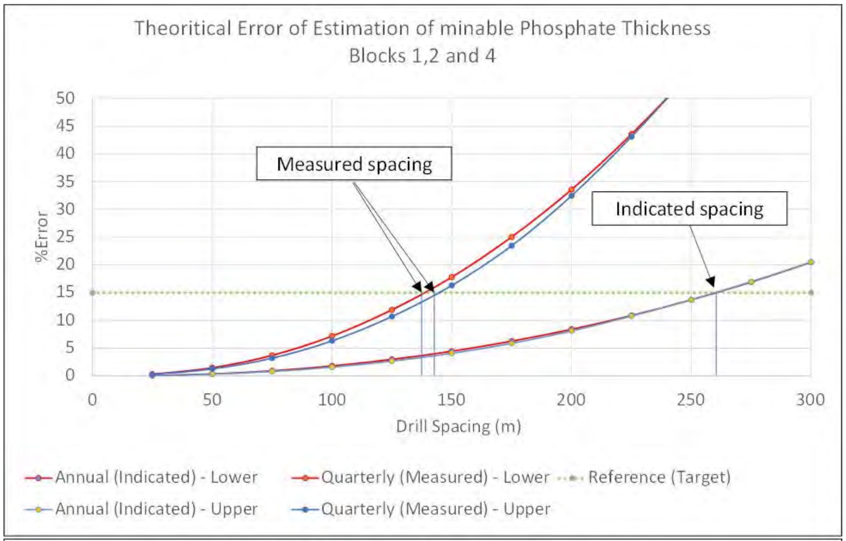
- Measured Resources: <=15% Relative Error of estimation for quarterly ore parcels
- Indicated Resources: <=15% Relative Error of estimation for annual ore parcels

Results are presented in Figure 11.27 for each of the upper and lower phosphate layers for A combined Blocks 1,2 and 4 as one area and Block 3 as second area. Intersection of 15% Error threshold (i.e., Reference – dashed horizontal green line) and the error curves provides the theoretical maximum drill spacing that achieves target categorisation. Table 11.23 provides summary of the target minimum drill spacing to achieve Measured and Indicated categories.

Comparing the theoretical targets to those specified by YPH on the basis of PRC coding provides confidence that the PRC based Mineral Resource classifications to equivalent PERC code is well within the confidence required by the QP and in accordance with the PERC code. Figure 11.28 shows a relative drilling distance for the Lower Phosphate layer. A large proportion of remaining material appears to be characterised by drilling well below 140m to150m spaced, required for Measured classification.

Table 11.23: Minimum Theoretical Drill Spacing Required to Achieve Measured and Indicated Categories

Category	Area	Upper (m)	Lower (m)
Measured	1,2 & 4	145	140
	3	130	150
Indicated	1,2 & 4	260	260
	3	250	275



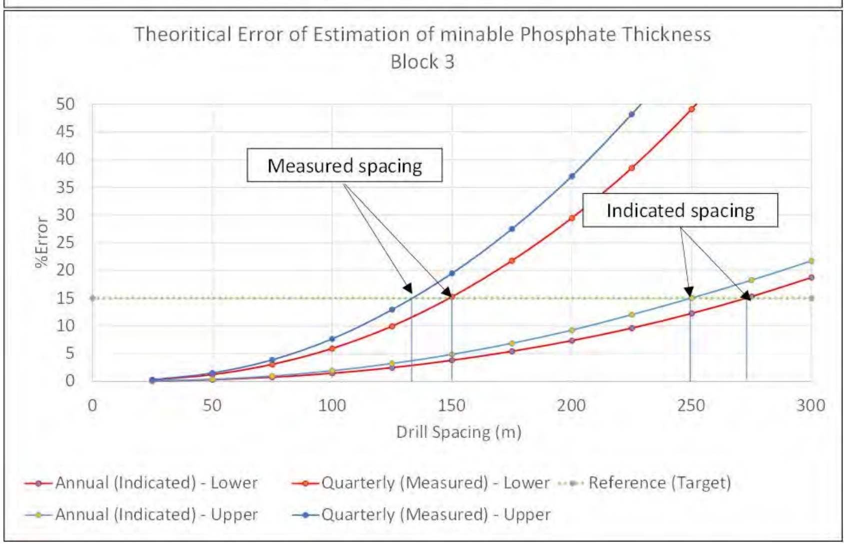


Figure 11.27: Relative Error of Estimation of Upper and Lower Phosphate Thickness as Function of Drill Spacing

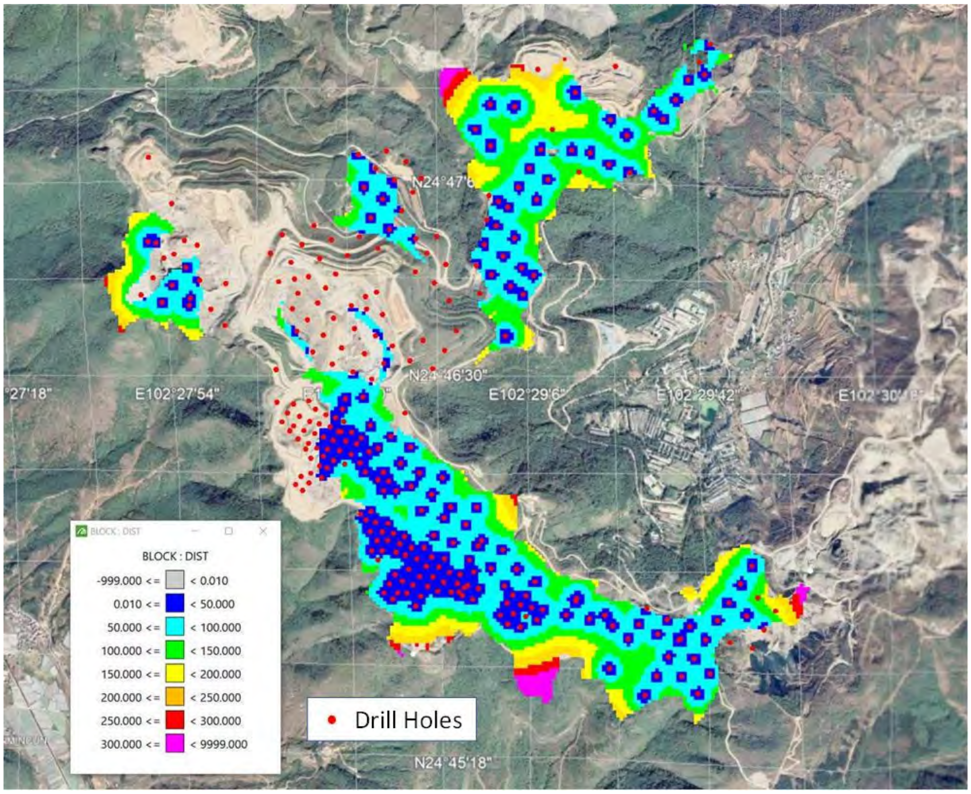


Figure 11.28: Relative Drilling Distance for Lower Phosphate Layer

It is the QP's opinion that the classification criteria applied to the Mineral Resource estimate are appropriate for the reliability and spatial distribution of the base data and reflect the confidence of continuity of the modelled geological parameters.

11.6.4 Mineral Resource Estimate

Based on the geological model, grade model, parameters for establishing prospects for reasonable eventual economic extraction, and the resource classification discussed in this Section, the categorised Mineral Resource estimate, exclusive of Reserves of the Haikou deposit is summarised in Table 11.24.

Table 11.24: Summary of Mineral Resources for YPH (Haikou)								
Mining Area	**Measured**		**Indicated**		**Inferred**		**Measured + Indicated**	
	Kt	**P_2O_5**	**Kt**	**P_2O_5**	**Kt**	**P_2O_5**	**Kt**	**P_2O_5**
Block 1 and 2	651	23.0	16	22.4	-	0.0	667	23.0
Block 3	1,610	22.0	2,152	24.1	-	0.0	3,762	23.2
Block 4	712	22.4	152	23.1	173	20.0	864	22.5
Total	**2,972**	**22.3**	**2,321**	**24.0**	**173**	**20.0**	**5,293**	**23.0**

Notes:

1. Mineral Resources are reported on a dry in-situ basis and are exclusive of Mineral Reserves.
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
3. Mineral Resources are reported using a cut-off grade of 15% P_2O_5.
4. Mineral Resources are based on an assumed 89.3% metallurgical recovery
5. Mineral Resources are reported using a density of between 2.29 and 2.78 t/m^3.
6. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
7. The effective date of the Mineral Resource Estimate is 31st December 2021.
8. Mineral Resources for YPH (Haikou) are classified in accordance with the Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results. Mineral Resources are reported in compliance with S-K 1300.
9. The reported Mineral Resource estimate was constrained by limiting polygons for the purpose of establishing reasonable prospects of economic extraction based on potential mining, metallurgical and processing grade parameters identified by mining, metallurgical and processing studies performed to date on the project.

11.6.5 Qualified Person Opinion

The mineral resource estimates are constrained by wireframes representing (geologically) realistic volumes of mineralisation. Data analysis conducted on sample assays shows that the wireframes represent suitable domains for mineral resource estimation. Grade estimation has been performed using appropriate methods to minimize bias in the estimated grade models.

Mineral resources are constrained and reported using economic and technical criteria such that the mineral resource has a reasonable prospect of economic extraction. The phrase ‘reasonable prospects for economic extraction’ implies a judgment by the QP in respect to the technical and economic factors likely to influence the prospects of economic extraction.

The QP believes that this mineral resource estimates presented with this TRS are an accurate estimation of the in-situ resource based on the data available, and that the available data and the mineral resource model are sufficient for mine design and planning.

11.7 Mineral Resource Uncertainty Discussion

The sources of uncertainty for the Mineral Resource evaluation include the following topics, along with their location in this TRS:

- Sampling and drilling methods – Section 7 and 8.
- Data processing and handling – Section 9.

The sampling and drilling methods present a low source of uncertainty based on the standard methods utilised at the Haikou and Rotem deposits, as well as the deposit specific methods employed at Boulby, Cabanasses, and Vilafruns. The items that helped to reduce uncertainty with the sampling and drilling methods include the fact that most of the drill holes were cored with NQ or HQ size core, providing good sample representativity. The drill samples have been subject to various QA/QC programmes and sent to either accredited laboratories or experienced in-house laboratories that are actively monitored for laboratory performance. Equally, the sampling methods employed for DSW presents a low source of uncertainty with the data collected and analysed (2005 – 2021) showing that the natural mineral content of the brine is consistent.

Once the assay results were received from the laboratories, the data was input into the geological database along with the collar, drill hole information and lithology records. The lithology and other records from the core and sample logging were validated based on the assay results by the geological team to adhere with known trends for the various domains. The data handling was secure in the geological database and this process also demonstrates a low level of uncertainty for the Mineral Resource estimate. For DSW the data is held in an appropriate database but not applied in the same was for the other conventional hard rock mineral deposits. Nevertheless, the DSW sample data is managed in an appropriate manner with a similarly low level of uncertainty for the Mineral Resource estimate.

Where applicable, the validated database was loaded into the geological model where surfaces for the roof and floor of the stratigraphic layers were modelled and validated based on drill holes, geological trends, and operational experience. The current geological models appear to define the mineralised areas of the deposits well. Uncertainty for these areas can be classified as low for a global estimate; however, there will likely be minor local variability when the area is mined and compared back to the model. This is common, as the geological model is just that, a model that is used to estimate tonnages. The model for the Measured and Indicated portions of the deposit is appropriate to use for conversion to Mineral Reserves. The Inferred Mineral Resource portion of the deposits will require future drilling and exploration to better define and understand the lithological variation before they can be upgraded to Measured, or Indicated, Mineral Resources.

Where applicable, at completion of the grade model and density assignment, results were verified by the QP through visual inspection, global statistics, and production reconciliations. Like the geological modelling, uncertainty for areas classified as Measured and Indicated Mineral Resources are low globally, but low-moderate for local variability. For Inferred Mineral Resources, the uncertainty is higher based on a larger drill spacing and is low-moderate for global variability and moderate for local variability.

Areas of uncertainty for the Mineral Resource estimate include:

- Potential significant changes in the assumptions regarding forecast product prices, mining and process recoveries, or production costs;
- Potential changes in geometry and/or continuity of the geological units due to displacement from localised faulting and folding; and
- Potential changes in grade based on additional drilling that would influence the tonnages that would be excluded with the cut-off grade.

In summary, given all the considerations in this TRS, the uncertainty in the tonnage estimate for the Measured Mineral Resources, is low, Indicated Mineral Resources estimates is low to moderate, and Inferred Mineral Resources is moderate, as shown in Table 11.25.

Table 11.25: Mineral Resources Uncertainty

Uncertainty Item	Measured Uncertainty	Indicated Uncertainty	Inferred Uncertainty
Sampling and Drilling Methods	Low/Low-Moderate	Low/Low-Moderate	Low/Low-Moderate
Data Processing and Handling	Low	Low	Low
Geological Modelling – Globally/Locally	Low	Low	Low/Low-Moderate
Geologic Domaining	Low	Low	Low
Grade Modelling – Globally/Locally	Low-Moderate	Low-Moderate	Low-Moderate
Tonnage Estimate	Low	Low-Moderate	Moderate

It is the Mineral Resource QP's opinion that the factors that have the potential to influence the prospect of economic extraction relate primarily to the permitting, mining, processing and market economic factors, parameters, and assumptions. These factors and assumptions were used to support the reasonable prospects for eventual economic extraction of the Mineral Resources.

Further, the Mineral Resource estimates could be materially affected by any significant changes in the assumptions regarding forecast product prices, mining and process recoveries, or production costs. If the price assumptions are decreased or the assumed production costs increased significantly, then the cut-off grade must be increased and, if so, the potential impacts on the Mineral Resource estimates would likely be material and need to be re-evaluated.

The QP has identified additional risk factors relating to geology and Mineral Resource estimation (not applicable to DSW) including the following:

- Geological uncertainty relating to local structural control relating to geometry, location, and displacement of faults; and
- Geological uncertainty and opportunity regarding the continuity and geometry of stratigraphy and mineralisation outside of the current Mineral Resource footprint.

These additional geological risk factors are considered as either opportunities to potentially expand the Mineral Resource inventory in the future, or as potential impacts on local geology and estimates rather than global (deposit wide) geology and estimates. As such the QP does not consider these factors as posing a risk to the prospect of economic extraction for the Mineral Resource as currently stated.

12 MINERAL RESERVE ESTIMATES

12.1 Introduction

Under S-K 1300, a Mineral Reserve is defined as:

> *"… an estimate of tonnage and grade or quality of indicated and measured Mineral Resources that, in the opinion of the QP, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated Mineral Resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted."*

Mineral Reserves are subdivided into classes of Probable Mineral Reserves and Proven[10] Mineral Reserves, which nominally correspond to Indicated and Measured Mineral Resources, respectively, with the level of confidence reducing with each class. Mineral Reserves are always reported as the economically mineable portion of a Measured and/or Indicated Mineral Resource, and take into consideration the mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the "Modifying Factors") that may be applicable to the deposit.

12.2 Boulby

12.2.1 Overview

The Mineral Reserves estimate for ICL Boulby has been undertaken to estimate the polyhalite reserves first mined in 2010.

The Mineral Reserve estimate is based on a modified room and pillar layout which takes account of the sub-horizontal stratified seam geology. The Reserve estimate also takes account of the resource block model and resource estimate where resources with a geological confidence of Indicated are converted to Probable reserves through the mine design process and the consideration of the Modifying Factors.

Mining is completed in two main stages:

- An advance/development stage; advances two or three roadways each 8 m wide by 4 m high; and
- A retreat/second cut stage termed "milling"; which extracts additional tonnes from pillars and from the floor. The currently accepted maximum milling depth is 3m resulting in a final 7m high roadway.

[10] Under some reporting codes and guidelines the term 'Proved' is used to represent 'Proven'. Both are considered interchangeable.

12.2.2 Mining Blocks

Mining blocks are defined as 100 x 100 x 6m blocks. This is in line with a typical three roadway production panel of 80m wide which is advanced in 100 metre intervals. A large block size has been used due to:

- the difficulty for selective mining once a mining panel has been established; and
- the minimum length of panels required for efficient utilisation of mining equipment.

Potential minable blocks have been selected using Datamine® "Mineable Shape Optimiser" (MSO) based on the above criteria, targeting the highest grade horizon and considering a maximum possible mining gradient of 1:10.

The output from the above criteria has further been reviewed visually to ensure that changes in mining horizon height and continuity at block boundaries are possible and can be used to guide mine design. Any steep dips or features that resulted in the selection of blocks not being optimal, manual adjustment has been undertaken to smooth the block-to-block transitions

12.2.3 Mine Layout

The output minable solids from MSO were used to guide mine design/layout. Main development roadways have been designed to provide the main access to several production panels. The mine layout and design takes into consideration the geotechnical parameters as set out in Section 13.1.2.

12.2.4 Modifying Factors

Appropriate modifying factors have been applied to potential mining blocks created as part of the mine design/layout process.

The primary factors used considered for conversion are:

- mining losses;
- grade adjustments; and
- dilution.

12.2.5 Mining Losses

The mining losses attempt to account for losses from actual mined excavations when compared to the planned excavation/planned mine layout. Losses can occur due to the mining method and geomechanical characteristics of the deposit.

A mining loss factor of 1m has been applied to the mine design based on expected losses of milling i.e. 6m high roadways have been selected for mine design whereas a possibly 7m high roadway could potentially be excavated based on approved practices.

12.2.6 Dilution

Dilution is a factor which results in a reduction of the overall grade due to mining of waste with ore. Typically, diluting material is of significantly lower grade than the mined block and so has a material impact on the mined grade.

The mine design allows for a maximum extraction height of 7.0m. However the polyhalite seam is between 15-20m thick and therefore the grade of material in the roof and floor is often not significantly different to the planned excavation. Overbreak from the roof or sides and over excavation within the floor should not be of materially different grade and would in most cases could result in an increase in ore tonnes rather than a negative dilution.

Additionally, polyhalite products are sold based on a typical or minimum specification and material at a grade higher than this specification does not demand a greater price. For these reasons and based on informational currently available no dilution factor has been applied to the mineral reserve estimate.

12.2.7 Cut-Off Grade and Recovery

The cut-off grade for the Mineral Reserve estimate is based on the assessed minimum head grade required to produce final products which conform to their specifications.

Whilst there is no current daily measure of the plant feed grade, it can be estimated by calculating a tonnage weighted average of the final products streams. Analysis of the required plant feed grade to meet the final product specifications estimates that in order to achieve a granular product of 14.0% K_2O, a plant feed grade and hence run of mine (ROM) grade of 13.6% K_2O (11.3% K or 87% polyhalite equivalent) is required.

Typically, ROM mineral at ICL Boulby is extracted from three separate working areas simultaneously which allows for a crude blending of material underground i.e. at belt transfer points where streams of material from the separate working areas coalesce. This allows grades lower than 13.6% K_2O to be mined provided that other mining areas are at a higher grade.

Taking into account the notes presented above, no account of metallurgical recovery is included within the estimation of the cut-off grade and it is therefore considered to be 100%. This approach is deemed appropriate for a deposit on this nature where the processed ore is simply crushed and screened into a final product.

Therefore, with limited blending being undertaken as part of the mining process, a cut-off grade of 12.9% K_2O has been used for reserve estimation. The cut-off grade has been determined based on the minimum possible grade that could be mined within one mining area and homogenised by crude blending where the other two mining areas have average and reasonably higher than average grades. This approach is in line with the observations of current practices, reconciliation of plant data and typical grade variation of the mining panels during day-to-day production.

Boulby is currently the only producing polyhalite mine in the world. The price is therefore considered commercially sensitive. The value of polyhalite used in the determination of the cut-off grade is based on a figure of US$120/t (see Section 11.2.9).

12.2.8 Mine Sequencing and Scheduling

Development and production sequencing have been carried out in Studio UG. The sequencing takes account of sequence required to ensure the mine is developed and operated in a logical manner (e.g. a panel cannot be mined until the development/access, ventilation and infrastructure required is also complete).

The mine design and sequence is scheduled within EPS scheduler. The mine schedule produced in EPS scheduler is based on estimated and projected production rates, equipment and manpower resourcing to exhaust the mines reserves. The mine design is evaluated against the resource block model to estimate the grades and tonnages for each resource category.

The tonnes, grade and resource category are output from EPS on an annual basis which forms the basis for the reserve estimation.

12.2.9 Mineral Reserve Estimate

Indicated Mineral Resources within the mine design and schedule convert to Probable Mineral Resources. Probable Mineral Reserves have been estimated on operational economics and costs that are the subject of this technical report. WAI verified the economic parameters of the mineral reserve estimate. The Mineral Reserve Estimates are not materially affected by any known environmental, permitting, legal, title, taxation, socio-economic, political or other relevant issues.

Mineral Reserves have been determined by applying current economic criteria that are considered valid for the operations. These criteria limitations have been applied to the resource model to determine which part of the Indicated Mineral Resource is economically extractable.

Table 12.1 summarises the ICL Boulby Mineral Reserves as of 31st December 2021 based on appropriate economic and technical parameters and reported following the guidelines of the JORC Code (2012). These have been fully scheduled in a LOM plan and have been shown to demonstrate viable economic extraction. The reference point for these mineral reserves is ore delivered to the process plant. The Indicated Mineral Resources are exclusive of those Mineral Resources modified to produce these Mineral Reserves.

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[11] Argus is an independent provider of price information, consultancy services, conferences, market data and business intelligence.

Table 12.1: Summary of Mineral Reserves for Boulby

Classification	Tonnes (Mt)	Grade (% K_2O)
Proved	-	-
Probable	8.0	13.8

Notes:

1. The effective date of the Mineral Reserve is 31st December 2021.
2. Mineral Reserves are reported using a cut-off grade of 12.9% K_2O and assumed metallurgical recovery of 100%.
3. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
4. Mineral Reserves for Boulby are reported in accordance with the guidelines of the JORC Code (2012). Mineral Resources are reported in compliance with S-K 1300).

There are no known relevant factors that would materially affect the estimation of Mineral Reserves that are not discussed in this report.

12.2.10 Risk Factors

Geological confidence and classification for industrial mineral deposits can be defined with a wide drill spacing. Local lower grades and seam variation of the polyhalite may occur and care must be taken not to infer too much definition across the mineralisation based on limited drill data without fully encapsulating the localised variation of the deposit.

Mining dilution at his stage has not been accounted for within the reserve estimate. The variability of diluting material on a local scale and the mining method chosen mining method means an accurate estimate difficult. Based on limited data to date production and grades has been broadly in line with plan however reconciliation should be undertaken on a regular basis to ensure dilution does not need to be accounted for.

Mining loss at this stage is based on milling only. Consideration should be given to mining loss as a result of unforeseen geological conditions where parts of the planned mine layout are not excavated due to lower than anticipated grades. Mining loss due to geological conditions should become apparent as further mining is undertaken within the polyhalite deposit at ICL Boulby.

The reserve estimate is based on current average production rates with a ramp up in production to 1.3Mtpa in 2023. Ramp up is based on improvements to machine availability, utilisation, and operational efficiency. Additionally, an equipment replacement scheme is planned to include bolters and newer Joy HM46 continuous miners. Machine availability is to be increased from 70% to 80%. In order for the production schedule to be achieved adequate levels of capital, sustaining capital and other all other investment associated with the ramp up in production must be implemented to achieve the programme.

Please refer to Section 3.2.2 on the status of government agreements and approvals for permits. The QP is not aware of any permit-related items that could materially impact the Mineral Reserves estimate presented herein.

12.3 Cabanasses and Vilafruns

12.3.1 Overview

As Vilafruns is currently on care and maintenance, only the Cabanasses mine declares a Mineral Reserve at this time.

Mineral Resources with a geological confidence of Measured or Indicated are converted to Proven or Probable through the mine design process and the consideration of the Modifying Factors. Mineral Reserve blocks are defined using a payability calculation (thickness x grade) and cut-off grade consideration. The economic areas of the deposit are then defined on a panel-by-panel basis in a global database.

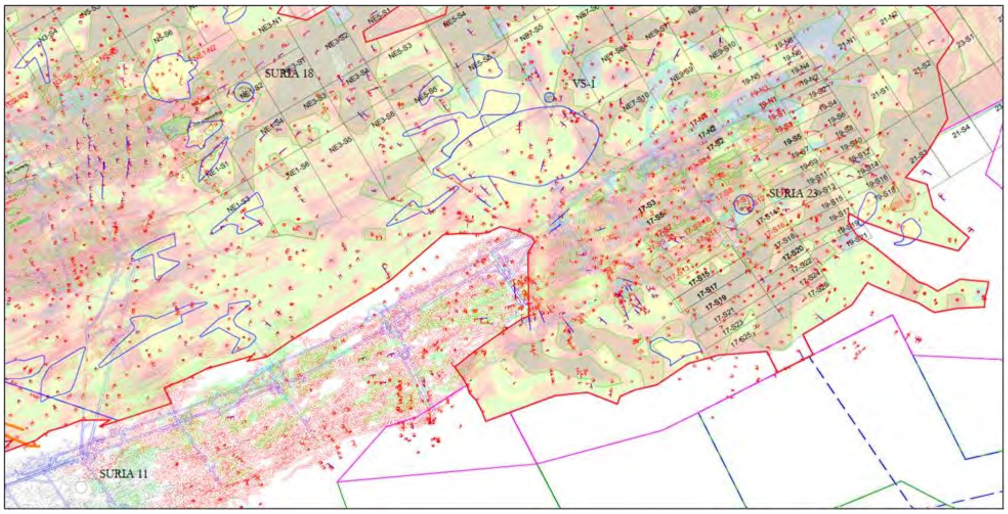

Figure 12.1: 2D Plan of a Section of Seam B Showing Mine Planning Panels (Cabanasses)

Mining dilution and recovery are applied on a panel-by-panel basis based on the data available from neighbouring blocks and underground drillhole data. The approximate average mining recovery across the deposit is 40%. Dilution is estimated at 10-15% in Seam A and 30-35% in Seam B, based on neighbouring data and historic reconciliation.

Mineralisation wireframes are imported into Datamine Studio UG design software and the life of mine production panels, infrastructure and associated development are designed to demonstrate a practical mining strategy for the life of mine. The diluted and recovered tonnes and grade data is applied to the wireframe panel-by-panel. The mine design data is then exported to Datamine EPS scheduling software and practical mining sequencing and rates are applied to produce a realistic life of mine schedule to support the Mineral Reserve estimation and provide operational planning for production.

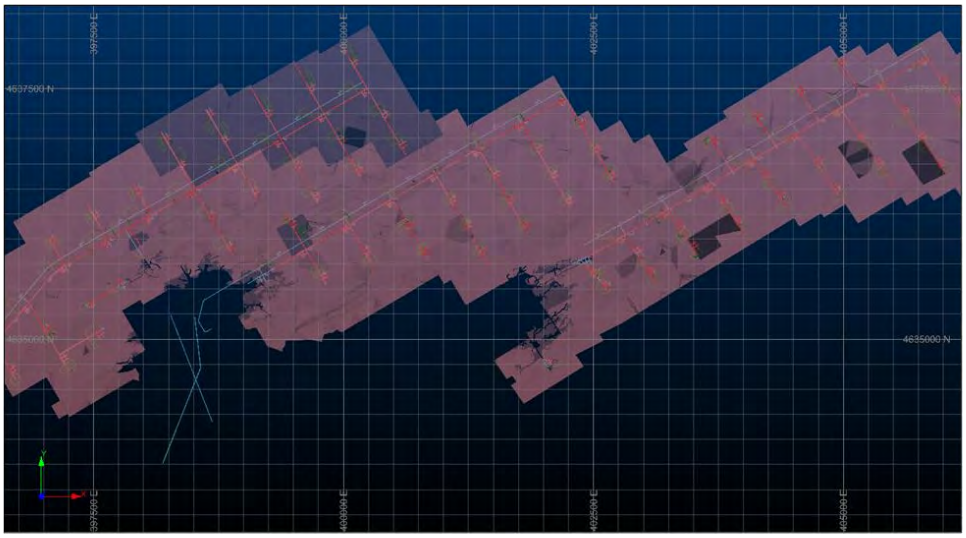

Figure 12.2: Overview of Mine Planning Layout (Cabanasses)

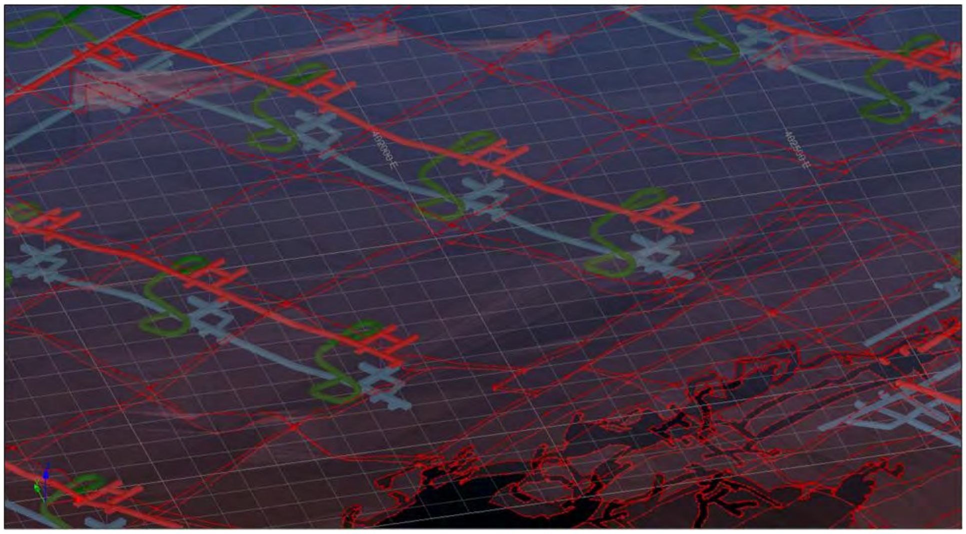

Figure 12.3: Schematic Detail of Mine Planning Layout (Cabanasses)

Mine planning is delineated into a One-Year-Plan, a Five-Year-Plan (see Table 13.7), and a Life-of-Mine Plan (currently 19 years).

12.3.2 Cut-off Grade and Recovery

The cut-off grade for delineation of Mineral Reserves in 2020 was 20% KCl. This was revised to 19% KCl for the December 2021 Mineral Reserve estimation.

The cut-off grade is derived from actual operating costs and includes a provision for the depreciation of sustaining capital associated with the mine and plant operations. Process recovery is based on actual plant data of 85.5%. Commodity prices are based on ICL Group Ltd. marketing and contract prices. In calculating the cut-off grade and mineral reserves, an average of the previous three years' market prices and operating costs are used as part of the calculations to ensure economic viability. The three year average (ex-works) market prices used to calculate our reserves for Cabanasses as of 31st December 2021 is US$291/t. The 2021 calculation is based on the actual 2021 Q1-3 data and Q4 forecast. Production (saleable product) has been forecast as 622kt KCl as part of ongoing ramp up. In calculating the cut-off grade and reserves, an average of the previous three years' market prices and operating costs is used. Mining operating costs are estimated as €135/t, process operating costs as €50/t, and overheads as €37/t.

Over the next three years ICL have calculated the economic break-even will reduce, with consolidation of operations and increases in production capacity and efficiency.

No mineral equivalent grade has been used. WAI has reviewed the cut-off grade calculation and associated inputs.

12.3.3 Mineral Reserve Estimate

Mineral Reserves estimated to 31st December 2020 and based on appropriate economic and technical parameters are shown in Table 12.2.

Table 12.2: Summary of Mineral Reserves for Cabanasses

	Tonnes (Mt)	Plant Grade (% KCl)	Saleable Product (Mt)
Proved	29.0	25.5	6.7
Probable	61.6	26.8	14.9
Total	**90.6**	**26.3**	**21.6**

Notes:

1. The effective date of the Mineral Reserve is 31st December 2021.
2. Mineral Reserves are reported using a cut-off grade of 19% KCl and assumed metallurgical recovery of 85.5%.
3. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
4. Mineral Reserves for Cabanasse sare classified in accordance with the guidelines of the JORC Code (2012). Mineral Reserves are reported in compliance with S-K 1300.

12.3.4 Risk Factors

Geological confidence and classification for industrial mineral deposits can be defined with a wide drill spacing. For a folded deposit of this nature care must be taken not to infer too much definition across the mineralisation based on limited drill data without fully encapsulating the localised variation of the deposit.

Mining dilution and recovery are estimated based on the data available from neighbouring blocks and underground drillhole data. The heavily folded nature of the mineralisation on a local scale renders an accurate estimate difficult. The continuous miners follow the seam showing in the face within a production panel, and again due to the significant localised folding this is difficult to estimate. Historically production has been broadly in line with plan.

The recent capital investment programme (Project Phoenix - new decline, surface processing facility upgrades, additional machinery) must be justified by ongoing increases in production efficiency and associated ramping-up.

Please refer to Section 3.3.3 on the status of government agreements and approvals for permits. The QP is not aware of any permit-related items that could materially impact the Mineral Reserves estimate presented herein.

12.4 Rotem

12.4.1 Overview

The geological model for these stratiform deposits is compiled using data stored in Microsoft Access whereupon Vulcan is used to generate geological sections and 3D mine blocks. The model is based on data and sample analysis of high density surface boreholes (nominally 150m spacing) and surface geological mapping of phosphate outcrop where it occurs. The local geology is relatively simple with gentle dips and few significant faults, those that do occur have displacements of less than a few metres affecting the Phosphate bearing seams.

Reserves tonnes and grades are recoverable from the mine, i.e. with mining recovery and dilution factors applied, but not subject to metallurgical recovery (assumed to be 100% for reporting of mineral reserves). Mining recoveries at the three sites are nominally between 82% and 92%. Mining dilution is set at 2.5%. Mining recovery and dilution factors are based on the previous five years' experience.

Thus the Mineral Reserves for Rotem as reported here are defined at the reference point of delivery to the processing plant.

12.4.2 Cut-off Grade and Recovery

For the purpose of determining the cut-off grade, utilisation and quantities parameters account for geological factors (continuity, structure), mining method, mining dilution, plant efficiency, technical feasibility, operating costs, and historical and current product prices. The parameters employed in the calculation are as follows: on site tonnes (of phosphate rock); recoverable tonnes (tonnes of mineral which can be mined taking into account mining dilution); mineable tonnes (recoverable tonnes from which the tonnes produced are deducted); stripping ratio (the quantity of waste removed per tonne of phosphate rock mined); planned dilution; cost per tonne for mining (typically related to transport distance to beneficiation plant); cost per tonne including reclamation; and unplanned dilution (5% unplanned dilution is taken into account based on the data from the mining operation and the data from the problematic areas). Rotem's yearly mining plan is not determined by the minimum cut-off grade, and fluctuations in commodity prices rarely affect its cut-off grade.

The cut-off grade calculations are derived from historical yield data and Rotem’s historical experience with mining, and are adequately calculated and modelled by its technical and operation engineers and economists. The calculation takes the ore grade in-situ, converts it into extracted ore with the mining method, and estimates the plant yield depending on the grade. Economic modelling then gives the cut-off figures currently used.

Proved Reserves have been explored by drill hole intersections typically at 50 - 70m spacing, and Probable Reserves typically at 200 - 250m spacing.

The Mineral Reserves above the cut-off grade were obtained from the estimated on-site Mineral Resources considering the mining method, the rate of mining dilution, and in plant recovery, based on ICL Rotem’s historical data. In order to convert the Mineral Resources into Reserves, account is taken, separately, of the mining dilution rate, mining method and the geological conditions, including historical yield data, and are based on the previous five years’ operational data. The mining dilution rate in the Company's mines in Israel’s southern region is 2.5% and takes into account the continuity of the layers and the geological structure. The quantity and grade of the estimated reserves are those that are expected to be transferred to the processing plant and are subject to recovery indices in the plant. Each of the three plants at the mines has been developed over the past few decades for the optimum upgrading of the phosphate rock to concentrate ore containing typically 31% to 32% P_2O_5. The overall P_2O_5 recovery through the plant is estimated at 59% for Oron, 56% for Zin, and 54% for Rotem. The differences in metallurgical recovery rates are due to differences in the beneficiation process at the different mines. The conversion ratio for most of the phosphate layers is 1.8t for every 1.0m^3, where a conversion ratio of 2.0t per cubic meter is used for hard, calcareous beds. These factors are used on the basis of long experience and are considered to be reasonable.

Cut-off grades of 20%, 23% and 25% P_2O_5% are applied to Oron, Zin and Rotem respectively. The cut-off grade differs for each mine in accordance with the beneficiation process and enrichment capacity. Thus a cut-off grade of 20% P_2O_5 and lower is applied at Oron, after it has been proven that the required quality can be reached. A cut-off grade of 23% P_2O_5 is applied at Zin, and a cut-off grade of 25% P_2O_5 is applied at Rotem. The cut-off grade for Oron is lower because Rotem has the appropriate beneficiation process for phosphate rock with limestone, which characterizes the white phosphate and, therefore, the beneficiation process, through the flotation process, is extremely efficient. The cut-off grade for Rotem is higher because the beneficiation process has a limited grinding and flotation system, and only medium to high grade phosphate can be fed (which is appropriate for the existing Reserves at Rotem). The cut-off grade for Zin is slightly higher than that of Oron because of the presence of marl and clay that reduces the efficiency of the enrichment process.

In calculating the cut-off grade and mineral reserves, an average of the previous three years' market prices and operating costs are used as part of the Company calculations to ensure economic viability. The three year average FOB Ashdod market prices used to calculate the mineral reserves for Rotem as of 31st December 2021 are as follows: US$686/t P_2O_5 for green phosphoric acid, US$1,374/t for WPA, US$1,283/t for MKP, and US$153/t for GSSP.

A breakdown of the Mineral Reserves at each of the Rotem, Zin, and Oron properties is presented in Table 12.3.

Table 12.3: Mineral Reserves for Rotem, Zin, and Oron

Property	Category	White Phosphate	Low Organic Phosphate	High Organic & Bituminous Phosphate	Tonnes (Mt)	Grade (% P_2O_5)
Rotem	Proved	-	8.6	10.0	18.6	26.7%
	Probable	-	-	-	-	-
Zin	Proved	-	12.4	17.7	30.1	25.5%
	Probable	-	-	-	-	-
Oron	Proved	8.5	3.0	-	11.5	23.1%
	Probable	-	-	-	-	-
Total	**Proved**	**8.5**	**24.0**	**27.7**	**60.2**	**25.4%**
	Probable	-	-	-	-	-

12.4.3 Mineral Reserve Estimate

Mineral Reserves estimated for Rotem to 31st December 2020 are shown in Table 12.4.

Table 12.4: Summary of Mineral Reserves for Rotem

Classification	Tonnes (Mt)	Plant Grade (% P_2O_5)
Proved	60.2	25.4
Probable	-	-
Total	**60.2**	**25.4**

Notes:

1. The effective date of the Mineral Reserve is 31st December 2021.
2. Mineral Reserves are reported using a cut-off grade of 20%, 23%, and 25% P_2O_5 (Oron, Zin and Rotem respectively) and assumed metallurgical recovery of 59%, 56%, and 54% (Oron, Zin and Rotem respectively).
3. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
4. Mineral Reserves for the Rotem project are classified in accordance with the guidelines of the PERC Code (2021). Mineral Reserves are reported in compliance with S-K 1300.

12.4.3 Risk Factors

The primary geological risks for the Rotem deposits remain geological thinning, increasing dip (therefore deepening), and hence economic extraction limits based upon the overall economic strip ratio (due to increased overburden removal) for mining.

As the open pits sit above the water table, and any ponding on the mining floor is from limited rainfall, the pits can be considered 'dry pits' from a geotechnical perspective and therefore no serious concerns related to pit wall stability due to water ingress is predicted. As the pits are relatively shallow there is similarly low geotechnical risk at present.

Please refer to Section 3.4.2 on the status of government agreements and approvals for permits. The QP is not aware of any permit-related items that could materially impact the Mineral Reserves estimate presented herein.

12.5 DSW

12.5.1 Overview

Mineral Reserves are reported following the guidelines of the PERC Code. In reporting Mineral Reserves for the DSW, the following definitions were considered:

- A Mineral Reserve is the economically mineable part of a Measured Mineral Resource and/or Indicated Mineral Resource. A Mineral Reserve includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at a Pre-Feasibility Study or Feasibility Study level, as appropriate, that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Mineral Reserves are defined, usually the point where the Mineral is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. Mineral Reserves are subdivided in order of increasing confidence into Probable and Proved categories.
- A Proved Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.

The Mineral Reserves for the DSW as reported here are defined at the reference point of delivery to the processing plant.

Mineral Reserves for the DSW are classified as Proved on the basis that a high degree of confidence can be placed on the modifying factors based upon production information from the current operations.

Proved Mineral Reserves are reported for the period end of 2021 to end of 2030, the length of the current licence. Beyond this date no Mineral Reserves are reported.

12.5.2 Cut-off Grade and Recovery

DSW does not have a calculated cut-off grade, as per conventional mineral deposits, rather a natural effect (of a cut-off grade) as the carnallite precipitates out of solution, and therefore the application of a cut-off grade is not considered appropriate for this form of deposit. Therefore, a cut-off grade of 0% KCl is essentially applied. The 'mining' does not selectively extract the carnallite, it precipitates out and sinks to the floor and the dredge harvests all of what it can (leaving a circa 20cm layer on the floor as a safety zone to avoid extracting essentially waste material).

Similarly, as the carnallite is not selectively extracted from the ponds to the process facility, no account of metallurgical recovery is included within the estimation of the cut-off grade and it is therefore considered to be 100%. This approach is deemed appropriate for a deposit on this nature where the processed brine has been proven to be consistent (with regards KCl content).

The mineral reserve is based on a volumetric estimate of solution pumped from the Dead Sea and the natural mineral content of the brine, that naturally precipitates and settles at the base of the ponds for dredging, thus the COG is considered to be 0% KCl. In calculating the cut-off grade and mineral reserves, an average of the previous three years' market prices and operating costs are used as part of the Company calculations to ensure economic viability. The three year average FOB Ashdod market price, as of 31st December 2021, for potash is considered to be US$255/t.

12.5.3 Mineral Reserve Estimate

A summary of the DSW Mineral Reserves is presented in Table 12.5.

Table 12.5: Summary of Mineral Reserves for DSW

Status (Following Guidelines of the PERC Code Section A4-10)	Classification	Tonnes (Mt)	Product	KCl (%)	Estimated KCl (Mt)
Permitted	Proved	172.0	KCl	20	34
	Probable	-	-	-	-
	Total	**172.0**	**KCl**	**20**	**34**

Notes:

1. The effective date of the Mineral Reserve is 31st December 2021.
2. Mineral Reserves are reported using a cut-off grade of 0% KCl (the application of a cut-off grade is not considered appropriate for this form of deposit) and an assumed metallurgical recovery of 100%.
3. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
4. Mineral Resources for the DSW are classified in accordance with the guidelines of the PERC Code (2021). Mineral Reserves are reported in compliance with S-K 1300.

12.5.4 Risk Factors

The primary 'geologic' risk for the DSW mineral reserve is the environmental conditions and chemical composition of the Dead Sea source.

Please refer to Section 3.5.2 on the status of government agreements and approvals for permits. The QP is not aware of any permit-related items that could materially impact the Mineral Reserve estimate presented herein.

12.6 YPH

12.6.1 Key Assumptions, Parameters, and Methods

12.6.1.1 Geologic Resource Model

The geological model previously described in Section 11.6 and used to estimate Mineral Resources was the basis for the estimate of Mineral Reserves. The geological model is based on core drilling from 1966 to 2014. Mineral Resource polygons were developed to define and limit the estimation of Mineral Resources to the "reasonable prospects for economic extraction."

12.6.1.2 Mine Design Criteria

Multiple open pit design objectives and constraints were incorporated into the open pit targeting exercise, including strip and block value, combined phosphate quality from both the upper and lower layers as well as the ore thickness for each ply within the upper and lower layers.

12.6.1.3 Modifying Factors

Modifying factors are applied to mineralised material within the Measured and Indicated resource classifications to establish the economic viability of Mineral Reserves. A summary of modifying factors applied to the Haikou mine Mineral Reserve estimate is provided below.

12.6.1.4 Dilution, Loss, and Mining Recovery

Geologically complex mining operations can often incur higher loss and dilution values due to dipping or inconsistent ore interfaces. The Haikou mine is not overly complex geologically but does have variable layer thicknesses and overburden and interburden thicknesses. The P_2O_5 grade of the Phosphate rock can be quite variable within the layer and careful aggregation is considered prior to determining the block limits and ore tonnage estimates.

Ore loss and dilution has been measured from mining operations and is presently estimated at an ore loss of 2.8% (absolute), with an estimated dilution of 1.9% (absolute). Average metallurgical recovery through the beneficiation plant is estimated at 89.3% (Source – YPH Haikou Mine 2022).

The dilution qualities used were based on the operational experience and estimates of the ore thickness and variability of thickness within the layers. The effective loss assumptions are representative of the experience to date and have been validated by post mining surveys as well as ore accounting within the process plant.

12.6.1.5 Processing

The processing beneficiation plant at Haikou is of an industry standard for processing of industrial minerals. A scrubbing and desliming section of the process plant removes the very fine particles (<0.038 mm), this aids the remainder of the beneficiation process. A 4 Mesh (4#) collector and reverse flotation process in an alkaline solution is used within the process to ensure the recovery of a phosphate concentrate at or above the minimum quality required by the Three Circle fertilizer processing facility being the customer of the Haikou processed phosphate concentrate.

The concentrate quality for flotation of medium and low-grade phosphate ores in Haikou is of the order of 28.5% P_2O_5 , containing approximately 0.9% MgO. The plant produces a 65.0% concentrate yield and 88.0% recovery from the medium and low grade ores.

12.6.1.6 Property Limits

The Mineral Reserve estimate for Haikou mine has been constrained by a final pit design based on an economic strip ratio for Phosphate layers with a P_2O_5 grade above 15%. Given the location of the Mineral Resources relative to the Site Boundary, the property limits did not impact the Mineral Reserve estimate.

12.6.1.7 Conversion from Elemental Grades to Equivalent Grades

The Haikou operation produces concentrate grade phosphate primarily for the fertilizer market.

12.6.1.8 Cut-off Grade and Recovery

Per the definitions in S-K 1300, “For the purposes of establishing ‘prospects of economic extraction’, the cut-off grade is the grade that distinguishes material deemed to have no economic value from material deemed to have economic value.” In simpler terms, the cut-off grade is the grade at which revenue generated by a block is equal to its total cost resulting in a net value of zero.

For the Haikou operation, the primary economic constraint is the ore tonnes above 15% P_2O_5 per cubic metre of waste associated with the ore extraction, typical of that applied in coal mining for open pit coal seams. The Haikou Mine Phosphate ore is represented by two separate layers (with one or more plies per layer). The upper layer is overlain by variable thickness of overburden, whilst the lower layer is separated from the upper layer by a variable thickness of interburden. The economic cut off being driven by the cubic metres of waste (both overburden and interburden) that must be mined for every tonne of Phosphate ore that can be economically processed. The current beneficiation plant can economically process ore as low as 18% P_2O_5. There is also a scrubbing plant on site at the operation capable of processing only medium-high grade ores, medium grade being defined as 24-30% P_2O_5, with high grade ore being defined as that above 30% P_2O_5.

Average metallurgical recovery through the beneficiation plant is estimated at 88% (Section 12.6.1.5).

In calculating the cut-off grade and mineral reserves, the Company applies an average of the previous three years' market prices and operating costs are used as part of the calculations to ensure economic viability. The three-year average market prices used to calculate our reserves at the Haikou mine as of December 31, 2021 are as follows: US$406/t for green phosphoric acid (MGA), US$931/t for white phosphoric acid (WPA), US$1,024/t for MKP, US$211 per tonne for GTSP, US$328/t for NPS, US$268/t for MAP 55% and US$652/t for MAP 73%.

12.6.1.9 Economic Evaluation

For material to be processed as ore at the Haikou processing facilities, it must have a grade that generates enough revenue from the sale of the products to cover the costs of mining, processing, and selling. Through analysis of the mining costs, processing costs, and associated general and administration costs, Haikou has determined that their lower grade for economic cut off is 15% P_2O_5 with a maximum strip ratio of 6.5 m^3/t of Ore.

12.6.2 Mineral Reserve Estimate

For estimating the Mineral Reserves for the Haikou operation, the definition as set forth in the S-K 1300 Definition Standards adopted December 26, 2018, was applied.

The Mineral Reserve estimate of the Haikou operation is 57.7Mt at an average grade of 21.8% P_2O_5 across all three ore grades at a minimum cut-off of 15% P_2O_5. The economic stripping ratio has been determined for the Haikou mine to be 5m^3 per tonne of ore greater than the specified cut off. The scheduled Mineral Reserves for the life of mine plan has adopted stripping ratio lower than the economic cut-off to ensure some degree of confidence against decrease in market pricing for the phosphate product. The planned average for the remaining mining schedule up to 2045, delivers ore at an average strip ratio of 2.3m^3 per t of ore.

Table 12.6: Summary of Mineral Reserves for YPH (Haikou)

Classification	Mining Area	Tonnes (kt)	Grade (% P_2O_5)	S/R (t:m^3)
Proved	Block 1 and 2	6,904	21.8	2.0
Proved	Block 3	38,986	21.9	2.4
Proved	Block 4	11,854	21.3	2.4
Proved	**Total**	**57,744**	**21.8**	**2.3**

Notes:

1. The effective date of the Mineral Reserve is 31st December 2021.
2. Mineral Reserves are reported using a cut-off grade of 15% P_2O_5 and assumed metallurgical recovery of 89.3%.
3. All figures are rounded to reflect the relative accuracy of the estimate, and apparent errors may occur due to rounding.
4. Mineral Reserves for YPH (Haikou) are classified in accordance with the guidelines of the PERC Code (2021). Mineral Reserves are reported in compliance with S-K 1300.

A summary of the production schedule for the period 2022 to 2045 for the planned mining Blocks 1 to 4 is shown in Table 13.14 with a total of 57.7Mt of ore being scheduled at an average strip ratio of 2.3m^3/t ore. The location of the two Mining Block regions in the mine plan from 2022 through to 2045 are shown in Figure 13.16. Blocks 1 and 2 are considered a combined mining area for mine planning purposes due to the limited remaining tonnage within those reserves. Blocks 3 and 4 contain the majority of the remaining Mineral Reserves, totalling some 88% of the remaining Mineral Reserves.

12.6.3 Risk Factors

The primary geological risks for the Haikou deposit remain geological thinning and hence economic extraction limits based upon the overall economic strip ratio for mining.

As the mining regions sit above the water table and any ponding on the mining floor is from rainfall, the pit can be considered as a 'dry pit' from a geotechnical perspective. Various hydrogeological studies within the mining area have not indicated any serious concerns related to pit wall stability due to water ingress.

The Haikou operation area is not in an active seismic region of China. Further, the operational area is in an area with moderate annual precipitation and an excess evaporation over rainfall.

Please refer to Section 3.6.2 on the status of government agreements and approvals for permits. The QP is not aware of any permit-related items that could materially impact the Mineral Reserves estimate presented herein.

12.7 Relevant Factors that May Affect the Mineral Reserve Estimates

The Mineral Reserve estimates may be affected positively or negatively by additional exploration that alters the geological database and models of mineralisation on the Project. The Mineral Reserve estimates could also be materially affected by any significant changes in the assumptions regarding the technical parameter analysis (e.g., geotechnical properties, hydrogeologic data and/or geologic structure modelling with new drilling), forecast product prices, mining and process recoveries, production costs, environmental, permitting decisions, legal, title, taxation, socio-economic, marketing, political, or other relevant factors. If the price assumptions change or the assumed production costs alter significantly, then the cut-off grade will need to be reviewed and, if so, the potential impacts on the Mineral Reserve estimates would likely be material and need to be re-evaluated.

The Mineral Reserve estimates are also based on assumptions that a mining project may be developed, permitted, constructed, and operated at the Project. Any material changes in these assumptions would materially and adversely affect the Mineral Reserve estimates for the Projects. Examples of such material changes include extraordinary time required to complete or perform any required activities, or unexpected and excessive taxation, or regulation of mining/operating activities that become applicable to a proposed mining operation on the Project.

13 MINING METHODS

13.1 Boulby

13.1.1 Overview

Production of polyhalite at ICL Boulby comes from extraction of a single seam which varies in thickness between 15 and 20m. The seam is extracted by a modified room and pillar method (where up to 7m of the seam is extracted in two passes within a single main area termed Zone 1. The perimeter of Zone 1 has been determined using information from 3D seismic reflection data and from exploration long hole drilling (LHD). There are typically four districts within Zone 1 available to mine with typically three being operated simultaneously whilst regular maintenance or infrastructure work is completed on the fourth.

13.1.2 Geotechnical

13.1.2.1 Rock Stress Environment

Geotechnical testing has been conducted on drill core recovered from polyhalite as well as in-situ testing in the current mining area. In-situ stress testing shows the polyhalite horizon in-situ stresses are moderate: $\sigma 1$ = 32 MPa (sub-vertical), $\sigma 2$ = 30 MPa (sub-horizontal with a dip direction of 210°), and $\sigma 3$ = 25 MPa (sub-horizontal with a dip direction of 120°).

The stress field is effectively geostatic, and the stress field is not anticipated to have any significant directional effects.

13.1.2.2 Rock Mass Properties

The geotechnical model is based on a uniform rock mass, with no separate geotechnical domaining. This has been confirmed from drill core and results of the trial mining.

A rock mass study in 2012 by ICL Boulby using the Bieniawski rock mass rating (RMR) system estimated the RMR to be 97 and Geological Strength Index (GSI) between 85-90. The polyhalite rock is hard, brittle, and ranges from moderately abrasive to considerably abrasive as defined by Cercher Abrasivity Index (CAI) testing undertaken by Sandvik in October 2013. A geotechnical test programme was conducted by Nottingham University in 2009 including uniaxial time dependant rock tests.

Rock samples collected from different horizons of the Polyhalite seam indicate that the Uniaxial Compressive Strength (UCS) of the target mining horizon ranges from 135-140MPa. ICL Boulby use a further revised figure of 120-140MPa for mine design to account for the variable levels of halite encountered during mining.

Design Pillar Size

ICL Boulby has estimated the required pillar size based on the width-to-height ratio and factor of safety required for the designs using the study of pillar strength and failure in underground stone mines. The pillar size design accounts for stress redistribution as mining continues by ensuring the factor of safety in the protection pillars and inter-panel pillars are high, which are ultimately responsible for the preventing catastrophic failure / collapse of a panel and district. A summary of the pillar design factor of safety for advance and retreat is presented in Table 13.1 and Table 13.2 respectively.

Table 13.1: Pillar Design Factor of Safety Advance

Advance	Pillar Type	Width (m)	Height (m)	Length (m)	W:H Ratio	L:W Ratio	Rectangular Strength Ratio	Estimated Pillar Strength (MPa)	FOS
Stability of Development	Intra-Road Pillar	12	4	51.7	3.0	4.3	1.54	112	3.5
	Protection Pillar	20	4	40	5.0	2.0	1.36	115	3.6
Stability of Panel	Inter-Panel Pillar	16	4	120	4.0	7.5	1.6	127	4.0
	Intra-Panel Pillar	8	4	18	2.0	2.3	1.37	88	2.8
	Outer Stub Pillar	4.5	4	21	1.1	4.7	1.25	68	2.1

Table 13.2: Pillar Design Factor of Safety Retreat

Advance	Pillar Type	Width (m)	Height (m)	Length (m)	W:H Ratio	L:W Ratio	Rectangular Strength Ratio	Estimated Pillar Strength (MPa)	FOS
Stability of Development	Intra-Road Pillar	12	7	51.7	1.7	4.3	1.42	74	2.3
	Protection Pillar	20	7	40	2.9	2.0	1.36	83	2.6
Stability of Panel	Inter-Panel Pillar	16	7	120	2.3	7.5	1.56	89	2.8
	Intra-Panel Pillar	8	7	18	1.1	2.3	1.22	56	1.8
	Outer Stub Pillar	4.5	7	21	0.6	4.7	1	39	1.2

The design of the mining layout and dimensions of the excavations and pillars need to be suitable for securing the safety of the panel, adjacent roadways, and main development.

Abutment protection pillars are designed to be of sufficient dimensions to remain stable for the life of the panel and the adjacent roadways. The loads within these pillars are measured using stress cells and are routinely monitored to identify any increased trends.

The long-term development roadways (main laterals) and production panels have pillars designed to suit their required stand-up time and prevent uncontrolled / large scale failure.

Design Factors – Maximum Span

The maximum span of excavations at ICL Boulby is estimated using empirical methods based on rock mass classification system, Mining Rock Mass Rating (MRMR) classification by Laubscher (1990) which has been deemed the most appropriate for use with the polyhalite deposit. Work by WAI in 2017 estimated a MRMR of 52.

Using an MRMR of 52, the hydraulic radius limits of the stable zone and the transitional zone for polyhalite are 14 and 25 respectively.

The maximum roof span in the planned mining designs are located at four-way junctions where the main roadways are intercepted by cross-cuts and production wedges. This span is approximately 25.3m by 10.5m which is equivalent to a hydraulic radius of 3.7 which is within the stable zone (less than 14).

The largest roof span excavated to date was during trial mining of a herringbone style layout which widened the initial advance roadway on retreat whilst leaving no pillars. The excavation size is approximately 26m wide and 76m long which is equivalent to a hydraulic radius of 9.7 and still within the stable zone (less than 14). This layout resulted in less than 14mm of roof movement after retreat mining and remains open and relatively un-deformed after a stand-up time of 2 years. These conditions are consistent with those estimated by the MRMR stability chart.

Design Factors – Support Requirements

The support requirements have been estimated using the rock tunnelling index Q after Barton et al. (1974) and RMR after Bieniawski (1973). A Q value of 212 was calculated by Golders Associates (2010) i.e. extremely good rock mass.

According to the estimated support categories after Barton & Grimstad (1993) and using a rock mass classification of 82 (worst case), a 28m roof span requires minimal support (between spot bolts and unsupported when using an ESR of 3-5 for temporary mine openings).

Whilst minimal support is required based on rock mass classification and design guides, systematic rock bolting with (advance) meshing is used to prevent and control delamination within the immediate roof and sidewalls within advancing roadways to prevent small scale spalling and delamination along bedding planes and particularly along thin (few mm) halite vein boundaries/partings in the roof and vertical fracturing due to principal stress in the outer skin of the sidewall/pillars. Generally 2.4 - 3.0m resin bolts are installed and 4.0m cable bolts are installed in large intersections over 12m span.

A secondary geotechnical assessment method is used primarily for the infrastructure drives in the rock salt levels. This assesses the joint length, aperture, shear, delamination, and rock bolt conditions. This is reviewed periodically due to the closure creep of the drives and the rate of access (person exposure).

The large areas of historic workings have creeped closed at an average roof closure of 1mm per year and generally are inaccessible three years after mining.

13.1.2.3 Validation of Geotechnical Parameters and Design

The design factors discussed above are routinely assessed and validated by monitoring of on-going mining.

ICL Boulby is currently the only producer of polyhalite worldwide. The understanding of the behaviour of the rock mass and the changes to the stress environment as mining progresses continues to evolve and develop based on the continuing monitoring and data collection at the mine.

The design of production panels and their subsequent retreat is being routinely monitored using a series of vibrating wire stress cells in the pillars and extensometers in the roof to monitor the changing stress environment whilst mining progresses and ensure they remain within expected values and factors of safety for their design. The outputs of the stress measurements are being used to develop numerical models built in FLAC3D to justify current and future designs.

Experience from mining has shown that the mine design is working as intended with long term access roadways remaining stable and panel pillars in either good condition or showing signs of initial controlled yielding after retreat mining and final 7m high extraction.

13.1.3 Mine Design Layouts

The mine layouts based on the design criteria discussed above is shown in Figure 13.1, Figure 13.2, and Figure 13.3. These have been refined by iterative design workshops considering geotechnical, ventilation and production requirements as well as experience from mining to date. The pillars in the designs have been named based on their relative location within the design.

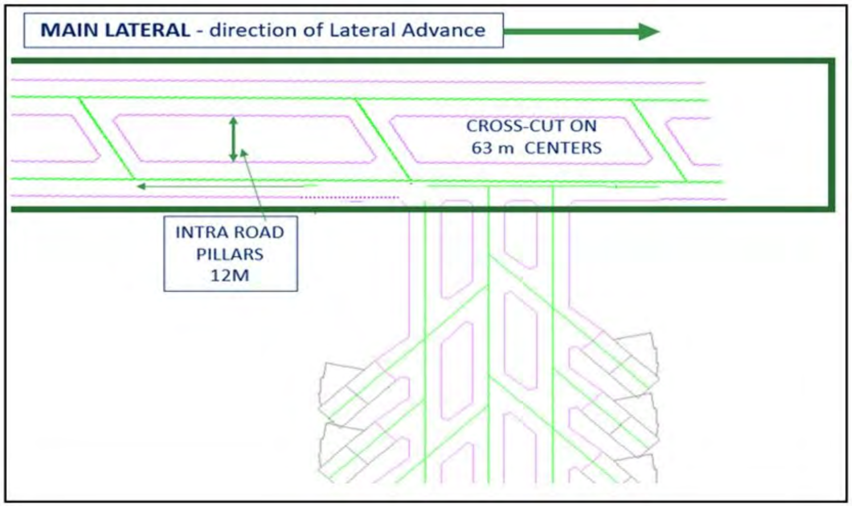

Figure 13.1: Design Criteria for Lateral Advance Roads (schematic)

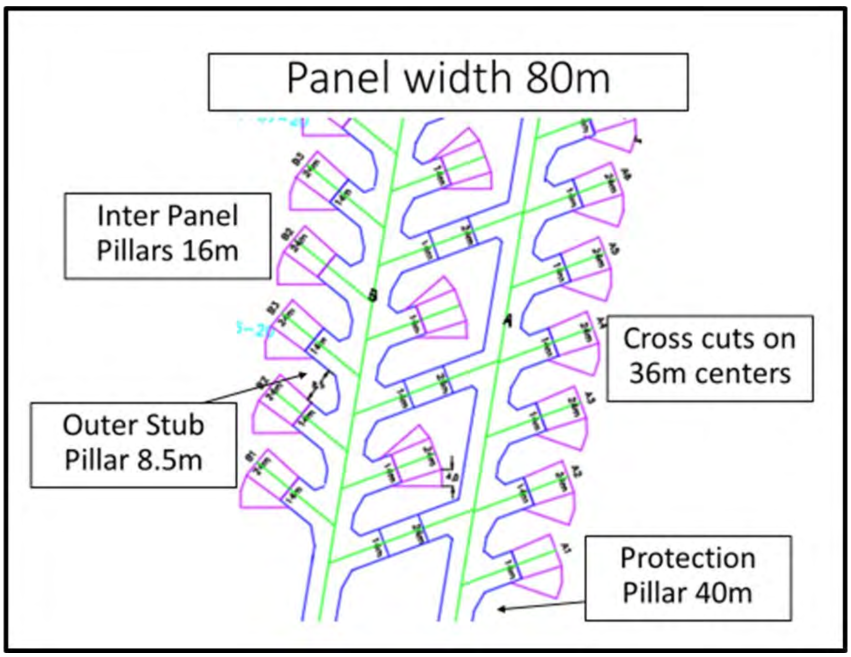

Figure 13.2: Design Criteria for 2 Road Production Panel Design (schematic)

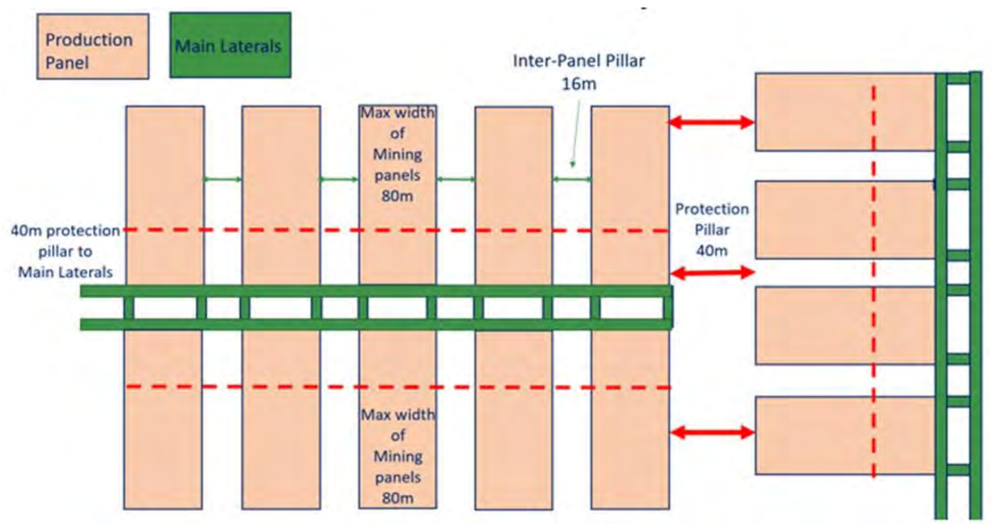

Figure 13.3: Design Factors Relating to Intra-Panel Pillars And Protection Pillars (schematic)

13.1.4 Hydrogeology

No fissure water is generated from the polyhalite workings and no fissure water is anticipated to be generated in future.

The water during the mining operation is by spray bars on the cutting head of the continuous miner and is carefully controlled and absorbed in the polyhalite product.

Present inflows to the mine are from the South and Northern old potash workings and amount to 315m³/hr.

Water handling system upgrades: pump lodge upgrade; 12 inch column repair and additional pond tank capacity are LOM stay in business capital system improvements and are not related to an increasing polyhalite production profile.

13.1.5 Mine Production

Boulby is mined using modified room and pillar methods. Mineral is cut via continuous miners and is loaded at the working face into shuttle cars. The shuttle car transports the mineral to a feeder breaker for loading onto the mines conveyor belt system. The feeder breaker is located a short distance from the working area and is advanced at regular intervals to maintain proximity with mining.

Long term development/access roads are driven as a pair of roadways to allow access to wider areas. Twin roadways are advanced which are rectangular in profile, 8m wide and 4m high. The roadways are on 20m centres with a 12m wide pillar between roads. Cross-cuts connect the roadways on 63m centres for access and ventilation.

Production panels are established at 90° to the development roadways and are advanced in approximately 100m sections for a designed length of 200-400m. Panels are designed as three-roadways rectangular in profile, 8m wide and initially 4m high. Panels are mined in two stages termed advance and retreat.

In advance mining the two road panels are developed. During this development stub headings are mined from the flank roads into the panel pillar at 45° from the direction of advance and up to 24m from the flank road centreline.

Once the panel has reached its final distance, additional mining is done on retreat from the panel, extracting material from the stub headings by an additional 10m section and adjacent wedge. Up to 3m of material is extracted from the floor of the roadways (termed milling) to give a final extraction height of 7m. This additional extraction is sequenced during the pull back and abandonment of the panel enabling operators to work from a position of safety. This removes the need for additional support work and benefits from increased efficiency due to reduced manpower requirements.

Panels are designed in line with the geotechnical parameters and requirements outlined previously. Retreat of the panel is stopped within 40m of the main development laterals to act as a protection pillar while the laterals are used to access inbye sections. Once the wider district area has been mined to completion, these areas can be fully extracted as part of the district abandonment.

A mining round / sequence consists of 8 - 11m advance. The roof and sidewalls are subsequently bolted (and advance mesh) using breakout bolts 1.5m in length, 22mm in diameter with 750mm resin encapsulation to a 1.4m square systematic pattern. Mining in an adjacent roadways can continue whilst another heading is being bolted. Additional support can be set if required including the use of breakout bolts 2.4m in length, 22mm diameter, with 1,250mm resin encapsulation and/or installation of mesh concurrently with the existing bolt pattern.

After bolting grade control drilling can take place. Holes up to 24m long can be drilled over a range of -15° to +20° to assess the position of the mining relative to the base of seam and transition to top of seam. Holes are probed using a Tracerco T206 Potash monitor detecting the natural radioactive decay of potassium (K40). The count gives a qualitative to semi-quantitative measure of the potassium and hence assumed polyhalite content and enables confident interpretation of the base of seam contact with the footwall anhydrite.

The mine design allows for a maximum extraction height of 7m. However, the polyhalite seam is between 15-20m thick and therefore the grade of material in the roof and floor is often not significantly different to the planned excavation. Overbreak from the roof or sides and over excavation within the floor should not be of materially different grade and would in most cases could result in an increase in ore tonnes rather than a negative dilution.

13.1.6 Underground Infrastructure

13.1.6.1 Shafts

ICL Boulby has two operating shafts № 1 (rock shaft) and № 2 (man shaft) which were sunk from 1968 to 1975. Both shafts are 5.5m (finished diameter), approximately 1,150m in depth and are located approximately 91m from each other. № 1 shaft is used for the hoisting of mineral and № 2 shaft for the transport of people and materials. № 2 shaft has two cages; the capacity of the South side is 65 people, and the North side is 12 people for a total of 154 people per hour.

13.1.6.2 Main Access and Transport

The main access/development consists of an arterial network of roadways developed in the Boulby halite (salt), from which historically the Boulby Potash seam was then accessed. Approximately 1,000km of development has been mined since 1974 with an average of 40km per year. Roadways are typically rectangular in shape and are 8m wide by 4m high.

Men and materials are transported to the working areas using a fleet of diesel vehicles. Two parallel roadways are maintained to working areas, one for transport of men and materials as well as an intake for fresh air, whilst the adjacent roadway houses the conveyor belt system and acts as a return airway.

13.1.6.3 Polyhalite Access

The Polyhalite seam in Zone 1 is located approximately 1,200m below ordnance datum, 150 - 170m below the Boulby Potash Seam and main salt access roadways and approximately 6 km NNE of the shafts. The location of the decline was originally designed to allow access to the polyhalite seam for the collection of approximately 20,000 t of polyhalite ore for processing and agronomy testing.

Access to the Polyhalite is via a twin roadway decline / ramp which was developed from period of 2007 - 2010. The ramp roadways are approximately 1,040m in length with an average gradient of 1 in 8. Roadway profiles are rectangular, with areas mined by continuous miner being 8m wide by 4m high and those mined by drill and blast being 6m wide by 3 - 3.5m high.

13.1.6.4 Ore Handling Systems

The feeder breaker at the working faces reduces the material size to less than 150mm diameter and regulates the feed to the conveyor at 200 tph (max capacity 400 tph). The main conveyor system has an annual capacity of 4.6Mtpa and transports the mineral to one of two underground storage/surge bunkers each with capacities of 8,000t and 7,000t.

Mineral is conveyed from bunkers or directly from the face to the № 1 shaft bottom area where it is loaded into 1,000t ore bins. Currently only one bin in use as the second is in need of refurbishment. The ore bins feed the 250t surge bin which in turn batch loads the shaft skips via a 20t flask. Skip hoist capacity is a rate of 30 skips per hour at 17m/s. At the surface skips are discharged into the surface flask and fed to the plant raw ore storage area via conveyor belt. The № 1 rockshaft has a maximum hoist capacity of 3.5Mtpa.

13.1.6.5 Waste Handling Systems

All mining is designed to take place in-seam. However, there are occasions where the mined material is treated as low grade or waste. This can be due to:

- A sudden uplift in the base of seam at gradients which cannot be fully overcome by mining;
- Increased halite content due to mining towards the top of seam; or
- Increased thickness and occurrence of seam parallel veins.

In these cases, waste material is stowed temporarily until higher grade material is mined from other areas allowing crude blending to occur at transfer points in the conveyor system or is permanently stowed in abandoned areas. Low grade / waste material is handled by diesel-powered load-haul (LHD) units.

13.1.6.6 Ventilation

The mine ventilation is a force system, ventilated by two double entry backward facing centrifugal surface fans which force air down № 2 Shaft (the man-riding or downcast shaft). Both fans are 2.4m diameter and together produce 300m^3/s at 4,000 Pa of airflow into the shaft.

Booster fans at strategic locations are employed to distribute the intake air throughout the mine. Of the 300m^3/s of intake air, 140m^3/s of intake air is directed to the production area, the remaining intake air is utilised to ventilate all other areas underground.

The current provision provides sufficient ventilation to operate four production areas concurrently, with capacity for future development. As the production areas evolve, so too does the ventilation network to respond to the increasing demands.

13.1.7 Mine Layout

A surface layout plan of Boulby Mine is shown in Figure 13.4. The site covers an area of approximately 20ha (0.2km^2) and includes the treatment and polyhalite plant, main shafts and winder house, workshops, stores, rail sidings and loadout, and administration buildings.

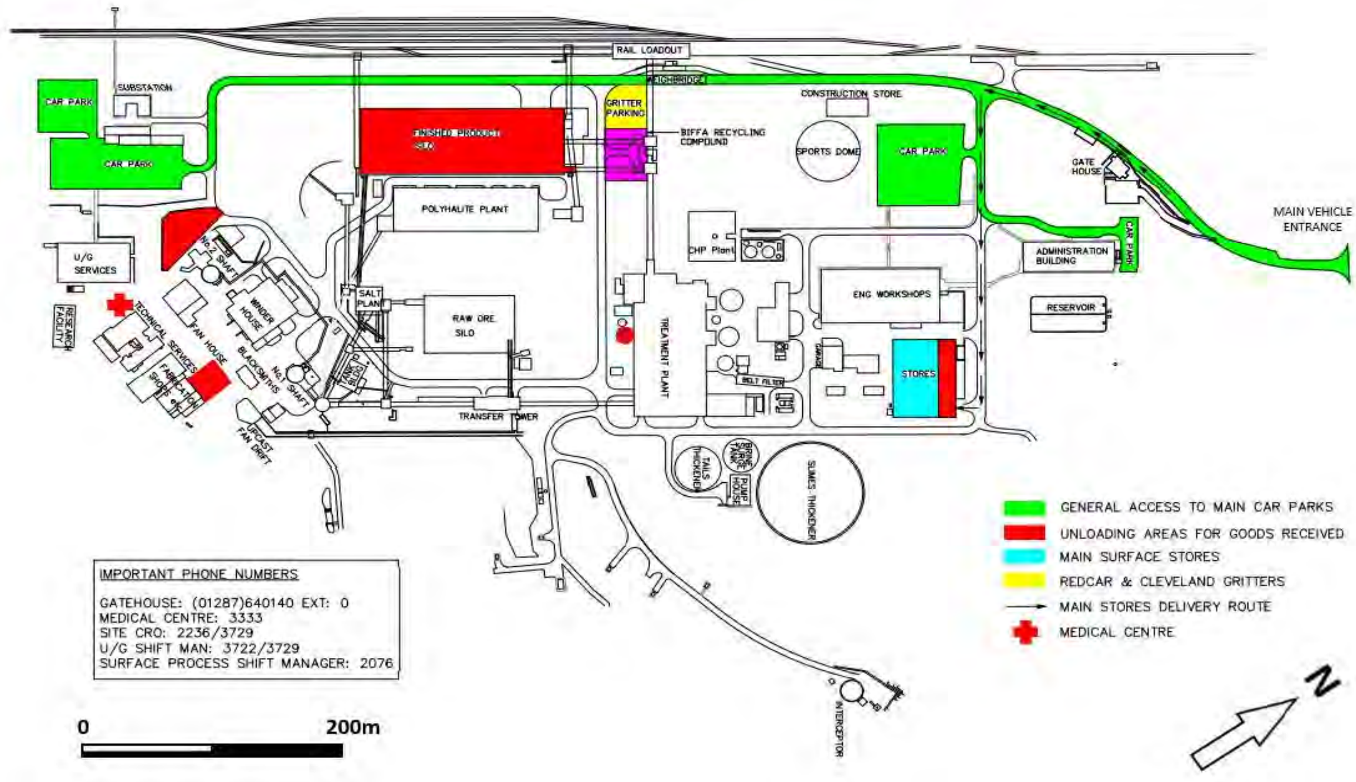

Figure 13.4: Plan Surface Layout of Boulby Mine

13.1.8 Production Schedule

Polyhalite production (hoisted tonnes) is ramping up to 1.3Mtpa in 2023. Ramp up is based on improvements to machine availability, utilisation, and operational efficiency. Additionally, an equipment replacement scheme is planned to include bolters and (Joy HM46) continuous miners. Machine availability is to be increased from 70% to 80%. In order for the production schedule to be achieved adequate levels of capital, sustaining capital and other all other investment associated with the ramp up in production are planned.

In addition to the above the mine plans to increase the Overall Equipment Effectiveness (OEE). The OEE is used as a measure of the productivity of the equipment by accounting for the availability, performance and quality. The current OEE of the HM36 fleet is 22% (approximately 17,092 t/month) and 22% for the HM46 (18,263 t/month).

Improvements are targeted at reducing the lost time, speed loss and breakdowns. Table 13.3 shows the planned productivity improvement projects:

- Lost time is reduced by new bolting systems, new medium-scale / infill drilling system and implementation of gap crews, which will maintain and begin operation of the mining fleet in the current time gap between dayshift and nightshift.
- Speed gains will be achieved by more effective dust removal from working faces, spot cooling of the continuous miners and implementation of the 3-road layout design for increased mining cycle efficiency.
- Both a reduction in lost time and speed gains will be achieved through the replacement of current HM36 miners with the new HM46 miners

The targeted improvements aim to increase the OEE of HM36 machines to 30% (24,073 t/month of potential 79,488t) and HM46 machines to 42% (33,952 t/month of potential 81,696t).

A summary of the annual mine production schedule to 2025 is shown in Table 13.3, while the current base case for the life of mine, and geological delineation, continues to nominally 2030. Further work, based on the current Mineral Resource of 24.0Mt is expected to expand the LOM beyond 2030.

Table 13.3: ICL Boulby Production Schedule

	2021	2022	2023	2024	2025
Advance Boken (Tonnes)	771,727	619,084	794,569	716,892	852,191
Retreat Broken (Tonnes)	337,040	589,956	524,913	605,550	466,429
Total Broken (Tonnes	1,108,766	1,209,040	1,319,481	1,322,442	1,318,620

13.1.9 Mining Equipment

Boulby Mine currently operates four continuous miners within the polyhalite deposit that offer the flexibility required for mining. Typically, 3 continuous miners are operational and producing at any one time whilst 1 continuous miner is undergoing maintenance and repairs.

The polyhalite is typically harder than the potash, and salt that has historically been mined at Boulby. It is therefore planned that new equipment purchased as part of any ramp up in production will likely be the larger Komatsu 12HM46 continuous miner. A continuous miner consists of a moveable boom-mounted rotary cutting head, the cuttings fall into a shuttle car that discharges the material onto a feeder breaker which are drawn into a conveyor that transport the material to bunkers/bins prior to being hoisted form the mine. A support fleet of drills and rock bolters operate within the mine.

A summary of the main mining fleet is provided in Table 13.4.

Table 13.4: Boulby Mine Main Mining Fleet

Equipment Type	Model №	OEM	Number	Active Polyhalite Fleet	Active Bunker Fleet	Active Salt Fleet	Spares & Repairs	Total
Miners	12HM36	Joy-Komatsu	6	4	2	1	2	9
	12HM46	Joy-Komatsu	1					
	1060	Jeffrey Dresser	2					
Shuttle Cars	10SC32 (25t)	Joy-Komatsu	9	6	0	2	1	9
Drills	L2C	Atlas Copco	1	5	0	1	3	9
	Single boom jumbo	LINGDALE	3					
	Single boom jumbo	BOART	3					
	Single boom jumbo	EIMCO	2					
Roof Bolters	711	EIMCO	9	7	0	2	4	13
	DDR-77	Fletcher-Komatsu	3					
	3045	EIMCO	1					
Feeder Breakers	UFB-33B-64-114C	Joy-Komatsu	3	4	2	1	0	7
	UFB-33B-78-172C	Joy-Komatsu	1					
	UFB-33B-64-114C	Joy-Komatsu	1					
	Bridge conveyor	Dale Engineering	2					
Panel Carrier	Tracked panel carrier	Dale Engineering	2	2	0	0	0	2

The main production mining fleet (continuous miners, shuttle cars, bolters etc) are supported by a fleet of ancillary equipment. The ancillary mining fleet is summarised in Table 13.5.

Table 13.5: Summary of the Underground Equipment Fleet at ICL Boulby	
Equipment Type	**Number**
Personnel Carriers	45
Forklift Trucks	5
Load Haul Dump (LHD's)	8
Telehandlers	19
Neuson 701 (Skid steer front-end loaders)	3
Neuson dumper	2
Tractor	1
Wirgen Road Grader	1

Face line mining equipment are electrically powered, whilst support/ancillary equipment are primarily diesel powered. The mine operates a vehicle workshop for repairs and maintenance to the diesel / support fleet. Most of the maintenance work for the mining fleet takes place on a routine basis at the face line, with significant over-hauls and repairs taking placing in the workshops or build-up bays.

13.1.10 Mining Personnel

The mine is scheduled to operate 24 hours a day 7 days a week with two planned shutdowns. A "summer" shutdown for a week beginning in the last week of July and a Christmas shutdown of a week, typically in the space between Christmas eve and New Year's Day.

Maintenance activities are carried out partially in the "gap" between the shift handovers by a dedicated team with further activities being confined to a single producing district based on a weekly rota. Infrastructure work operates on the same shift basis as the mining.

Boulby employs approximately 323 people in the underground mining operations (Table 13.6).

Table 13.6: Labour for the Underground Portion of the ICL Boulby Operation			
Role/Position	**Number**	**Role/Position**	**Number**
Business Manager	1	Overseers	42
Control Room Operator	8	Production Manager	2
Drillers	11	Project Manager	2
Electrician	26	Shaftsmen	1
Fitters	41	Shift Manager	3
Foreman	23	Technical Services	20
Infrastructure Managers and Engineers	5	Vulcaniser	1
Infrastructure Miner	39	Welder	10
Miner	78	Winder Driver	6
Operations Managers and Engineers	4	**Grand Total**	**323**

13.2 Cabanasses and Vilafruns

13.2.1 Introduction

The Cabanasses mine is a flat-lying operation at a depth of between 700 - 1,000m, extending up to 4km metres in width and over 7km along strike. Two potash seams (Seam A and Seam B) are the main targets for extraction, with a prioritisation of Seam B as this has higher grades and overall payability. Seam A is 5 - 7m thick and approximates 24 - 30% KCl, Seam B is 2-5m thick and approximates 45% KCl.

13.2.2 Geotechnics

An in-house-modified Q index based on Barton (1974) is used for geomechanical classification. This is based on potash and rock salt specifics, including seam thickness, orientation, folding and roughness, alteration and spacing, lithology, and induced stress relative to nearby workings. This system has been in place for some years and shows suitable operational correlation. Generally 2.4 - 3.0m resin bolts are installed, with mesh where required, and 4.0m cable bolts are installed in large intersections over 12m span. Approximately 40% of mine roadways are bolted.

A secondary geotechnical assessment method is used primarily for the infrastructure drives in the rock salt levels. This assesses the joint length, aperture, shear, delamination, and rock bolt conditions. This is reviewed periodically due to the closure creep of the drives and the rate of access (person exposure).

The large areas of historic workings have creeped closed at an average roof closure of 1mm per year and generally are inaccessible three years after mining. As a result, the main haulage and access drives have to be reamed out with a continuous miner every couple of years as required.

13.2.3 Hydrogeology

The mine is considered dry.

13.2.4 Mine Production

Cabanasses is mined using a modified room and pillar method with continuous miners. Production panels are defined and the continuous miners extract within these following the visible seam in the face. Trucks haul from the continuous miners to an ore pass which allows material to drop to the area of the conveyor system, and ore and some salt produced is conveyed to surface via the decline. This mining strategy has operated successfully for many years (pre-April 2021 with shaft hosting).

Main underground development dimensions are 8.2m wide and 5.2m high, in both underlying salt infrastructure and in the potash production levels. Ore passes connect the two. Seam A is 5-7m thick and Seam B is 2-5m thick, therefore production in Seam A generally takes a full face of mineralised material whereas in Seam B there is more internal waste extracted. The higher grade in Seam B does make this seam more payable.

Mining dilution and recovery are calculated on a panel-by-panel basis based on the data available from neighbouring blocks and underground drillhole data. The approximate average mining recovery across the deposit is 40%. Dilution is estimated at 10-15% in Seam A and 30-35% in Seam B, based on neighbouring data and historic production actuals.

13.2.5 Underground Infrastructure

The potash seams overlay a rock salt layer in which the main development and infrastructure is located, including access drives and conveyor systems. Ore passes connect the production panels with the conveyors on the salt level.

Two shafts are in place for worker access and ventilation. The new decline transferred all haulage from the shaft to a conveyor system, removing the hoisting bottleneck and greatly increasing capacity. Ventilation now intakes down both shafts, circulates the working areas and exhausts out the decline.

Approximately 10% of rock salt development waste from mining is stowed underground in exhausted workings. Stowed rocksalt comes from waste mining within the potash levels. Rock salt from the mine development level (infrastructure level) is conveyered to the surface in campaigns where it is crushed and sold as road de-icing salt. Increasing the percentage of stowed rock salt underground is generally not practical due to the creep closure of the workings preventing access for backfilling. Salt stored in surface impoundments comprises the waste material from the flotation plant and is transported to the impoundments by surface conveyers.

An overall plan of Cabanasses mine design works is shown in Figure 13.5.

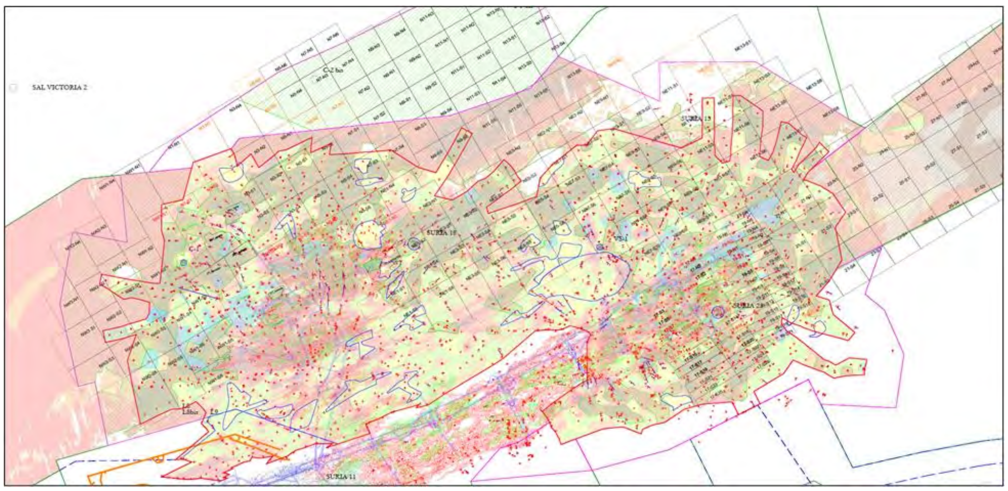

Figure 13.5: Overall Plan of Cabanasses Mine

This plan shows the exhausted mining areas in the bottom central area, current production areas are shown with smaller panels, and future mining areas within the life of mine scheduling are shown as larger panels in the upper and right extents.

A demonstrative area of current mining is included in close-up in Figure 13.6. This shows some current mining panels and the network of existing production drives which characterise the operation.

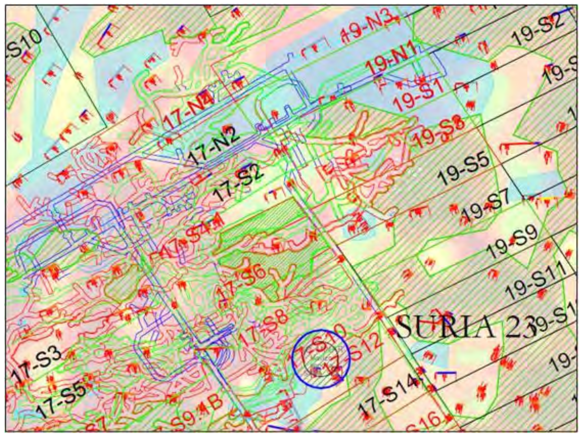

Figure 13.6: Close-Up of Panels and Existing Production Drives

13.2.6 Production Schedule

Potash production (hoisted tonnes) is ramping up from 2.5Mtpa towards 5.0Mtpa over the next five years. This is being delivered through an expansion project (new decline, surface processing facility upgrades, additional machinery) with significant additional capital investment to increase production efficiency and capacity.

The new decline provides additional ventilation (previously 200m^3/s, now 360m^3/s) allowing additional machinery to operate at the working faces. Additional ventilation upgrades are ongoing. Conveyor capacity in the decline is 1,000tph, and through 2021 it has operated at approximately half capacity in anticipation of ramp-up. This has eliminated the previous shaft hoisting bottleneck.

A summary of the annual mine production for 2021 to 2025 is shown in Table 13.7.

Table 13.7: Annualised Mine Production Schedule (Next 5 Years)

	2021	2022	2023	2024	2025
Mined Tonnes (Mt)	4.00	4.88	6.27	6.47	6.47
Hoisted Tonnes (Mt)	3.20	3.90	5.01	5.18	5.18
Grade (%KCl)	24.5	25.0	24.8	24.9	28.4
Saleable Product KCl (Mt)	0.76	0.93	1.18	1.22	1.39

This table shows only years 2021 to 2025 for simplicity. However, the Cabanasses mine plan continues to 2039 (a further 17 years) with analogous production forecast as year 2025.

Figure 13.7 presents an overview of the areas in the long-term mine planning.

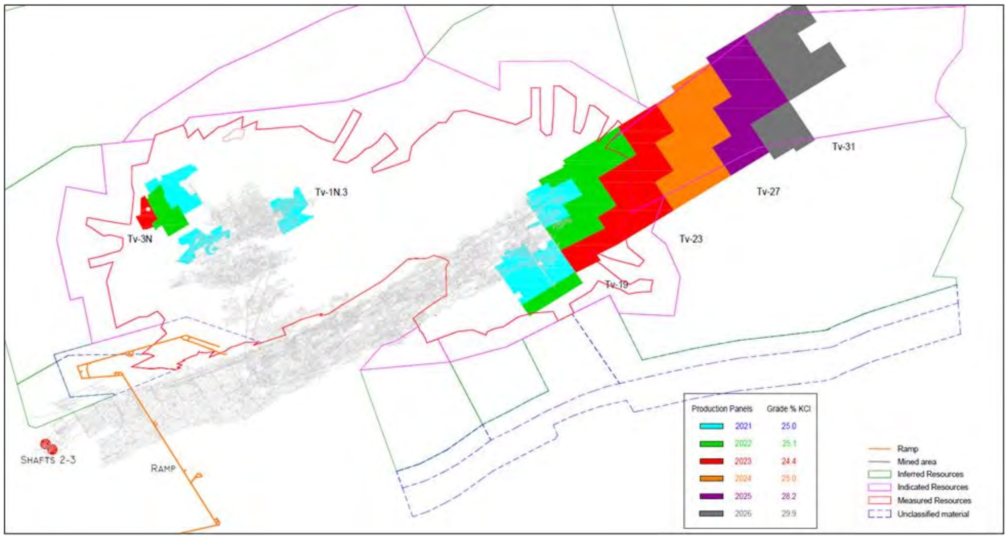

Figure 13.7: Long-Term Mine Planning Areas

13.2.7 Mining Equipment

ICL Iberia currently operates nine continuous miners that offer the flexibility required for mining at Cabanasses. Due to the production expansion and ventilation improvements this will increase by a further two in 2022. Generally 5 - 6 continuous miners are on production at any one time, supported by at least 2 trucks each, the remainder on infrastructure, tramming, or in maintenance.

The potash, and salt, is relatively soft and does not require any drilling and blasting. A continuous miner consists of a moveable boom-mounted rotary cutting head, the cuttings fall into a loading apron and are drawn into a conveyor that discharges the material at the rear of the machine into awaiting trucks.

The continuous miners are supported by a fleet of trackless equipment. Underground haul trucks shuttle the material from the face (from the discharge point of the continuous miners) to the ore passes which enables vertical transfer to the conveyor system and scoop trams are used for loading onto the conveyor, stockpile management and other general material movement. A support fleet of scalers, rock bolters and service vehicles operate within the mine. A summary of the main items of mining plant is presented in Table 13.8.

Table 13.8: Summary of Main Items of Mining Plant at Cabanasses		
Machine		**№ of Items**
Continuous Miners	MINADOR ALPINE AM-85	1
	MINADOR ALPINE MR-520	8
	MINADOR ALPINE AM-50	4
Trucks	CAMION WAGNER MT436B	18
Bolting machines	JUMBO SANDVIK TAMROCK	1
	JUMBO SANDVIK DS311D	5
	JUMBO SMAG	1
Scaling machines	LIEBHERR 912	3
	LIEBHERR 900 LIPTRONIC	1
	LIEBHERR 916	2
LHD's	PALA WAGNER ST 8B	7
	PALA WAGNER ST 1030	4
	PALA WAGNER ST 8B	1
	PALA WAGNER ST 14	5
	PALA WAGNER ST 1030	1
	PALA WAGNER ST 8B	1
Auxiliary Machinery	PALA BOB-CAT S-220	2
	PALA BOB-CAT S-630	3
	MANIP. BOB-CAT T40140	11
	MANIP. BOB-CAT T2250	1
	NEXTRENCHER FC-2600	2
	CESTA NORMET	1
	PAUS	2
	AUSA M250M	2
	GRUA GETMAN A-64	1

13.2.8 Mining Personnel

Underground staff total 130 - 160 people, working in shifts of 40 - 60 people in a three eight-hour shift rotation. The total number of mining personnel at Cabanasses Mine is summarised in Table 13.9.

Table 13.9: Mining Personnel at Cabanasses Mine	
Department	**Number**
Operation	276
Maintenance	129
Ramp Services-CAPEX	4
Geology	7
Topography	13
Planning	4
Rock Mechanics	7
Operational Excellence (Local Agent)	1
H&S	6
Total	447

13.3 Rotem

13.3.1 Introduction

The three original operations at Rotem have now been reduced to two, Rotem mine and Oron mine. The third operation at Zin has closed and is now in remediation. Each of the operations is located within a syncline and are connected by metalled and unmetalled roads. Figure 13.8 shows the location of the operations. It should be noted that another area exists to the northwest of Rotem called 'Barir', however this is currently a potential mining operation and does not have operational licences and is not considered further here.

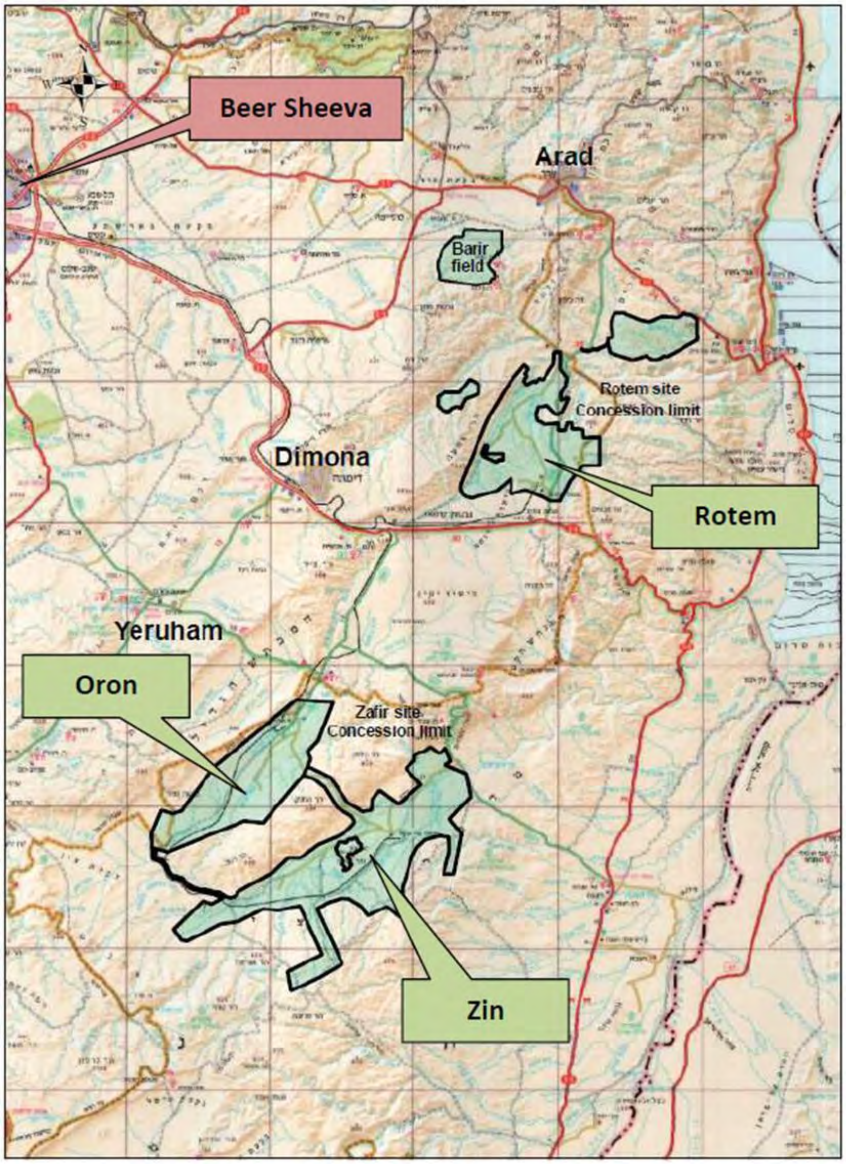

Figure 13.8: Locations of Rotem, Oron, and Zin Operations

13.3.2 Rotem Mine

13.3.2.1 Mining Strategy

Overall the mining strategy comprises developing a mine design from a geological model using Vulcan software. A detailed report is produced and a mine design is prepared from which long range mine plans are produced which are updated every year. The plans show the bench configuration and operating sequence and a series of plans that illustrate the expected grades, overburden isopachytes, phosphate thicknesses and strip ratios. Mining costs are calculated to ensure the plan is economic. Lidar aerial surveys (3-D laser scanning) are used to develop the mine design.

Plans showing the mining activities over 20 years, split into areas of 2 - 3 years (the length of the licence renewal period) have been reviewed. For waste volumes a swell factor of 25 - 30% is used.

13.3.2.2 Geotechnics

There is no geotechnical model, but Rotem mine (and Oron mine) use a generic table for calculating slope angles. An example of various slope angles used in previous design is shown in Figure 13.9.

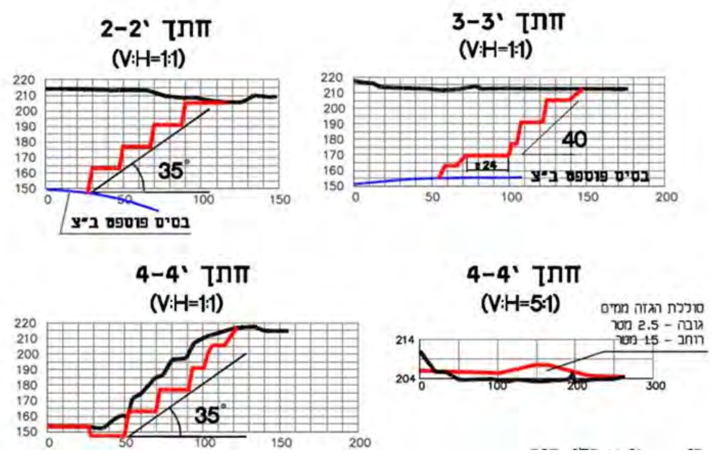

Figure 13.9: Example of Various Slope Angles Used in Previous Design

13.3.2.3 Hydrogeology

The Rotem (and Oron) mine sites are located in the Negev Basin. The Negev and Arava Basins are located in the most arid region of Israel where precipitation is extremely low. The recharge to the aquifer is by infiltration from isolated flash flood events which occur, at most, just a few times each year. Generally, groundwater flows from Sinai and the Negev into the Arava valley, southern Dead Sea and the Gulf of Eilat. A local surface and groundwater divide exists in the central Arava which divides the flow towards the Dead Sea in the north and the Gulf of Eilat in the South.

Mine water inflow is negligible and rainfall minimal, as such no account of hydrogeological parameters is included in mine design and the mines (Rotem and Oron) are considered dry. During brief periods of heavy rainfall, mine operations are sometime suspended on the grounds of Health and Safety as haul roads can become slippery and a risk to mine traffic.

13.3.2.4 Mining Methods

Mining is carried out at Rotem mine (and Oron mine) using conventional quarrying or open pit methods, using hydraulic excavators and dump trucks supported by dozers with rippers or drilling and blasting to 'ease' the material for overburden removal. Front end loaders and trucks are used to excavate the phosphate.

A computerised data management system is used to control the production locations, drilling and blast designs, survey requirements and quality expectations for all the mines on a daily basis.

Correlation is carried out between the predicted production and quality and that actually produced to ensure that quality is maintained at the required level. Once the overburden and phosphate layers are removed the areas are backfilled from the adjacent working area and reclaimed progressively.

The deposition of the material differs at each mine with overburden, interburden and phosphate having different thicknesses depending on the location (see Figure 13.10). The mining method remains the same but how that is applied is varied depending on the local conditions. Mining strategy is based on the grade of phosphate required at the plant, strip ratio and cost of production. Production is blended in order to supply the required P_2O_5. High grade material is blended down with lower grade material in order to extend the usage of the high grade material.

The Rotem mine has two main mining areas, Zefa and Hatrurim, but also work areas Tamar , Area 3, Area 4 , and Zarhit on occasions, working between 5 and 7 locations at one time to ensure the quality of the product is consistent. The two areas are some 60km^2 in total. Three distinct phosphate layers are mined which over the mining area have an average thickness between 1.5m and 5m. The overburden thickness averages between 40 - 60m.

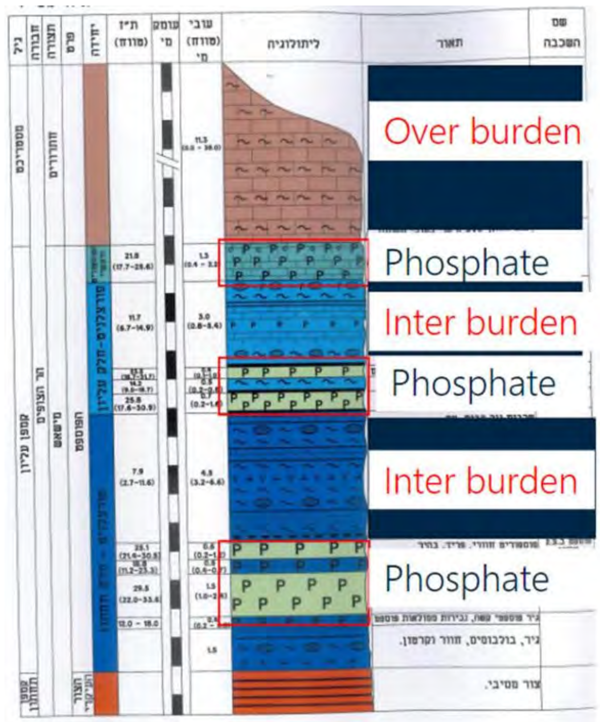

Figure 13.10: Stratigraphic Column from Rotem

As illustrated in Figure 13.9, the three phosphate layers range from a low-grade phosphate (Low Organic <0.5% >22% P_2O_5) to higher grade (High Organic >0.5% >28% P_2O_5). The lower organic grade is used for Market Grade Acid (MGA) and the higher organic grade for Single Superphosphate (SSP) and Triple Superphosphate (TSP) fertilisers.

Overburden consists of a layer of alluvium and conglomerates, followed by a layer of marl and a layer of caprock. The consistent caprock layer is a marker that defines the contact between overburden and phosphate rock. The stripping ratio of overburden to phosphate varies from 2.3 to 3.4 bcm/t with an overall figure of 2.5. The bench height is nominally 3.0m and much of the overburden, with the exception of the conglomerate, can be excavated by “free digging”, so little blasting is required.

An example of a mining area for 2 years with final benches, access roads, waste dump, and water diversion is shown in Figure 13.11.

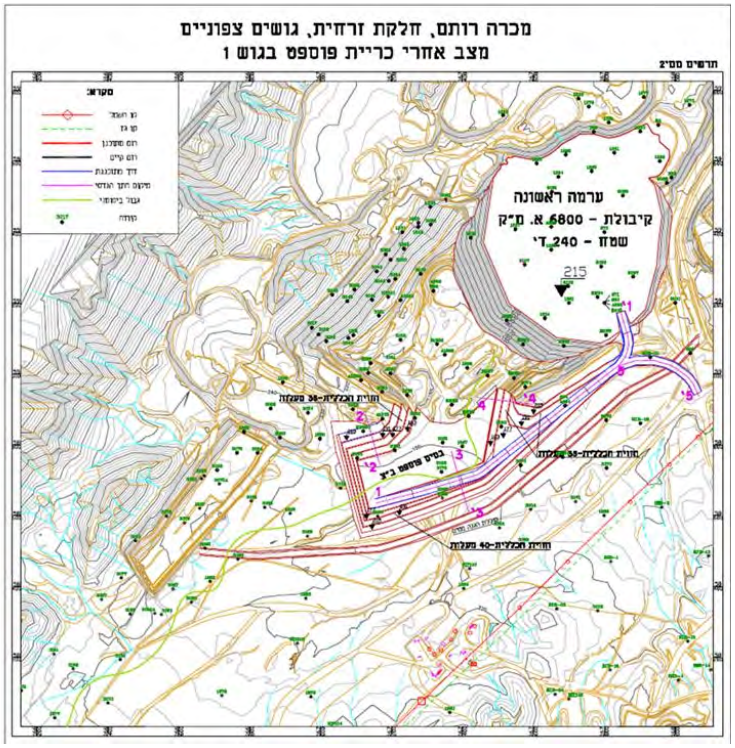

Figure 13.11: Mining Area Plan for 2 Years Production

Overburden and interburden is removed using a backhoe shovel, removing some 6.0 Mm^3 of waste rock per annum, which is deposited back into the excavation once the phosphate has been removed. Most of the overburden comprises soft to medium strength material and is excavated by free digging. Where stronger rocks are present then explosives are used to 'ease' the excavation process.

Where explosives are required the holes are filled with a site mixed ANFO using a specialist truck. The powder factor is kept low to 'ease' the rock for loading not disintegrate it.

Phosphate is mined using a similar method with nominally 3.5Mtpa of rock being sent to the crusher for processing.

The overburden and phosphate stratum are worked in benches with properties depending on the geotechnical analysis of the rock strength. Benches are some 3.0m in height with slope angles of between 25 and 45 degree depending on the local geotechnical situation.

13.3.2.5 Mining Equipment

Mining equipment comprises loaders and trucks. Loading equipment for ore is owned by Rotem and comprises 2 Laternau L1100 bucket loaders and 6 Hitachi 180t capacity trucks. The loading equipment is an ageing fleet and beyond their economic working life leading to downtime. Maintenance is a key part of keeping the mines in operation. In addition there is 1 Dresser 130t haul truck, 3 ANFO Mixers, 65 light vehicles (Kawasaki) for personnel, and a small number of service vehicles, e.g. fuel truck, water bowser, and field maintenance trucks. Overburden is loaded by a contractor owned hydraulic excavator and their own fleet of CAT 775F haul trucks.

13.3.2.6 Mining Personnel

There is a mix of permanent employees and contractors working at both Zefa and Hatrurim. There are 20 permanent personnel work on overburden removal, with 17 on phosphate mining. A further 22 personnel are employed on maintenance of the mining equipment. The total compliment including management is 65 people (Rotem mine).

Some 80 to 100 contractors are employed , mainly on removing overburden at Zefa (some 9-12 Mm^3) but also hauling phosphate from Hatrurim to the process plant. The contractors are also responsible for providing the majority of services at the site including dozers, water tankers, motor graders and other service equipment.

The mine works on a 24/7 basis.

13.3.2.7 Production

The three recent years (2019 – 2021) total mine production of raw ore at the Company's mines in the Negev (and the relevant grade) supplied to the beneficiation plants is summarised in Table 13.10.

Table 13.10: Total Negev Mine Production (2019 – 2021)

Year	Total Mine Production of Raw Ore (Mt)	Grade P_2O_5 (%) (Before / After Beneficiation)
2019	7.0	26 / 32
2020	6.0	26 / 32
2021	5.0	26 / 32

The life of the mine at Rotem is currently around 4.5 years based on reserves of nominally 9Mt of low organic/low magnesium phosphate (given the current planned annual mining volume). The low organic, low-magnesium phosphates are suitable for phosphoric acid production. The annual average production (mining) rate for the low-organic/low-magnesium phosphate ore at Rotem is ≈1.9 Mtpa.

Mining recovery at Rotem is considered to be 92%, and mining dilution is set at 2.5%, based on the previous five years' experience. The stripping ratio of overburden to phosphate varies from 2.3 to 3.4 bcm/t with an overall figure of 2.5.

13.3.3 Oron Mine

13.3.3.1 Mining Strategy

Oron Mine is working two main mining areas, Oron East and Oron Zarchan (Figure 13.12) in the northeast of the licence area. Some 2.5 to 3Mt of White Phosphate is typically mined annually requiring the removal of 6 to $7Mm^3$ per annum of overburden removal. The phosphate rock is crushed at Oron, and 1.1Mt of P_2O_5 is produced, the remainder being 1.4Mt of tailings, primarily limestone. The phosphate at Oron is a low grade ore with low Organic material <0.25% and an average grade at 22% P_2O_5.

The method of extracting the phosphate is reverse flotation, where the apatite is depressed and the gangue minerals are floated off. The product is then placed on the ground to allow to dry for 3-4 months. It is then transported by truck to the phosphoric acid plant at Rotem by contractor.

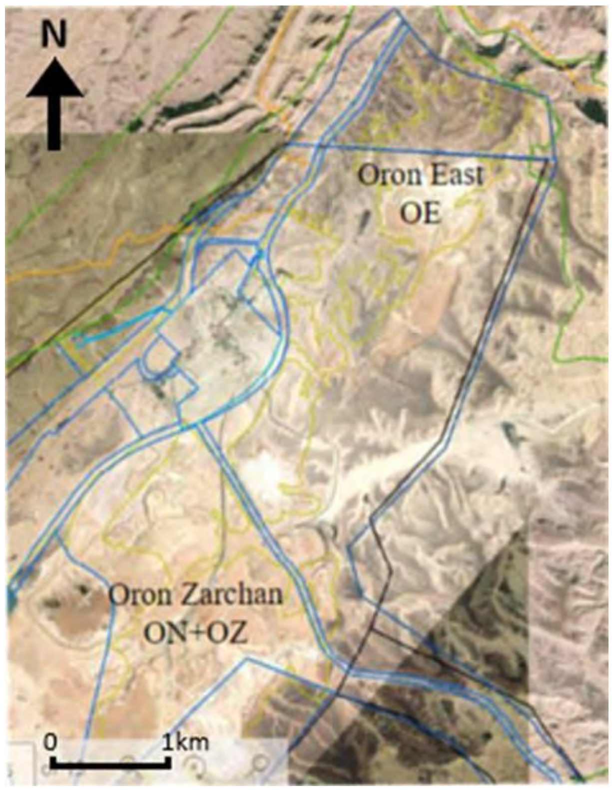

Figure 13.12: Oron Current Mining Areas

For geotechnical and hydrogeological parameters, and mining methods, refer to sections 13.3.2.2, 13.3.2.3, and 13.3.2.4 respectively.

13.3.3.2 Mining Equipment

Mining equipment comprises loaders and trucks all of which are operated by contractor , the loading equipment for overburden being a 7m^3 bucket loading into 65t capacity trucks. Phosphate is loaded using a front end loader into road trucks.

13.3.3.3 Mining Personnel

The mine is operated entirely by contractors but managed by ICL Rotem. ICL staff comprise a manager, geologist and operations manager. There are some 80 contractors who undertake the mining operation and support roles and who supply the relevant equipment.

13.3.3.4 Production

The five recent years (2017 – 2021) production data for Oron mine has remained consistent and is summarised in Table 13.11.

Table 13.11: Oron Mine Production (2017 – 2021)

Year	Tonnes (Mt)	Grade P_2O_5 (%)
2017	2.4	24.02
2018	2.5	23.23
2019	2.5	23.36
2020	2.4	23.50
2021	2.5	23.19

The current life of the mine at the Oron operation is approximately 3 years based on the reserve of 8.5 Mt (White Phosphate) given the current annual mining volume.

Mining recovery at Oron is considered to be 87%, and mining dilution is set at 2.5%, based on the previous five years' experience. The stripping ratio of overburden to phosphate varies from 2.3 to 3.4bcm/t with an overall figure of 2.5.

13.4 DSW

13.4.1 Mining Strategy

The DSW is not a conventional mining operation (open pit, underground, placer, or in-situ mining) but rather an evaporation and dredging operation to recover salt that is precipitated out of solution onto the floor of enclosed ponds. Water from the northern Dead Sea basin is pumped (Photo 13.1) into the salt ponds where the water evaporates, and salt is separated from the solution by precipitation onto the floor of the salt ponds. That precipitation has resulted in a build-up of 10m of salt on the bottom of the ponds since construction necessitating the removal of the salt to maintain the ponds volume. Once the salt has come out of solution the water is then pumped into carnallite ponds to begin the next stage of precipitation. The total pond evaporation area is 146.7km^2 and an outline of this DSW operational area is shown in Figure 13.13.

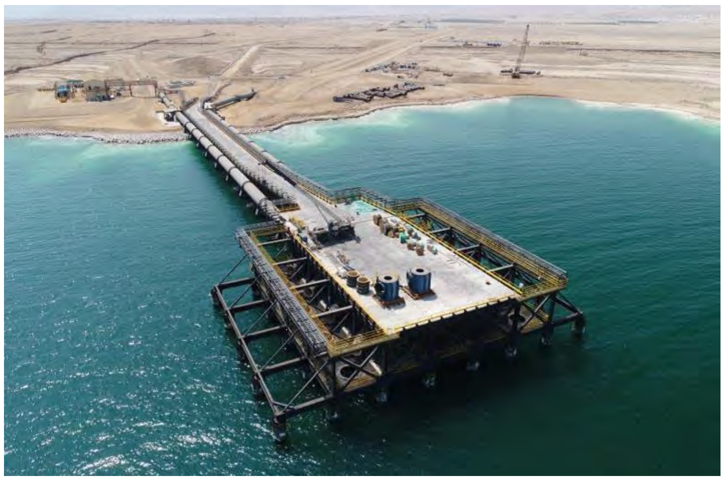

Photo 13.1: DSW Pumping station P9

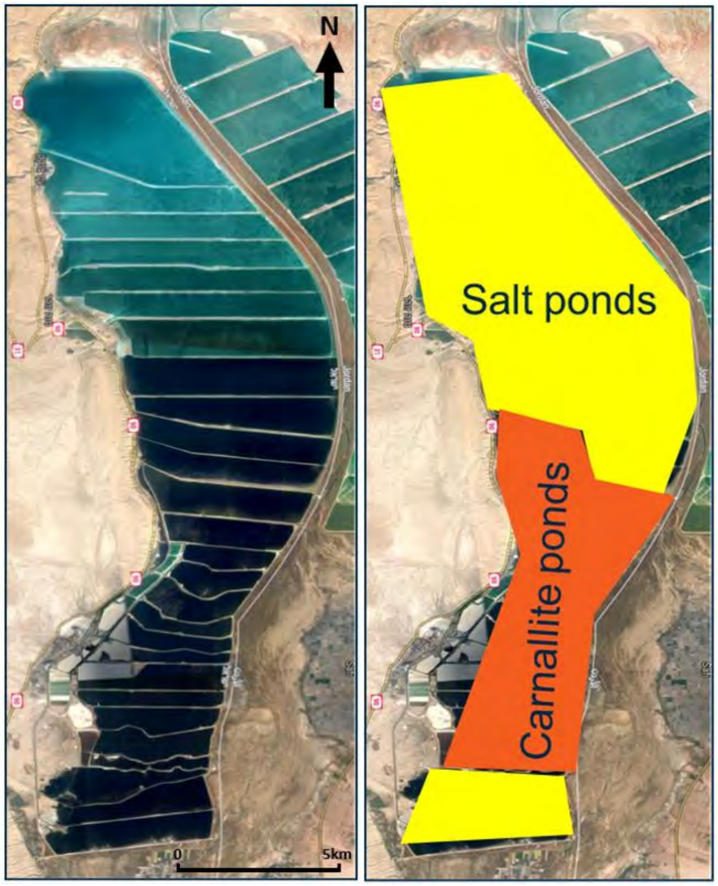

Figure 13.13: Outline of the DSW Operational (Extraction) Area

13.4.2 Mining Method

The Salt Harvesting Project has been initiated to remove the salt precipitation from Pond 5. Pond 5 covers an area of some 80Km^2, has a depth of ≈2.5m and a volume of ≈200Mm^3, with an average rate of precipitation of salt of some 16 to 20cm per annum (equating to around 16Mm^3).

Harvesting the salt is undertaken by a Cutter Suction Dredger (CSD), an electrically driven dredger (10MV/hr) which harvests the salt precipitation using a cutter head under water. The salt is pumped from the cutter head as a brine solution with 20-25% solids at a rate of up to 6,000m^3/hr. Production capacity is some 7Mm^3 per annum, however the plant is currently operating at 5.5Mm^3 per annum taking into consideration environmental and production conditions.

Photo 13.2: Cutter Suction Dredger 'MESADA'

The brine is deposited on the pond sides and allowed to desiccate. Future plans include returning the salt back to the northern Dead Sea basin.

The salt removal is not part of the final product production as such, however it does enable the volume and specific gravity of the brine in the salt ponds to be maintained at the correct volume for salt precipitation. The precipitation of salt that takes place in the salt ponds increases to 1.3 at which point the carnallite starts to precipitate and it is pumped to the carnallite ponds

13.4.3 Carnallite Harvesting 'Mining'

Carnallite is produced from the carnallite ponds using a similar method to the salt ponds. The carnallite ponds are split into seven 'houses' each of which has a CSD barge. Each barge is 12 x 36 x 1.5m, weighs ≈620t, and the fleet can harvest some 48km^2 (≈20Mt) of carnallite per annum from the ponds to the plant.

Since each carnallite pond can vary in chemical composition of KCl, $MgCl_2$, and NACl, the yearly harvesting plan takes into account the composition of the carnallite sent to the plant.
The carnallite is precipitated on the floor of the ponds which is then harvested and sent to the processing plant (Figure 13.14).

Each carnallite pond can be considered a storage facility. The carnallite inventory can be evaluated from the following formula:

Carnallite Cake Height = Pond Level – Hight Measured – Pond Floor (NaCl floor level)

Where:

PL	=	Pond Level
H	=	Height measured
CH	=	Carnallite Cake Height
NFL	=	NaCl floor level (historic input)

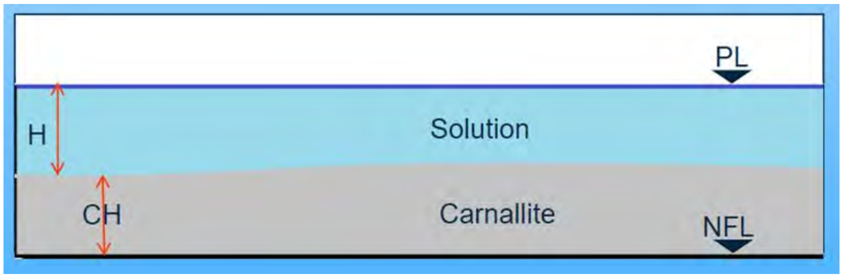

Figure 13.14: Schematic Deposition of Carnallite

The barge has a cycle time which is the time it takes to harvest the whole 'House' and return to its start point. The cycle time varies depending on the size of the 'House' but is between 0.5 and 3 years. The thickness of carnallite (carnallite inventory) on the floor of each 'House' builds up over time (CH in Figure 13.14) before the barge moves into that 'House' and begins extraction, as shown in Figure 13.15.

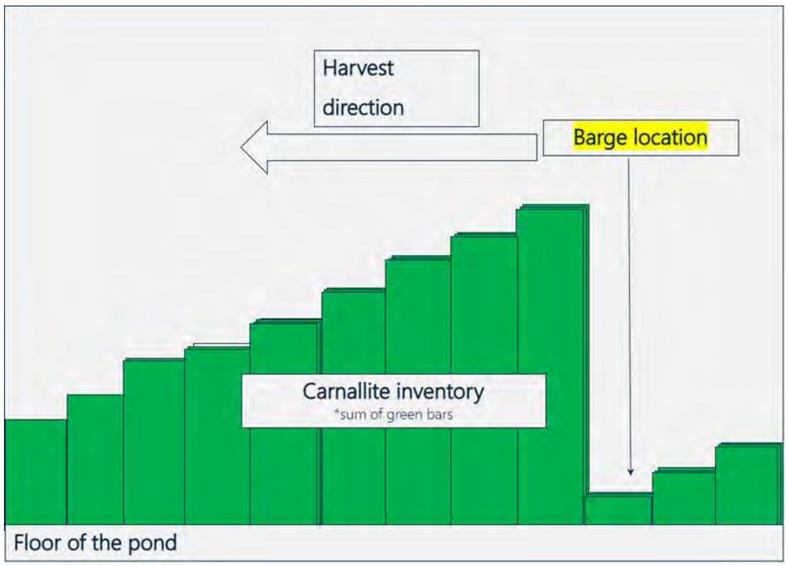

Figure 13.15: Schematic Production Scheme (Barge Cycle)

The edges of the carnallite ponds contain a portion of dry evaporite which is difficult to harvest using the CSD barges. A project to use a dedicated dredger on the edges which will deliver carnallite to the CSD barges is being undertaken.

The personnel required for the carnallite dredging operation is presented in Section 14.5.11.

13.4.4 Carnallite Production

The annual carnallite production tonnage for the last five years is presented in Table 13.12. This represents the material that is pumped from the barges to the KCl production plant.

Table 13.12: DSW Annual Carnallite Production	
Year	**Carnallite Harvest (Mt)**
2017	21
2018	22
2019	21
2020	22
2021	23

The current life of the mine at the DSW operation is nominally 9 years (to 2030) based on the reserve of 172 Mt (carnallite) and given the current steady state annual mining rate as shown in Table 13.12. ‘Mining’ recovery is set at 100% with 0% planned dilution.

13.5 YPH

13.5.1 Parameters Relative to the Pit Design and Plans

13.5.1.1 Geotechnical

In December 2014, Yunnan Geological Exploration Institute of Sinochem General Administration of Geology and mines carried out a resource / reserve verification on Haikou phosphate mine as well as a hydrogeological assessment. The study was carried out in accordance with the Chinese code for hydrogeological and engineering geological exploration of mining areas (GB / T 12719-91). The study mainly focused on the investigation of the mining area faces and waste dump slopes, the investigation included exposed joints and fissures of ore body and surrounding rock, and the investigation of water inflow points, focusing on the collection, sorting, comprehensive analysis and research of previous work and results.

The report concluded that the Mineral Resources and Mineral Reserves were in accordance with the stipulated code and that the areas of exploration had also satisfied the statutory requirements.

13.5.1.2 Hydrogeological

The Kunming and Jinning mineral deposits are basin shaped terrain, with the landform around the basin resulting from the erosion of a cutting type of the middle mountain and low middle mountain. The highest part of the area is the Shansongyuan peak in the south-central part of the mining area, with an elevation of 2,483masl. The lowest elevation is in the north of the mining area, with an elevation of 2,070masl and a relative elevation difference of 413m.

The general elevation is 2,100 – 2,250masl and the general difference in elevation varies from 240 to 390m. The terrain of the area is generally hilly in the central portion and low around the edges. The central part is comprised of the multiple peaks and a valley basin caused by erosion, surrounded by river valleys and flat terrain caused by erosion deposition of material.

The region has a temperate climate (nominally 8 – 20°C) with an average annual rainfall of around 1,010mm. The rainy season covers the period from May through to October, with approximately 86% of the annual rainfall occurring during this period. The average annual evaporation is however notably higher than the annual rainfall, with an average evaporation of some 1,860mm.

13.5.1.3 Surface Water Controls

There is the Haikou River in the northeast, Dianchi Lake in the southeast and Mingyi River in the West. There are no surface water ponds or tailings pond within the mining rights area. The main rivers and lakes are around 200m below the elevation of the lowest mine workings and 5 to 6km from the mining rights area. No surface water within the mining rights area leaves the site. With a net positive evaporation, any surface ponding is localised and of limited duration and extent.

The long-term groundwater level elevation of Haikou Phosphate Mine and its vicinity is 2,002 – 2,108masl. The lowest elevation of resource / reserve estimation is 2,140masl, some 30m above the groundwater level.

13.5.2 Mine Design Factors

13.5.2.1 Geologic and Geotechnical Mine Considerations

There are 14 large and small faults visible within the mining area, and another concealed fault is found in the Block 4 mining area. The faults tend to cause localised slipping across the ore plane. The ore is mined from the outside (highest points) to the inner ore zone (lowest point) and as such the faults are mined out as mining progresses causing no adverse effect on safety or productivity. The final pit slope is one of a very low overall angle as a result of mining within the basin, the resulting pit walls have no impact on the overall pit slope stability due to the extensive area across the basin.

Rock strength tests carried out on samples of phosphate and waste rock, are used to estimate the overall slope angle for design purposes, with 45° being the recommendation for pit slope stability. The general overall pit slope within the mining region is notably less than this recommended maximum design criteria.

The mining area covers some 9.6km^2, with a gently dipping ore zone. There are four primary mining areas (Blocks 1 to 4) within the mining area, each mined as a pair of layers, with first the overburden removal, then the upper Phosphates layer mining, followed by the Interburden and then finally the Lower Phosphate layer.

Each of the Blocks is mined in a series of strips sequentially. Figure 13.16 shows the location of the four Blocks and the overall extent of the mining lease relative to the Blocks. Blocks 1 and 2 have a relatively low remaining ore tonnage that is scheduled for depletion by the end of 2033.

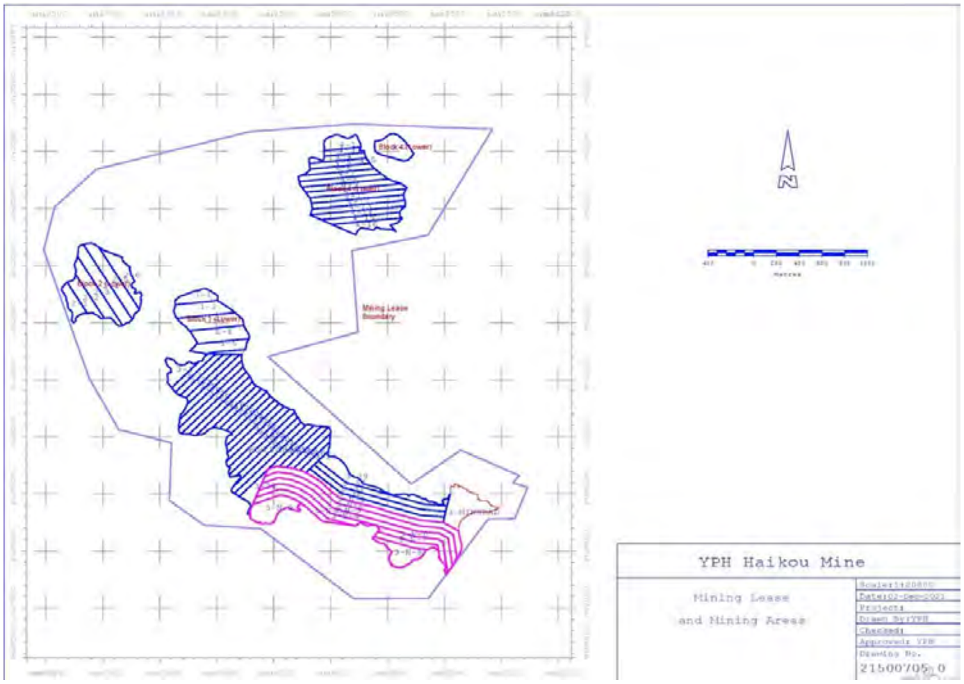

Figure 13.16: Overview of Haikou Mine showing Four Mining Areas (Blocks 1&2 considered as one region) Within Mine Lease Boundary

The stripping bench height of each mining Block is 8 to 15m, with an overall bench face slope angle of 35 to 70°. The waste slope height is 0 to 20m, with an average overall slope angle of 20 to 35° (against the recommended maximum of 45°), there are no adverse engineering geological problems that would indicate issues such as landslide or notable wall failures.

13.5.2.2 Pit Design Objectives and Constraints

The mining method used for both Haikou, and that planned for future the Baitacun extension, is one of open pit mining method using traditional shovel and truck operations. Haikou Mine produces some 2.5Mtpa of phosphate rock with a range of shovel and truck combinations that allow for a high degree of mining selectivity. The primary mining fleet comprises 8 excavators ranging from the 40t class (Komatsu PC400) up to the 125t (Komatsu PC1250) class. All excavators are in backhoe configuration to aid mining selectivity on the bench. Table 13.13 shows the current fleet of backhoe excavators used for ore and waste removal at the Haikou mining operation.

Table 13.13: Haikou Mine Excavator Mining Fleet			
Description	**Number**	**Bucket Capacity (m^3)**	**Max Digging Range (m)**
Komatsu PC1250	2	5.0 – 6.7 (6 m^3)	10.0
Komatsu PC400	1	1.6 – 2.4 (2.4 m^3)	6.8 – 8.5
Volvo EC700	3	2.0 – 4.0 (4.5 m^3)	7.2 – 10.0
Volvo EC750	2	2.0 – 4.0 (4.8 m^3)	7.2 – 10.0
Total	**8**		

There are some 30 trucks and three track dozers used in the ore and waste production. There are 20 units comprising 40t capacity Articulated Dump Trucks (ADTs) within the overall mining truck fleet. The ADTs are used with the Volvo excavators being an optimal match for the Volvo 70t/75t class backhoes.

Total production capacity of the mining fleet is of the order of 6Mm^3 per year, allowing for the mine to operate effectively with requirements matched to the stripping ratio and production needs. In normal production, approximately six of the mining shovel fleets and some 20 trucks are in operation with two shovel fleets parked. As the operation is not mining capacity limited currently, the equipment can be swapped out for servicing with minimal or no interruption to production requirements.

There is a fleet of rigid dump trucks on site owned by the contract mining firm that are used for overburden removal and ore haulage when conditions are suitable. The ADTs would be extensively used when the underfoot conditions are wet (after rain), but in dry conditions the rigid trucks provide a more cost-effective hauling cost.

Photo 13.3 shows a backhoe excavator loading one of the rigid road type trucks with overburden. The pit was dry at the time, no rain, and the loading conditions very favourable for this mix of equipment.

Photo 13.3: Excavator Loading Rigid Haul Truck at Haikou Mine (Golder – November 2021)

13.5.2.3 Pit Production and Support Equipment

Mining support equipment include track dozers, water carts and motor graders. The operation has an extensive internal road network to allow for flexibility and cater for the discrete mining regions within the mine.

13.5.2.4 Production Rates

The 125t class excavators are primarily used for overburden or interburden waste removal, with the larger bucket capacity enabling faster digging rates and lower unit cost when mining in the waste rock. The estimated annual productivity of the 125t class excavator is some 1.44m BCM.

There are an additional two 40t class excavators and truck fleets available to the mine owned by the on-site mining contractors, enabling a maximum total annual mining capacity of some 9.7m BCM.

The Phosphate rock is drilled and blasted to produce a relatively fine blasted rock; this reduces the amount of energy required in subsequent comminution in the primary crusher and milling circuit.

The ore blasting produces a semi regular size product, with occasional oversize rocks that are moved to 'oversize' stockpiles on the bench floor to be subsequently broken by a mobile rock breaker. The general fragmentation can be regarded as very good and well suited to the downstream process of industrial mineral processing.

The variability in colour and banded nature of the Phosphate layer is evident in Photo 13.4. Where larger oversized blocks have resulted, the mining equipment would switch to the off-road rigid dump truck or ADT to protect the dump bodies of the road type rigid trucks.

Photo 13.4: Upper Phosphate Layer Showing Fine Fragmentation from Blasting (Golder – November 2021)

13.5.2.5 Expected Mine Life

The Mineral Reserves have been scheduled for the remaining life of mine, the schedule (Table 13.14) shows the ore tonnes and grade by mining Block for the periods 2022 to 2045 (based on plant capacity).

Table 13.14: Haikou Mining Schedule for period 2022 to 2045

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
	Block 1&2																							
kt	760	600	400	600	600	600	600	600	600	600	600	344												
P_2O_5 %	21.4	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8												
O/Burden	2,370	2,500	1,000	900	900	900	900	900	900	900	900	680												
S/R	3.1	4.2	2.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2												
	Block 3																							
Kt	1,440	1,750	1,350	1,050	1,050	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,766	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,950	2,346	2,450	734
P_2O_5 %	20.7	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
O/Burden	5,431	5,650	4,300	3,800	3,900	4,167	4,167	4,167	4,167	4,167	4,167	4,000	4,200	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	4,175	3,400	500
S/R	3.8	3.2	3.2	3.6	3.7	3.1	3.1	3.1	3.1	3.1	3.1	3	2.4	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.4	0.7
	Block 4																							
Kt	750	800	700	800	700	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	104		
P_2O_5 %	21	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3		
O/Burden	2,880	2,800	2,400	2,000	2,000	1,367	1,367	1,367	1,367	1,367	1,367	980	890	813	813	813	813	813	813	813	813	180		
S/R	3.8	3.5	3.4	2.5	2.9	2.7	2.7	2.7	2.7	2.7	2.7	2	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7		
	Total																							
kt	2,950	3,150	2,450	2,450	2,350	2,450	2,450	2,450	2,450	2,450	2,450	2,194	2,266	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	734
P_2O_5 %	21	21.8	21.8	21.7	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	22	22	22
O/Burden	10,681	10,950	7,700	6,700	6,800	6,433	6,433	6,433	6,433	6,433	6,433	5,660	5,090	4,313	4,313	4,313	4,313	4,313	4,313	4,313	4,313	4,355	3,400	500
S/R	3.6	3.5	3.1	2.7	2.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.4	0.7

13.5.2.6 Pit Production Tasks

Distinct production tasks for the mining operation are as follows:

- Clearing and Grubbing – Includes equipment and labour required to clear vegetation from disturbance areas within the pit.
- Drilling and Blasting – Drilling and blasting typically of the overburden or interburden utilises 10m deep holes using a 150mm diameter drill. The burden and spacing are typically 5m × 4.5m with a moderate powder factor. The phosphate ore is typically blasted when at least half of the ore is considered hard. Where the ore is amenable to free-digging, no drilling and blasting are required.
- Overburden/Interburden Removal – Includes the equipment and labour costs necessary to remove all overburden and Interburden material from the ore zones.
- Ore Mining – Includes the equipment and labour necessary to extract ore and deliver it to the primary crusher.
- General pit Support - Includes the equipment and labour required to maintain haul roads and perform other miscellaneous support tasks.
- The mining schedule for the remaining Mineral Reserves for the Haikou mine is shown in Figure 13.17 from 2022 through to the current end of life of mine projection of 2045.

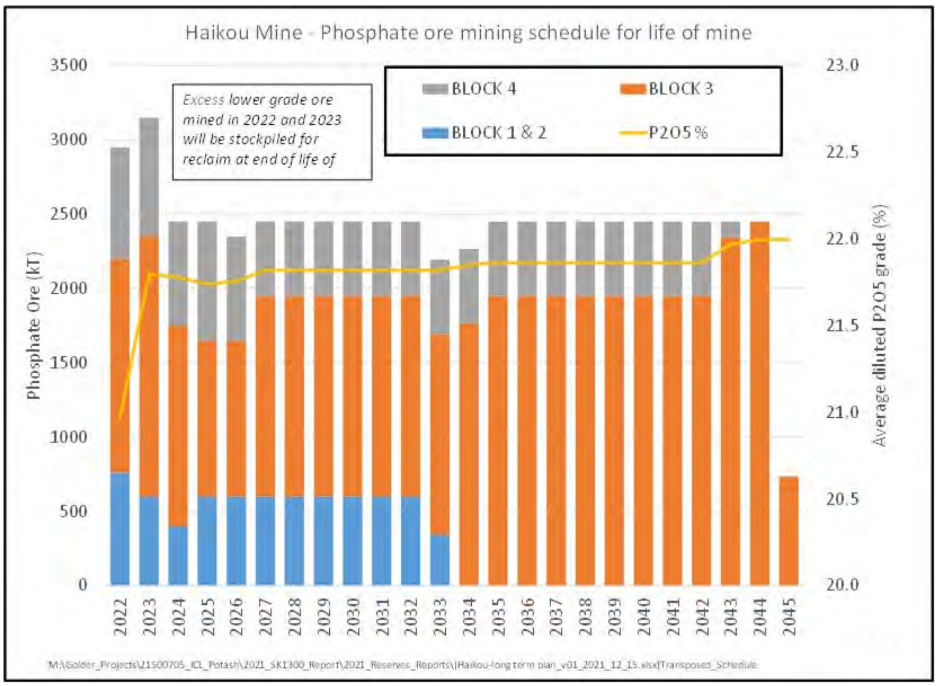

Figure 13.17: Haikou Mine schedule supporting the 2022 Mineral Reserves estimate. (source - Haikou)

14 RECOVERY METHODS

14.1 Introduction

The properties that are presented in this TRS are mature operations with a long history of processing potash and phosphate mineralisation for the production of a number of different final products. Some recovery methods, as at Boulby for polyhalite, are rather simplistic and straightforward whereas the processing at DSW is more complex with a number of streams and different final products. Notwithstanding, the generally prolonged period of operation at all of the sites has enabled the processes to be refined into the recovery methods presently active and most suitable taking into account the material delivered to the plants and final product requirements.

14.2 Boulby

14.2.1 Overview

The Boulby potash mine has been operating since the early 1970's but converted to 100% polyhalite production in 2018. The plant is currently forecast to produce approximately 1.1Mt of polyhalite in 2021, but there are plans to expand production to 1.3Mtpa by 2023 and through to 2025.

The old plant for potash production was based on conventional flotation but is now being slowly dismantled and incorporated into an overall site improvement plan. However, the current crushing and screening plant for polyhalite is located within a section of the old plant, whereas parts of the PotashpluS® plant, are converted from old plant equipment but also including new bespoke equipment.

Additionally, ROM ore can also be treated by a sub-contractor (Kearton's) using essentially mobile screens and conveyors and a mobile crushing plant in a similar configuration. This is located in a separate covered building. In effect, the dedicated Boulby crushing and screening plant is operated to maximum capacity and excess tonnage is processed by Kearton's.

The main impurities in the polyhalite are halite (salt) and anhydrite (gypsum) in the footwall and, as no processing of the ore takes place (just simple crushing and screening with 100% recovery to the different sized products), the strategy is to have greater knowledge of the impurities at the mining face so that informed decisions can be made.

The Geology department is advancing understanding in this regard. However, it is recognised that a blending or homogenisation plant is ideally required to smooth out variations in ore quality and this has been suggested as a potential project for investigation. This would additionally allow the mining of lower grade areas which could then be blended with higher grade ore.

Certain customers are very stringent on their product quality requirements, particularly the Brazilians, so a key focus is understanding and controlling the impurity levels before the ore is mined. A blending facility would considerably help in this regard.

It should be noted that no conventional tailings are produced, and therefore there is no Tailings Management Facility (TMF), although effluent brine is discharged offshore through a dedicated tunnel.

All products out of Boulby are transported by rail to the deep-water port facility at Teesside.

14.2.2 Process Description – Current Circuit

A summary block flow diagram of the current flowsheet is shown in Figure 14.1. A photograph of the Hazemag impact crusher is shown in Photo 14.1.

Photo 14.1: Hazemag Impact Crusher at Boulby

ROM ore <35mm (after initially being crushed by a mineral sizer underground, which minimise the generation of fines) is conveyed from the shaft to the 12,000t stockpile shed. Excess ore can be delivered by conveyor to the Kearton's plant as required.

The ore is then fed from the shed via two underfloor vibrating feeders and bucket elevator to two primary 'Rotex' gyratory reciprocating screens, operating in parallel. The intermediate screen product reports directly as Granular Product, with a size of -4.75 + 2mm. The screen undersize reports to a splitter by-pass chute, where product can be directed as a Standard Product, with a size of -2 + 0.0mm, or directed to a further scalping screen. The oversize from this screen reports as Mini Granular Product, with a size of -2 + 1mm and the screen undersize reports as the P+ Fines Product, with a size of -1 + 0.0mm.

The primary screen oversize is crushed in a 'Hazemag' impact crusher (which both minimises fines generation and produces a more cubical product, depending on the operating speed) and the product screened on a further screen, with the oversize returned to the crusher for further crushing, the intermediate product reporting as Granular Product and the undersize reporting to the splitter by-pass chute (with the primary screen undersize).

The P+ Fines Product is used specifically for the PotashpluS® processing plant. Therefore, three crushed and screened products are produced which are discharged into respective storage bays and conveyed via underfloor vibrating feeders to a rail discharge conveyer and chute system for rail transportation.

The product quantities can be somewhat varied as required by customer demand with the bypass chute. It is reported that the Granular Product attracts the highest premium in price and is in high demand.

The current total plant capacity (including Kearton's) is 1.1Mtpa, but the Boulby plant will be expanded to 1.2Mtpa, then 1.3Mtpa, with the Keraton's plant. Photo 14.2 shows the Kearton's building with mobile screens and conveyors.

Photo 14.2: Kearton's Building with Mobile Screens and Conveyors at Boulby

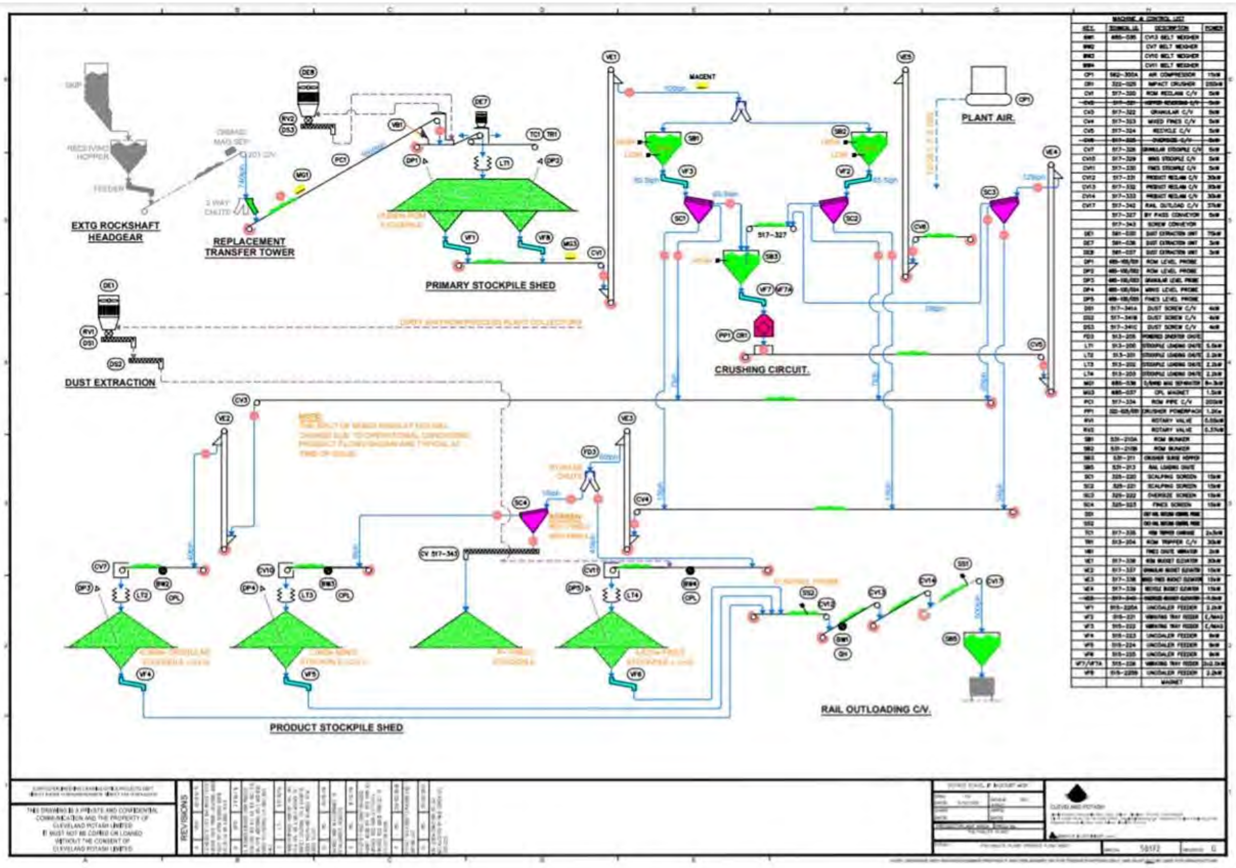

Figure 14.1: Block Flow Diagram of the Current Flowsheet at Boulby

14.2.3 PotashpluS® Process Plant

A granular compaction process is used to produce PotashpluS® at 37% K_2O. ICL currently maintains a number of patents for this product technology. A 50:50 blend of Standard potash product, imported mainly from the Cabanasses operation, and the P+ Fines product from Boulby site, is used.

The Standard potash product is imported via the Teesside operation and transported by road to the Boulby site. The blend is achieved in the finished product silo and then transported by front end loaders to the compaction plant (the old potash compaction plant with various modifications).

The simplified flowsheet is shown in Figure 14.2.

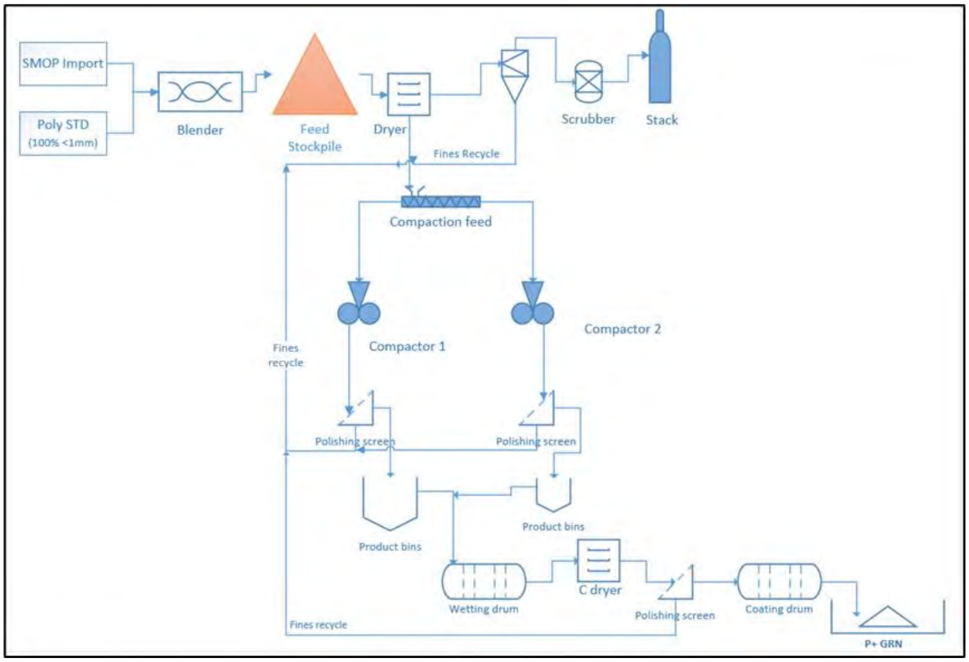

Figure 14.2: PotashpluS® Simplified Flowsheet

The blend is fed via elevator to a rotary gas fired dryer and the powder conveyed to two compactor circuits (or just one if required) via surge bins.

The compactor circuits consist of both Koppern and Sahut compactors, modified to process PotashpluS®. The resulting compactor flake is then crushed in flake breakers and passed over Rhewum DF screens. Screen oversize reports to impact crushers, with intermediate screening out of the product and fines streams, with the oversize after secondary impact crushing recycled to the screen feed. Fines from all the screens are recycled back to the head of the Compactor circuit.

The granular product (+2 -4mm) from all the screens is then polished on multideck Rhewum DF screens (screen oversize is crushed in the secondary impact crusher and the fines recycled to the head of the circuit) and fed via surge bins to a rotating wetting drum. The wetted product is then fed to a gas fired rotary dryer.

The dried PotashpluS® is then fed via a vertical bucket elevator to a Mogensen polishing screen to remove any residual fines which are recycled. The product is then fed to a dedicated rotating coating drum. In this drum, the granular product is coated with a wax-type coating agent and conveyed to a dedicated and segregated storage bay in the finished product silo for transport by rail.

The plant is forecast to produce 139,696t of product in 2021, increasing to 245,600t in 2022 and 300,000tpa from 2023 onwards.

14.2.4 Processing Challenges

While the crushing and screening operation is very straightforward (100% recovery to products), there is preferential segregation of minerals depending on their physical properties, and it has been well demonstrated that Granular products are slightly upgraded while Standard products are slightly downgraded, both by an average of 0.3 – 0.4% K_2O. This is due to the halite being softer and therefore reporting as finer crushed material to the Standard product.

The minimum specification for Granular Product is 14% K_2O and for Standard product 13% K_2O. Allowable chloride levels are 3% and 5% respectively. This equates to a required average mined head grade of 13.6% K_2O or 87% polyhalite. For Granular product, the average upgrading of 0.4% therefore provides the minimum grade of product of 14% K_2O that customers require, particularly those in Brazil, who will reportedly not accept 13.99% K_2O without pricing discounts. Granular Product attracts a premium price.

This clearly demonstrates the requirement for accurate knowledge of what is being mined with respect to grade and impurity levels and hence a current focus on this aspect of operations by the Geology department.

From a health and safety perspective, the dust generation in the Boulby plant, and the dust extraction system should be reviewed, although some improvements have been conducted already – all equipment and flooring is covered in dust and can reportedly affect visibility between operators when in operation. At the time of the site visit, the plant was down for maintenance, so the actual dust generated during operations was not observed.

Another major issue is the downtime required for cleaning the screens and bucket elevators, resulting in very poor overall plant availabilities. The “sticky” nature of the polyhalite/salt results in frequent blocking of the screens and bucket elevators requiring daily cleaning, such that typically 6 hours out of 24 are lost in downtime. With the requirement to keep the product dry, there is no easy answer to this problem without a major re-design of the flowsheet and new equipment.

For the PotashpluS® production, there is an issue whereby permission to import the Spanish Standard potash product to site may be restricted and therefore alternative sites will be looked at, possibly a relocation to Israel.

14.2.5 Operating Data

In general, the plant data shows consistent performance across the known deposit extents.

The production data for 2020 and 2021 is summarised in Table 14.1. Total polyhalite production closely matches the tonnes hoisted as expected. However, total polyhalite production of 708,785t was significantly less than the budgeted amount of 1,006,900t.

Table 14.1: (2020 and 2021) Production Data for Boulby

	2020 Production	2021 Forecast	2021 Production
Polyhalite – Hoisted, t	711,368	784,115	783,895
Total Polyhalite Production, t	708,785	783,562	789,116

Table 14.2 summarises forecast production for 2021 through to 2025 with the increased production from the proposed expansion project and the same yield of products for each year, although consistent with previous year's production.

Table 14.2: Boulby Forecast Production for 2022 through to 2025

	2022	2023	2024	2025
Boulby Polyhalite, t	**1,209,040**	**1,319,481**	**1,322,442**	**1,318,620**
Granular, %	49	49	49	49
Standard, %	30	30	30	30
Fines, %	15	15	15	15
Mini Granular, %	6	6	6	6

14.2.6 Personnel Requirements

The process labour complement for all plants is 92 and operates over a five-shift system of 12-hour shifts. The Head of Operations (Processing) is responsible for the day-to-day operation of the Boulby facility. Both the polyhalite and PotashpluS® plants operate with five shift teams, with shift durations of 12hrs. Each employee is required to work 1,800 contractual hours, which allows for a 2-day, 2-nights, 4-off rota, with all holidays rostered into the shift pattern. Rail loading activities currently operate on a two shift 5-day basis, with flexibility to operate additional shifts if required. As the business moves to increase production tonnages, it may be necessary to introduce a third shift to move additional product to Teesdock. The staffing levels are summarised in Table 14.3.

Table 14.3: Labour Requirements for Processing Operations at Boulby	
Role / Position	**Number**
Head of Operations (Processing)	1
HOD's	3
Laboratory	8
Process Engineer	2
Production	40
Logistics / Materials	10
Maintenance – Mechanical	16
Maintenance – E&I	12
Total	**92**

Day teams carry out routine maintenance and operational support activities. The plants are scheduled to operate on a 24 hours per day, 7 days per week.

14.2.7 Upgrade to Processing Plant

As noted above, the plan is to expand production from 1.1Mtpa to 1.2Mtpa in 2022, then to 1.3Mtpa in 2023 and through to 2025, which is currently the final year of operation due to the current extent of mining reserves.

The main requirement for the Boulby plant expansion is installation of a new 'Dabmar' screen ahead of the current two primary screens which operate in parallel. The undersize (-2mm) will report to the by-pass splitter chute for separation into the final products as normal. The intermediate size (-15+2mm) will report to the primary screening circuit (via the feed by-pass chute), while the oversize (+15mm) will be crushed in a new 'Mansfield' hammermill crusher.

The crushed product will be screened in another new 'Dabmar' screen, with the oversize elevated back to the head of the primary screening circuit. Screen undersize reports to the final by-pass chute for product separation.

14.3 Cabanasses and Vilafruns

14.3.1 Overview

The Súria potash mine and associated process plant and infrastructure has been operating since the early 1950's. In April 2021, the mine commissioned the new decline and conveyor system, so that all potash production is conveyed solely by the decline to the processing facility and no more shaft hoisting is conducted. The decline is also used to batch transport the waste halite from the mine. The reported capacity of the decline conveyor is a maximum of 8Mtpa.

The surface infrastructure consists mainly of the processing facility, which includes the areas of ROM ore storage, crushing, wet grinding, flotation, concentrate and tailings dewatering, drying and compaction. There are separate warehouses for the final standard and granular potash products.

In addition to the potash production facilities, there is a vacuum salt plant, constructed approximately 5 years ago, that produces two salt products and a white potash product. There is a separate warehouse for the vacuum salt products.

Additionally, a new rock salt facility is currently being commissioned.

The process facility is currently undergoing expansion, with the removal of some equipment and installation of new equipment. Although the site is spread out over a fairly large area on a hillside close to Súria town, there is limited space for expansion, especially with the plant in operation and this needs careful management.

The expansion plans require an approximate doubling of production, initially from circa 600,000tpa of potash product to 1Mtpa and finally to 1.3Mtpa. This will require the process plant throughput to increase from approximately 2.5Mtpa to 5Mtpa.

It is reported that the overhead power lines and HV substation have already been upgraded for the planned expansion. In addition, a new load out area at the port has been constructed.

A limiting factor at present is the disposal of the salt (halite) which, as predominantly dewatered flotation tails, is conveyed to the salt mountain. The old salt mountain, containing approximately 27Mt, was not deposited on an impermeable membrane, so brine solution is escaping and entering the Súria river system. A €3M project is currently underway to capture this solution and pump it to the Collector for disposal to the sea. The new salt mountain (containing 3-4Mt) is laid on High Density Polyethylene liner and all brine solutions are captured.

However, space is constrained and discussion is underway on finding a new storage site for the salt, until such time that the new Collector culvert (constructed alongside the existing Collector) as part of the expansion plans is constructed. The existing Collector is nominally government-owned but the new Collector will be effectively owned by ICL Iberia as the main user.

For clarification, the Súria plant is located at the Cabansses mine site and the Sallent plant is located at the Vilafruns mine site. All current mining and processing is conducted at the Cabansses mine and Súria Plant.

14.3.2 Process Description – Current Circuit

A summary block flow diagram of the current flowsheet is shown in Figure 14.3.

14.3.2.1 Crushing

Run-of-Mine ore from the recently constructed mine decline and conveyor system is conveyed to a covered storage area and deposited using a tripper system. The ore is then fed via front end loader through a bin to the dry crushing plant. A magnetic separator removes any tramp steel. The ore is then split into three parallel lines where it is screened, with undersize passing to a silo, and the oversize being crushed in primary impact crushers and conveyed back to the head of the crushing circuit (a closed circuit with the screens).

14.3.2.2 Rod Milling

The crushed product from the silo is conveyed to a splitter and the ore is screened in several parallel circuits using sieve bends. The screen undersize reports to the classification circuit while the screen oversize is wet ground in rod mills, using brine as dilution water.

14.3.2.3 Classification

The milled product is classified in hydrocyclones and the underflow reports to the coarse flotation circuit. The overflow is thickened and the underflow reports to the fine flotation circuit. Thickener overflow reports to the brine circuit.

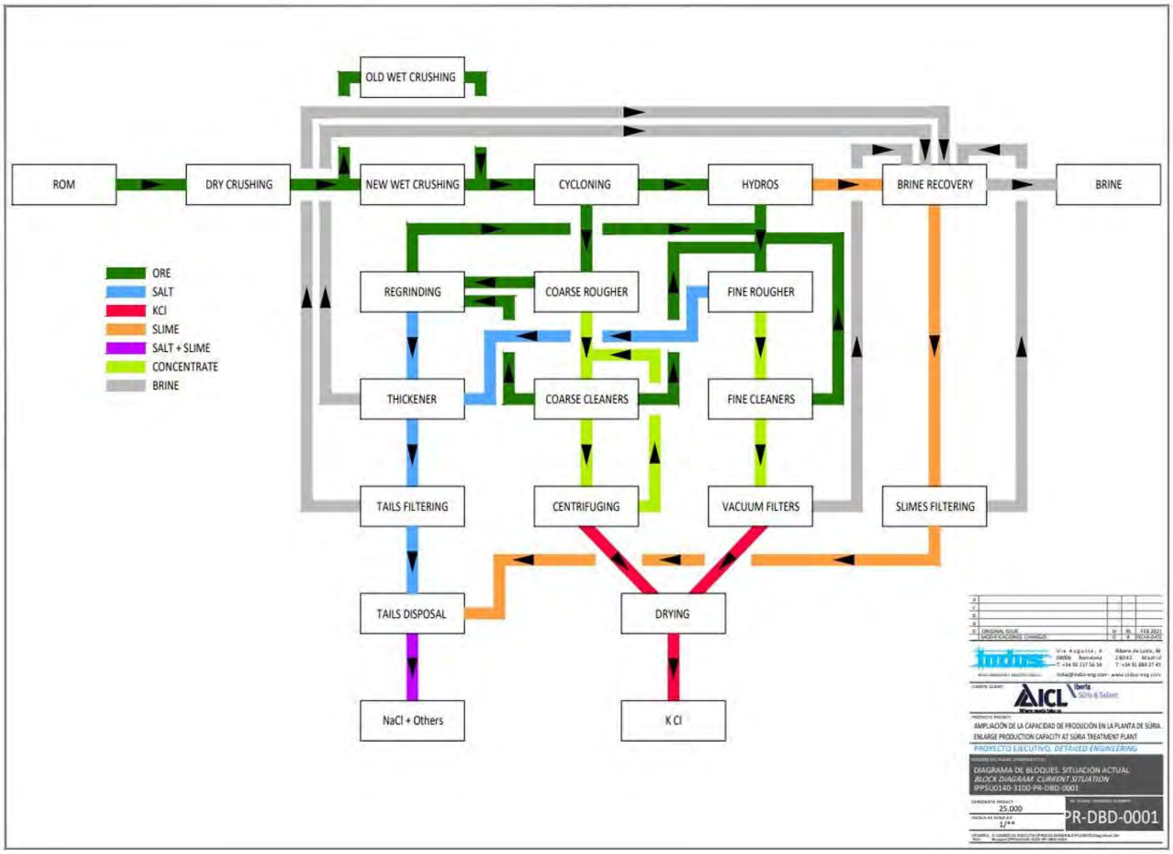

Figure 14.3: Summary Block Flow Diagram of the Current Súria Flowsheet

14.3.2.4 Coarse Flotation

Classification cyclone underflow reports to three parallel lines of rougher flotation cells with the rougher concentrate reporting to two parallel lines, each with three cleaning stages. The final cleaner concentrate reports to the final concentrate filtration circuit. The combined cleaner tails report to the regrinding circuit, along with the combined rougher flotation tails.

Photo 14.3 illustrates the coarse rougher cells in three parallel lines (only two lines currently in operation).

Photo 14.3: Coarse Rougher Cells at the Súria Plant

14.3.2.5 Flotation Tails Regrinding

The rougher and cleaner flotation tails are screened on sieve bend screens and the screen undersize reports to the tailings thickening and filtration circuit. The screen oversize is reground in rod mills and then further screened with sieve bends, with the screen oversize reporting to the coarse flotation circuit and the screen undersize reporting to the fine flotation circuit.

14.3.2.6 Fine Flotation

The feed for the fine flotation circuit is classification thickener underflow and screen undersize from the reground flotation tails. The circuit consists of five parallel lines of rougher cells with the rougher concentrate cleaned in three stages of four parallel lines of cleaners. All cleaner concentrates are combined and reports to the final concentrate filtration circuit. The combined cleaner tails report back to the head of the roughing circuit. The rougher tails report to the tailings thickening and filtration circuit.

14.3.2.7 Tailings Thickening and Filtration

The final tailings streams (coarse flotation tails screened undersize and fine flotation rougher tails) are split into several parallel clarifiers, with the overflow reporting to the brine circuit and the underflow reporting to three horizontal belt vacuum filters. This dewatered tailings stream is principally salt (NaCl) and is conveyed to the top of the salt mountain for disposal. A portion of the tails feed steam is also fed to a bank of hydrocyclones, with the underflow also reporting to the belt filters and the overflow further clarified. Clarifier underflow is filtered and overflow reports to the brine circuit.

14.3.2.8 Concentrate Centrifuging and Filtering

Coarse flotation concentration reports to a series of centrifuges and the centrifuge product is conveyed to the drying plant. Fine flotation concentrate reports to a vacuum belt filter with the product also reporting with the centrifuge product to the drying plant.

14.3.2.9 Drying Plant

The drying plant consists of four separate dryers to produce both standard and granular products. The filtered coarse and fine flotation concentrate reports to the drying plant, where it is dried in gas-fired fluid bed dryers. The gas from each dryer passes through three dry cyclones in series and is then scrubbed in brine before venting to atmosphere. The dried concentrate from the bed of the dryers forms the standard potash product. The dried concentrate from the cyclones, augmented as necessary by the standard product from the bed, goes to the granular product compaction plant.

14.3.2.10 Compaction Plant

The concentrate from the cyclones is fed to a gas-fired rotary kiln where the potash is heated to 160°C. This serves to destroy the amine flotation collector, which inhibits compaction, and also heats the potash for compaction. The kiln product is screened to eliminate any oversize material and fed to the compaction rolls, where it is compressed into a flat cake. The cake then passes to a breaker and a hammer mill in series and the hammer mill product is screened on a double deck screen. Oversize is crushed in a secondary hammer mill and returned to the screen. The granular product (>2mm <4mm) is taken from the oversize of the lower deck of the screen, while the lower deck undersize is recycled to the rotary kiln discharge. The finished granular product is conveyed to a warehouse where it is permitted to cool before despatch by road or rail.

14.3.2.11 Brine Circuit

The combined brine streams from the various clarifier and thickener overflows are further clarified in two stages of clarifiers, with the overflows from the first stage recirculated back to the plant as brine solution for wet grinding and dilution requirements. The clarifier underflow from the second stage reports to a filter press, where the filtered material is disposed with the filtered flotation tails and conveyed to the salt mountain. The second stage clarifier overflow returns to the head of the clarification circuit. Excess brine solution in the circuit reports to the Collector culvert for final disposal to the sea.

14.3.3 Processing Issues

A current complexity requiring careful management, and also from a health and safety perspective, is the on-going construction work to upgrade the plant to achieve 1.0Mtpa of potash product, while the plant remains in operation. This requires the removal of some equipment and installation of new equipment.

Metallurgical performance can vary significantly due to varying feed grades, which can vary from typically 20% KCl to 40% KCl. In addition, if the carnallite content varies much over 4-5%, this adversely affects flotation performance. There is no facility for blending the ROM ore, with the ore deposited by the conveyor tripper within the ore shed simply loaded from the front via front end loader to the plant.

An on-line analyser is planned to be installed, as current assay methods have a typical four-hour turnaround, hence plant operation is largely dependent on operator experience. However, a Spectraflow analyser has been installed on the crushed product that provides real-time analysis of the feed KCl, carnallite and moisture contents.

It was noted during the site visit that, with three parallel lines of primary crushing and coarse rougher flotation, only two of the lines were in operation, assumed as only being required for current mine production. Therefore, it is assumed that additional capacity is available with the current plant configuration.

The lack of space on the salt mountain and need for a new location to dump the salt is of immediate concern and discussions are reportedly taking place. The new salt dump will have to suffice until such time that the new Collector pipe is constructed. Ultimately, with the vacuum salt plant and new rock salt plant being constructed, any excess salt will be disposed of as brine solution through the Collector and no salt will be required to be dumped in future.

Current plant operating and maintenance personnel numbers appear to be light. Housekeeping needs to be improved.

14.3.4 Operating Data

Table 14.4 summarises the key operating data for potash production from ICL Iberia between 2019 through to October 2021.

Table 14.4: Key Operating Data for ICL Iberia			
	2019	**2020**	**2021**
Sallent Plant (Vilafruns)			
Ore hoisted from Vilafruns mine (kt)	1,183	277	-
Tonnes processed (kt)	1,183	277	-
Head Grade % KCl	22.5	22.4	-
KCl Produced (kt)	234	54	-
Product grade % KCl	95.5	95.5	-
Recovery KCl, %	84.0	83.0	-
Súria Plant (Cabansses)			
Ore hoist from Cabanasses mine (kt)	1,831	1,874	2,534
Ore hoist from Vilafruns mine (kt)	836	484	-
Tonnes processed (kt)	2,667	2,358	2,534
Head Grade % KCl	23.8	24.2	26.4
KCl Produced (kt)	569	503	599
Product grade % KCl	95.5	95.5	95.5
Recovery KCl, %	85.7	84.0	85.3

For 2021 YTD, the ratio of granular to standard potash product is 67%.

Therefore, for 2021 pro-rata, the mine is on course to process approximately 2.5Mtpa of ore and produce 600,000t of potash product in total. The expansion plan is required to effectively double this by 2025.

In addition, the vacuum salt plant produces on average approximately 450,000tpa of Industrial Salt (UVS), 120,000tpa of Specialties Salt (SP Salt) and 20,000tpa of White Potash (WP).

14.3.5 Personnel Requirements

The number of personnel at the Súria plant, including laboratory, is summarised in Table 14.5.

Table 14.5: Súria Plant Personnel	
Area / Department	**Number**
Operation	60
Maintenance	38
Laboratory	11
Process Control	3
Scale	2
Total	**114**

14.3.6 Upgrade to Processing Plant

The initial upgrade to the plant is for 1.0Mtpa of potash product, with an eventual target of 1.3Mtpa. For the 1.0Mtpa upgrade, design flowsheets and metallurgical balances have been produced by INDUS from Spain, with a design plant throughput of 571tph. This equates to 5.0Mtpa at 100% plant availability.

In the dry crushing circuit, the recirculation of primary crushed product back to the head of the crushing circuit will be stopped. This high recirculation significantly reduces the fresh ore feed rate. Instead, the primary screened undersize and crushed product will be combined, brine added and the slurry pumped to a new two-stage screening circuit operating in closed circuit with the rod mill. This will allow for the processing of the higher throughputs.

The classification and brine recovery circuits are unchanged.

A minor change in the coarse flotation circuit is that the combined cleaner tails will be pumped to the fines flotation circuit, rather than reporting to the regrind circuit with the rougher tails.

A major change is that the current fine flotation cells will be completely replaced by new Jameson cells, two initially and finally four in total. The fines from the classification circuit thickener underflow will report to a dedicated scavenger Jameson cell. The fines from the screen undersize from the regrind circuit will also report to a dedicated fines Jameson cell (with two further cells to be added after the second stage of expansion). All concentrates from the Jameson cells report with the coarse flotation concentrate as final concentrate for dewatering. All Jameson cell tails will report to the regrinding circuit.

The regrind and tails filtration circuits will remain unchanged.

A further major change is that three of the four current dryers will be decommissioned and a new dryer constructed.

The schedule, mechanical equipment list and capital costs for the expansion of the plant to 1Mtpa, and then to 1.3Mtpa of potash product, has not been reviewed. In particular, the current flowsheet and mass balance information developed by INDUS is only for the 1Mtpa project and the details for achieving 1.3Mtpa have not been provided. However, the fact that the third line of primary crushing and coarse rougher flotation is not currently in use does indicate some spare capacity in the current plant.

14.4 Rotem

14.4.1 Overview

The Company operates two phosphate processing plants that receive and process the mined ore from the operating mines. In addition, the Company operates downstream fertiliser product plants that take product from the concentrators as feed stock for further processing to produce a range of final products.

Phosphate rock is mined from the open pits at Rotem (sometimes referred to as Arad) and Oron and is processed at the mineral beneficiation plant at the respective pits. The concentrates are sent to the Rotem site for further processing.

A part of the Rotem resource contains reactive phosphate rock, which is concentrated at Rotem and exported directly to clients in Brazil. Most of the phosphate concentrate that is sent to the Rotem site is processed into a range of fertiliser and other products.

In Israel, Rotem manufactures:

- Phosphoric acid for agricultural applications (Green acid);
- Technical phosphoric acid for food applications (white acid);
- Sulfuric acid;
- Phosphate rock for direct application & for production of other products;
- Phosphate fertilizers (GTSP, GSSP);
- Composite fertilizers (mostly phosphate based); and
- Special fertilizers (MKP, MAP, Hipeck, PicAcid).

A schematic flowsheet for the operation, together with the 2020 processing budget, is shown in Figure 14.4.

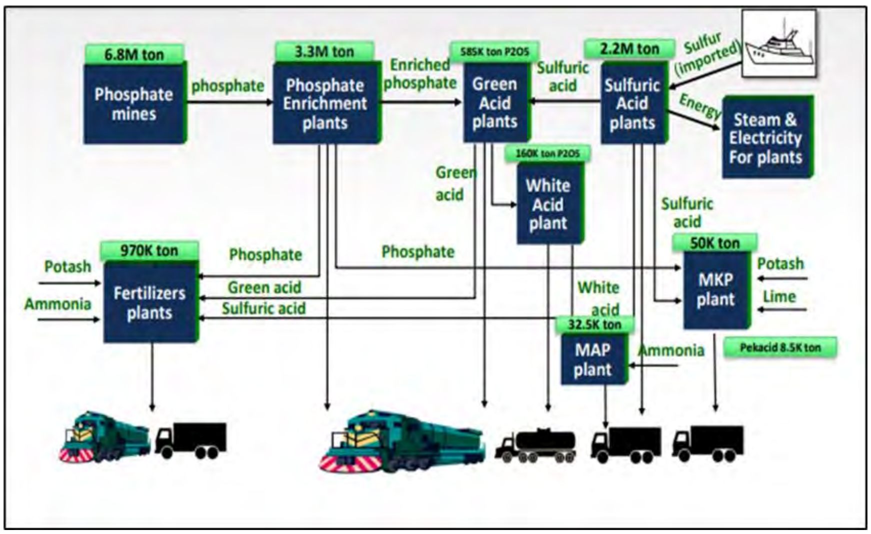

Figure 14.4: Overview of Rotem Recovery Operations

14.4.2 Oron Concentrator

The Oron mine has resources of “white” phosphate sufficient for the next three years demand only (8.5Mt). There is “brown” phosphate sufficient for thirty years, which is yet to be mined. White phosphate rock has a very low content of reactive organic material (humic and fulvic acids etc.); brown phosphate rock may contain up to 0.8% of reactive organic material. Reactive organic material causes problems when the phosphate is used to make phosphoric acid, partly because it causes foaming in the phosphoric acid plant but also because it produces a less-pure green phosphoric acid which is not good for white phosphoric acid.

The present Oron beneficiation plant was built in 1992 and was designed to process 182tph of ROM phosphate ore containing 24% P_2O_5 from the Oron Mine and produce 76.5tph of concentrate containing 32% P_2O_5. From 2005 to 2010, the capacity of the plant was increased to the present 290tph of ROM phosphate ore, from which about 1.3 Mtpa of phosphate concentrate containing on average 31.3% P_2O_5 is produced.

The ore consists, for the most part, of fluorapatite, but this is contaminated by lumps of siliceous chert, containing some siliceous phosphate, calcite, salt, and occasional dolomite. A small amount of montmorillonite clay, some microcrystalline quartz and a small amount of gypsum are also present. The ores are commonly contaminated with small amounts of organic material but both this and the cadmium and arsenic levels are particularly low in Oron white phosphate ore. After dis-aggregation, the contaminants tend to be concentrated in the coarse and very fine fractions so classification and rejection of the finest and coarsest fractions is the main means of upgrading the ore. Flotation is used to remove calcite from the remaining material. A simplified flow diagram is shown in Figure 14.5.

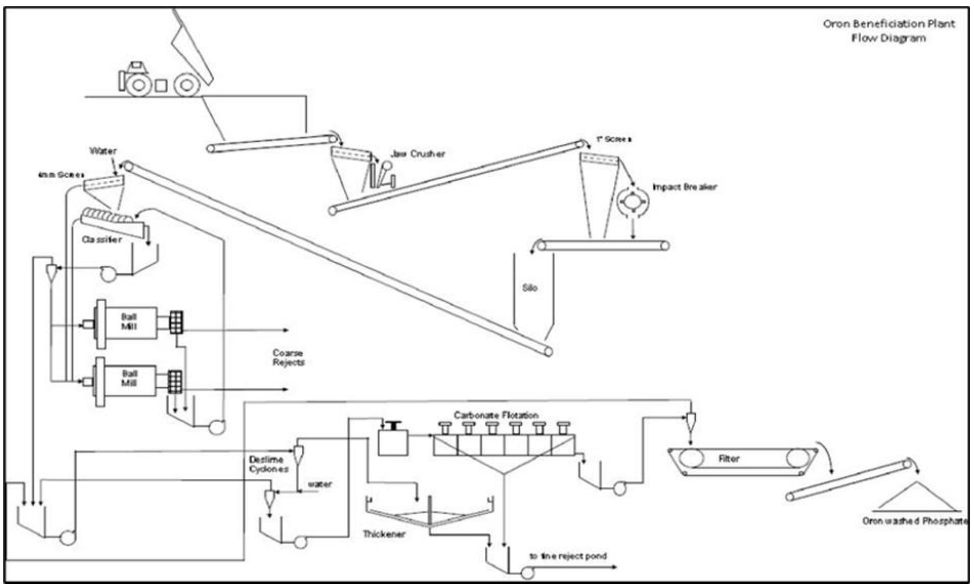

Figure 14.5: Oron Beneficiation Plant Flowsheet

The ROM ore is dumped by mining haul trucks into a hopper which is discharged by an apron feeder via a coarse vibrating screen to a single toggle jaw crusher. The screen underflow is combined with the crusher product and conveyed to a vibrating screen with a 1" aperture. The screen oversize fraction discharges to a horizontal shaft impact breaker whose product is combined with the screen undersize and conveyed to a storage silo at the head of the wet beneficiation circuit.

The rock with a particle size finer than 1" is drawn from the silo by a belt feeder at about 290tph and conveyed to a 1.2m by 3.6m vibrating screen with a 4mm aperture. Water sprays on the screen ensure a clean separation and the screen undersize flows to a 72" spiral classifier. The screen oversize gravitates to one of two ball mills, where it is combined with the spiral classifier coarse fraction and the underflow from the mill hydrocyclones. The ground ore discharges from the mill through a trommel screen with an aperture of 5 mesh. Approximately 2.0 tph of coarse material is rejected from the trommel screen. After passing through the trommel screen the ore is pumped to the spiral classifier. The spiral classifier overflow is pumped to the mill hydrocyclones. As described above, the cyclone underflow returns to the mills while the cyclone overflow is discharged to the de-sliming circuit.

The ground pulp is pumped to a 2-stage desliming circuit using hydrocyclones. The overflow from the first cyclone (minus 400 mesh) is rejected to the 10m slimes thickener. The underflow is diluted with water and gravitates to the second cyclone, whose underflow discharges to the flotation feed pump. Overflow from the second cyclone is recycled to the head of the deslime circuit.

Flotation feed is pumped to an agitated conditioning tank. Here the pH is adjusted to 5.5, and the emulsified fatty acid collector and frother are added. The pulp overflows to four 30m^3 cylindrical flotation cells, whose tailing is divided between three parallel banks, each of four or five, 5m^3 flotation cells. The flotation concentrate, containing only 7.5% P_2O_5, is combined with the slimes thickener underflow and pumped to a slimes pond in a mined out area in the mine, from which the water is reclaimed to the plant. The flotation tailing, which is the final phosphate concentrate, is pumped to dewatering cyclones whose underflow gravitates to one of two 30m^2 horizontal belt vacuum filters. The filter cake is rinsed with fresh water on the filter and then discharged by conveyor to a stockpile where it naturally drains from about 20% to about 15% moisture content. As necessary, it is reclaimed from the stockpile and fed to an oil-fired rotary dryer before despatch by road to Rotem.

The recovery of P_2O_5 is reported to be 72%.

14.4.3 Zin Concentrator

The Zin beneficiation plant was built in 1976 and was designed to process 4.6Mtpa of ROM phosphate rock on two parallel lines and produce approximately 2.2Mt of washed phosphate rock per year. Of this production, about 1.7Mt was fed to a calcination plant to produce about 1.2Mt of calcined phosphate rock.

The Zin process plant no longer operates.

14.4.4 Rotem Beneficiation Plant

The Rotem Beneficiation plant was built in the mid-1970's and is designed to process annually 2.8Mt of ore. Approximately half of this material is high-grade reactive phosphate rock, which is crushed to reject the coarse fraction and then dried, and either used in the fertiliser plant or shipped directly to export markets. The other half is lower grade material, which is beneficiated to produce approximately 940,000tpa of concentrate that is used directly for phosphoric acid production.

The phosphate rock at Rotem in the central part of the shallow slope has a high organic content, so-called bituminous phosphate, which is difficult to use or market. There are two phosphate layers separated by a shallow limestone marker. The upper layer is low-grade phosphate (28 – 29% P_2O_5), which is beneficiated for phosphoric acid production.

The lower layer is high-grade phosphate (31 – 32% P_2O_5), which has a high reactivity, and is crushed and screened and either sold directly or used for fertiliser production. The bituminous phosphate is used as rock for fertilizer, GTSP and GSSP, but not for acid. For phosphoric acid, phosphate with a low organic content is extracted.

There are two adjacent primary crushers at Rotem. High-grade ore is delivered to the west crusher. Figure 14.6 shows a simplified flow diagram for the beneficiation of the high grade ore (Plant 70B).

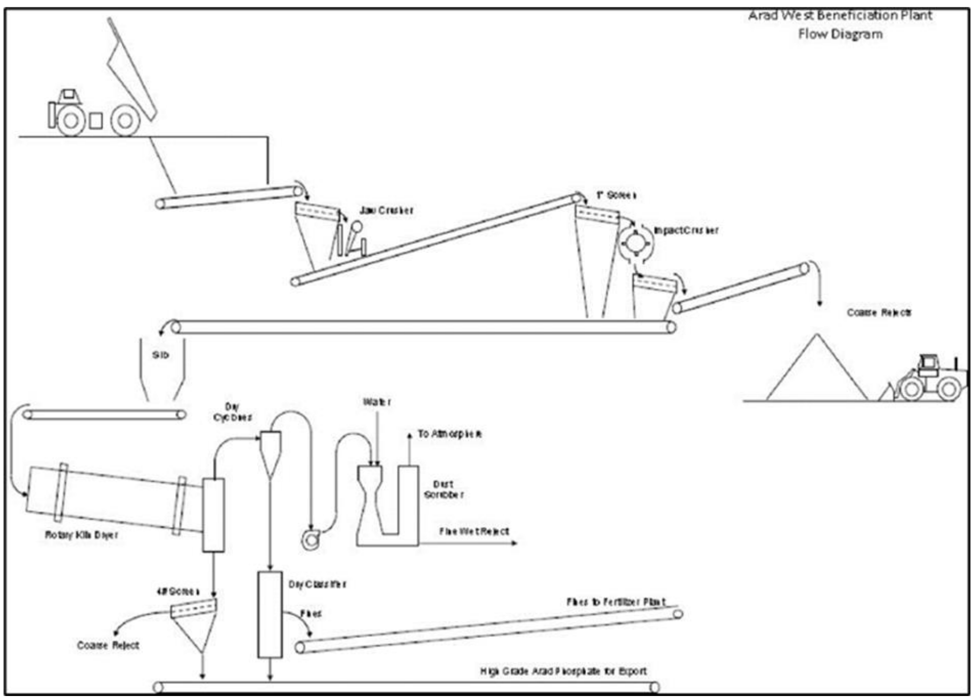

Figure 14.6: Rotem Dry Beneficiation Plant 70B

An apron feeder draws ore from the bin to a vibrating screen. The screen oversize is crushed and the screen undersize joins the crushed product on a conveyor to the secondary crushing plant. The ore is then fed to a vibrating screen with a 1" deck aperture, the screen oversize is crushed in a horizontal shaft impactor and the crushed product is fed to another vibrating screen with a 1" deck aperture. Oversize from the second screen is rejected to a stockpile.

Undersize from both screens is conveyed to a silo. A feeder under the silo conveys the ore to an air swept rotary kiln dryer. Coarse material discharging from the dryer is fed to a 4 mesh screen. Screen oversize is rejected and the screen undersize forms the primary coarse product. Fine material (≈60% <100 mesh) is drawn by the air stream to a bank of cyclones, whose underflow is fed to an air classifier. The coarse fraction from the classifier forms the secondary coarse product and is normally combined with the primary coarse product to produce high grade Rotem phosphate rock for export. The fine fraction from the classifier is sent to the fertiliser plant. The cyclone overflow passes through a centrifugal fan to a scrubber, from which slurry forms the fine wet reject from the plant and scrubbed air is vented to the atmosphere.

Low-grade ore is delivered to the east crusher, where it is crushed in the same way as the west crusher. Figure 14.7 shows a simplified flow diagram for the beneficiation of the low grade ore. It is dry beneficiated in the same way as the high-grade ore and then conveyed about 1.0km to the west beneficiation plant.

The wet plant (Plant 20) is designed to process 162 dry tph. The ore is delivered to a vibrating screen with a 1/2" deck aperture, which is washed with water. The screen undersize gravitates to a second vibrating screen with a 20 mesh deck. The oversize from both screens is delivered to a 16m^3 Nordberg rod mill.

The mill discharge is pumped to a spiral classifier from which the sands are returned to the mill. The undersize fraction from the 20 mesh screen is pumped to a pair of 26" hydrocyclones, whose underflow is pumped to a dewatering cyclone ahead of the final concentrate filter.

The overflow from the hydrocyclones joins the spiral classifier overflow and is pumped to a bank of hydrocyclones whose underflow is pumped to the conditioner ahead of the flotation circuit. The overflow from these hydrocyclones goes to the 75m slimes thickener. The pulp is conditioned in brackish water at a pH of 5.5 using hydrochloric acid.

The flotation gives a clean separation of the carbonate from the phosphate rock but is essentially unselective for other minerals. The operations at the phosphate mines of ICL Rotem are sometimes referred to as reverse flotation, as it is the waste product (calcite) that is collected and removed.

The flotation concentrate flows to the slimes thickener and the tailing, which is the final phosphate concentrate, is pumped to a dewatering cyclone whose underflow gravitates to the horizontal belt vacuum filter. The coarse sands are fed to the filter ahead of the flotation tailing. The filter cake is conveyed to a stockpile where it is permitted to dry, before being reclaimed and delivered to the phosphoric acid plant.

Residue from the slime thickener is pumped to a pond in a mined out area and the water is decanted through a rock filter and reclaimed. The coarse reject fractions are used for road construction in the mine area.

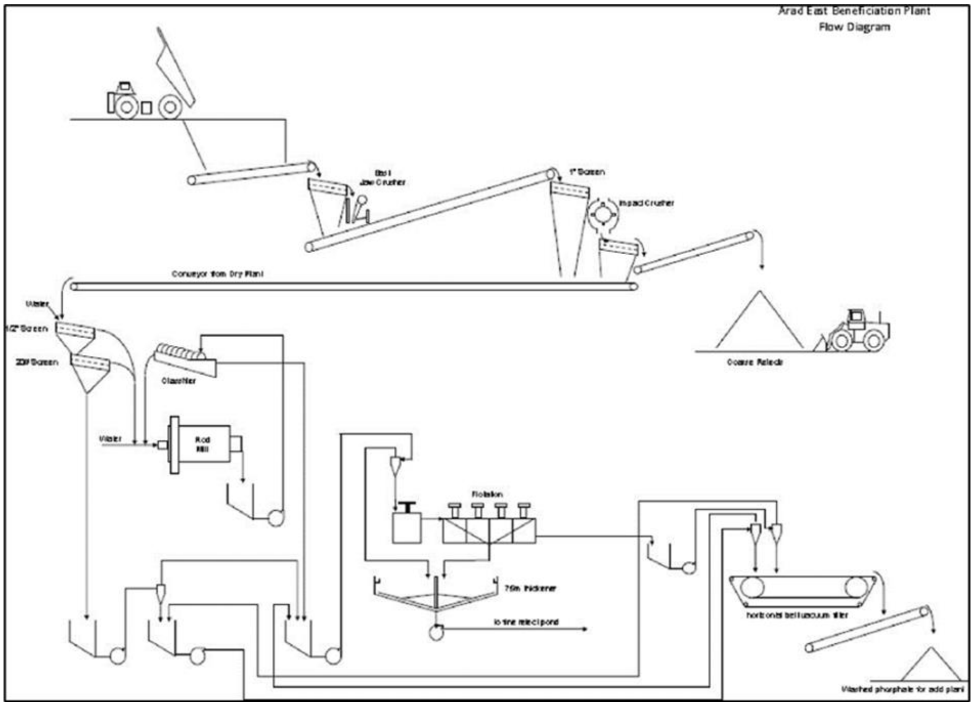

Figure 14.7: Rotem Wet Beneficiation Plant 20

14.4.5 Rotem Fertiliser Complex

14.4.5.1 Introduction

A large processing area at Rotem has been developed for the processing of phosphate rock concentrate into fertilisers and other products.

The Rotem refinery complex produces a number of mixed acid and fertilizer products from phosphate, sulphur and phosphate minerals, some of which are mined locally.

The Rotem refinery and mine complex comprises:

- Phosphate rock mines;
- Primary and secondary crushing;
- Benefaction plant;
- Refinery Acid and Fertiliser facilities; and
- Import storage for sulphur, potash ammonia and lime

A list of the various process plants is given in Table 14.6.

Table 14.6: Rotem Plant Summary	
Plant Number	**Facilities**
Plant 10	Sulfuric Acid
Plant 11	Sulfuric Acid
Plants 20 and 70	Beneficiation Plant
Plant 30	Green Acid Plant
Plant 31	Green Acid Plant
Plant 32	Green Acid Plant
Plant 40	Fertilizer Plant
Plant 42	Fertilizer Plant
Plant 50	Fertilizer Plant
White Acid 1	White Acid Plant
White Acid 2	White Acid Plant
White Acid 3	White Acid Plant
White Acid 4	White Acid Plant
White Acid 5	White Acid Plant
MKP	Special Fertilizers
MAP	Special Fertilizers

Imported sulphur is used in two sulphur-burning sulphuric acid plants. While some sulphuric acid is sold, and some used directly for the manufacture of fertiliser, the greater part is used in two phosphoric acid plants, which produce "green" (i.e. impure) phosphoric acid.

Most of the phosphoric acid is used for the manufacture of fertilisers, but part is further purified in a plant that removes sulphate, cadmium, arsenic, and fluorine to produce "4D" phosphoric acid.

Most of the 4D acid is further processed in a plant that produces "white" (or edible grade) phosphoric acid. Some of the white phosphoric acid is sold and some is used for the manufacture of specialist products at Rotem or at ICL plants elsewhere.

Apart from these plants that are associated with the production of a range of products, there is also a plant that crushes, and grinds oil shale and then burns it to generate steam for process use and a small amount of electricity. The plants making up the complex are briefly described in the sections below.

14.4.5.2 Sulphuric Acid Plants

The company operates two sulphuric acid plants. A schematic flowsheet is shown in Figure 14.8.

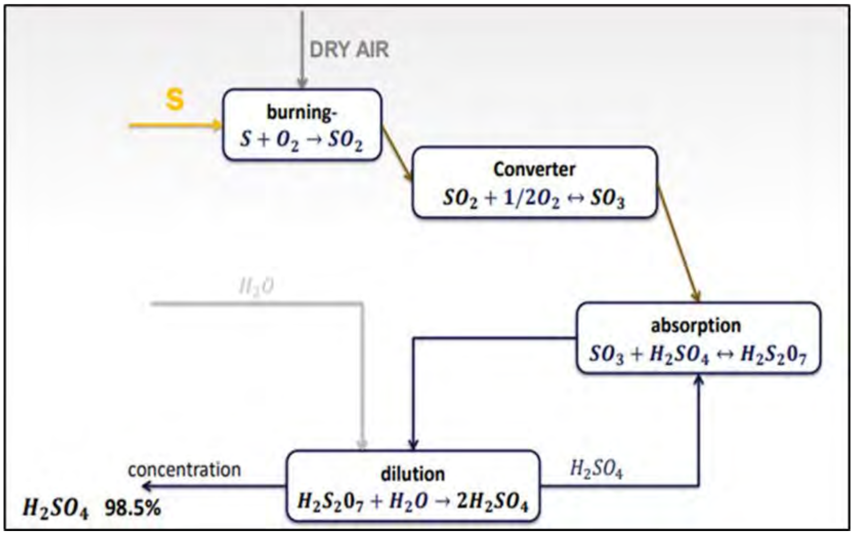

Figure 14.8: Sulphuric Acid Production

№ 10 plant is an 800 ktpa double contact, double absorption, sulphur burning sulphuric acid plant. It was completed in the late 1970's and has been in continuous operation since that time.

№ 11 plant is a 1.2 Mtpa plant of similar design. Imported sulphur for both plants is melted with added lime to keep the pH above 7. The molten sulphur is filtered through a stainless steel filter pre-coated with diatomite and then stored in a 10,000t molten sulphur tank that serves both plants. The sulphur is burnt with dried, filtered air and the hot gas passes through a boiler which produces steam at 280°C. The sulphur dioxide gas with surplus air passes through the contactor that is charged with vanadium pentoxide catalyst. The sulphur dioxide is oxidised to sulphur trioxide producing more heat which is used to superheat the steam before the gas returns to the contactor for more of the remaining sulphur dioxide to be converted to sulphur trioxide. After three passes through the contactor the gas passes to an absorber column in which the sulphur trioxide is absorbed in 98.5% sulphuric acid. The remaining gas returns to a fourth pass of the contactor before being absorbed in acid again.

Both plants are very similar, although № 10 plant has two boilers and one superheater, while № 11 has one boiler and three superheaters. The steam is used to drive turbo-generators which generate electricity and produce waste steam that is used in various parts of the process complex.

№ 11 plant has a sodium bisulphite plant which extracts sulphur dioxide from the gas stream, cools it, absorbs sulphur trioxide and reacts the remaining gas with water and sodium hydroxide to produce up to 1,200tpm of sodium bisulphite which is sold as a preservative.

The sulphuric acid plants are impressively clean and care is taken to avoid the ingress of dust and impurities of any kind. They operate reliably subject to a two year cycle. Every two years each plant is shut down for 21 days for major maintenance and the achievement of reliable operation between these biennial turn-arounds is mainly attributable to the planning and execution of the turn-around. The plants are closely inspected and minor defects are corrected in the course of operation but major items are included in the planning for the next turn-around.

14.4.5.3 Phosphoric Acid Plants

Plant № 30 is a Prayon process phosphoric acid plant that was built in the late 1970's with a nominal capacity of 250 ktpa of contained P_2O_5 in phosphoric acid (equivalent to 500 ktpa H_3PO_4).

The heart of the Prayon process is a group of four evacuated agitated reactors in which the apatite in the phosphate rock concentrate is reacted with sulphuric acid to produce phosphoric acid, gypsum and silicon fluoride in stages, without directly contacting the sulphuric acid with the phosphate rock. Perlite is added to the process to absorb the hydrogen fluoride that would otherwise be produced. The silicon tetrafluoride is removed in gaseous form by the vacuum system and passes to an absorber, where it is dissolved in water to produce a fluorosilicic acid by-product. Some of this is sold and part is used to adjust the pH in the flotation operations at the concentrating plants. The residual slurry of gypsum in phosphoric acid is filtered on a vacuum pan filter from which the filtrate is dilute (28% P_2O_5) phosphoric acid. This is then concentrated by heating with steam under vacuum to produce "green" phosphoric acid (54% P_2O_5).

A flowsheet for phosphoric acid manufacture is shown in Figure 14.9.

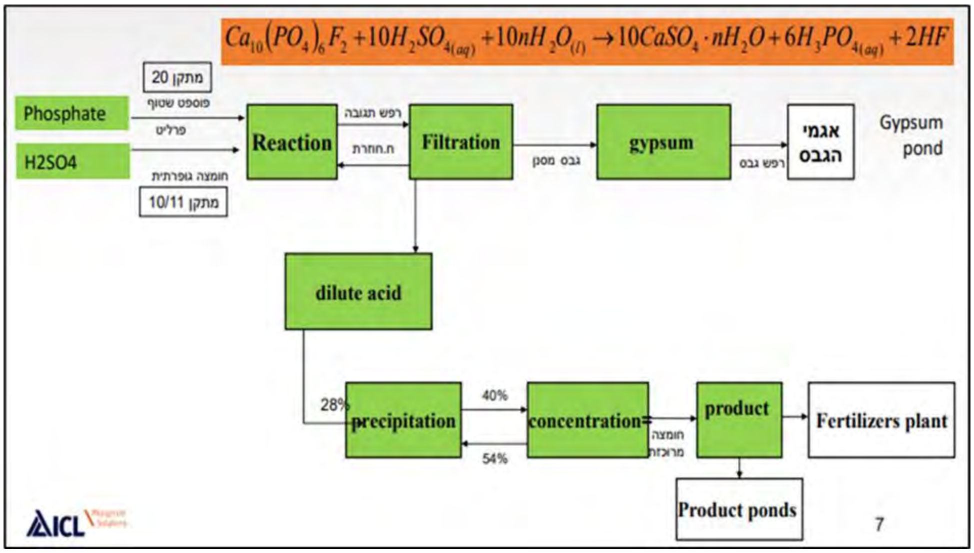

Figure 14.9: Phosphoric Acid Production

The gypsum is re-pulped in water and pumped to one of the three gypsum ponds close to the plant site. The water from the ponds is decanted back to the plant and the gypsum is permitted to dry. The walls of the ponds are then raised by mechanically excavating gypsum from the ponds, placing it on top of the existing wall and compacting it.

Plant № 31 is an isothermal process phosphoric acid plant that was built in 1996 with a nominal capacity of 350ktpa of contained P_2O_5 in phosphoric acid. Although the overall chemical reaction in the isothermal process is the same as in the Prayon process, the isothermal process employs a single very large (1,300m^3) reactor. This is a cylindrical steel vessel lined with brick and rubber, equipped with a draft tube and a powerful (≈2,000bhp) agitator. A slurry of phosphate rock concentrate mixed with 2.5% perlite is introduced to the bottom of the vessel and sulphuric acid is added at the top. Dilute phosphoric acid from the gypsum filters is also added to the top of the vessel. The temperature is maintained at 76 - 78°C by adjusting the vacuum which removes heat by evaporating water. Slurry overflowing from the reactor goes to a stock tank ahead of a horizontal pan filter. The first filtrate from the filter is the product phosphoric acid. The filter cake is then washed with filtrate from a horizontal belt filter before being discharged to a repulper before being refiltered on the horizontal belt filter. Wash filtrate from the pan filter returns to the reactor.

Gypsum from the horizontal belt filter is conveyed to the top of a gypsum mountain when front end loaders are used to distribute it over a radius of approximately 100m. From time to time the conveyor is extended. Five tonnes of gypsum are produced for each tonne of phosphoric acid.

Both phosphoric acid plants operate reliably subject to an annual shut-down of 10 – 14 days with a half-day shut down for maintenance each month. Both recover about 90% of the phosphorus to phosphoric acid. № 30 plant, the Prayon process plant is found much the easier to operate, being less vulnerable to impurity levels in the phosphate rock concentrate. № 31 plant proved very difficult to commission and it is found necessary to feed phosphate rock with not more than 0.5% fluorine and with very low reactive organic content to this plant as higher levels of reactive organic material cause excessive foaming in the reactor. As a result, only white phosphate concentrate from the Oron mine is used in this plant. The result is that plant 31 produces a significantly purer green acid than plant 30, with total organic carbon of 200ppm, compared with green acid from plant 30, which sometimes exceeds 1,000ppm TOC.

14.4.5.4 The Four D Plant

Plant № 32 receives about half of the green phosphoric acid from plant № 31 and purifies it by the removal of sulphate, cadmium, arsenic and fluorine. The processes employed are Rotem’s proprietary methods. Part of the product 4D acid is sold, but most passes to the white phosphoric acid plant.

14.4.5.5 White Phosphoric Acid Plant

The white phosphoric acid plant uses Rotem's proprietary methods to purify phosphoric acid to food grade acid. Hydrogen peroxide is used to remove residual organic material and solvent extraction is used to remove metal impurities. The basic flowsheet for White Acid production is shown in Figure 14.10.

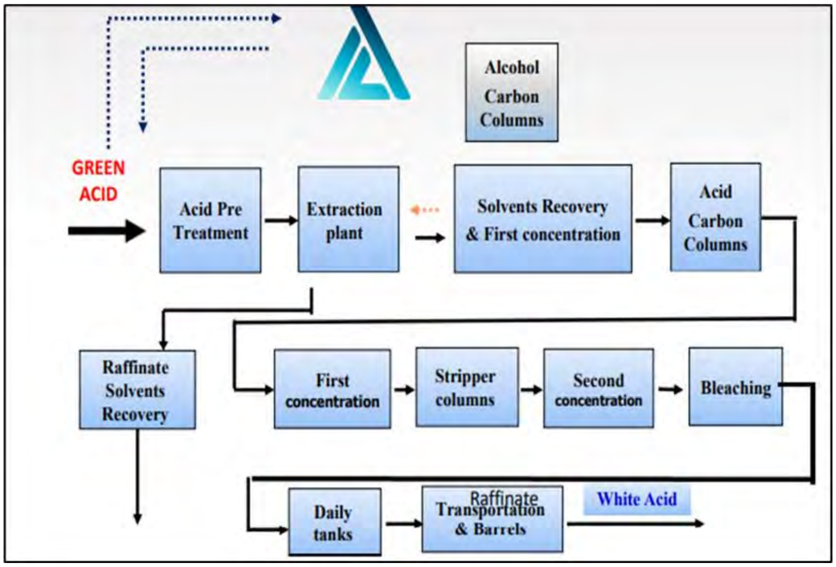

Figure 14.10: White Acid Production

Some 92% of the phosphoric acid is recovered to white phosphoric acid to a maximum production of 180ktpa. Normal production is 150ktpa.

14.4.6 Fertiliser Plants

14.4.6.1 Introduction

Phosphate rock is not normally reactive so cannot be directly used as a fertiliser. It is activated by the addition of acid. Single super-phosphate fertilisers are made by mixing low-grade (29 – 30% P_2O_5) phosphate rock with sulphuric acid. Triple super-phosphate fertilisers are made by mixing high-grade (>32% P_2O_5) phosphate rock with phosphoric acid. The basic chemical reactions are given in Figure 14.11.

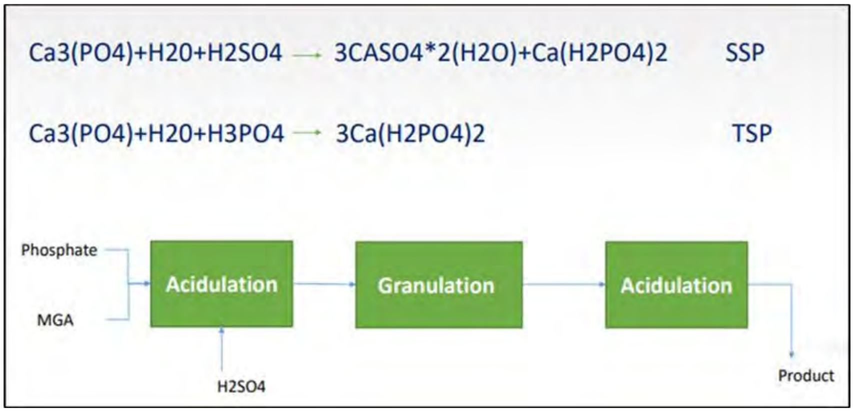

Figure 14.11: Phosphorus Fertiliser Production Chemistry

The phosphate rock concentrate is first dried in a rotary kiln heated by burning natural gas. The dried phosphate rock concentrate is then ground in an air-swept pendulum roller mill from which the product is classified, coarse material returning to the mill and the fine product (95% finer than 100 mesh (147 microns)) is blown into a silo. The concentrate is then drawn from the silo using a screw conveyor and fed to a pug mill together with water and acid.

The reaction generates heat and, when producing single super phosphate, the pug mill operates at 140°C. Gas is evolved and this is collected and scrubbed with alkaline water. The mixed pug mill product is conveyed on a curing conveyor at about 110°C either to a stockpile or directly to the granulating plant. When triple super phosphate is produced, the reaction temperature is only 70 - 75°C and less gas is evolved.

The granulating plants use drums to granulate the fertiliser to provide the particle size required by the market. The drum rotates slowly and steam is injected to assist granulation. The drum product is dried in a rotary dryer and screened on a double deck vibrating screen. The fraction between 1 and 4mm forms the product; coarse and fine material is re-cycled. There are two granulation plants; on one the coarse oversize material is crushed and returned to the granulator; the other crushes the oversize and returns it to the dryer.

The 1 – 4mm product is conveyed to storage. Before despatch it is fed to a coating drum in which oil is added to strengthen the granules and improve their moisture resistance. They are then finally screened to remove any fines before despatch. The finished fertiliser is stored in silos above the rail track awaiting loading and despatch by rail.

14.4.6.2 Mono Ammonium Phosphate

Ammonia is presently imported in tanks from Haifa and stored on site. It is mixed with white phosphoric acid to make up to 50ktpa of soluble mono ammonium phosphate fertiliser. A flowsheet is given in Figure 14.12.

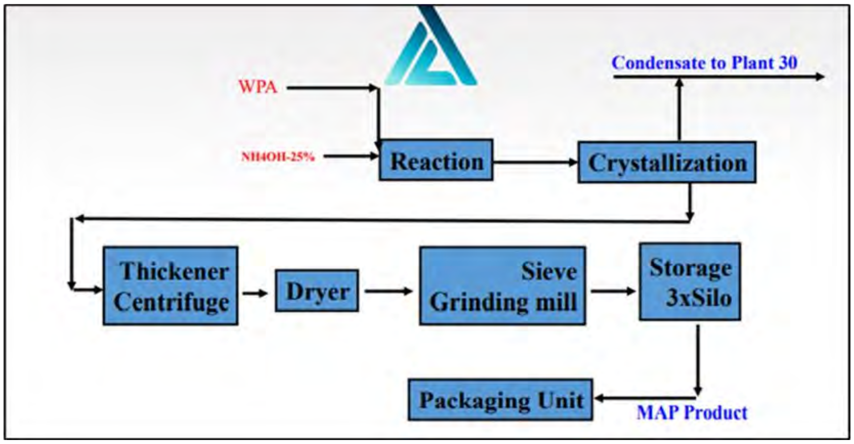

Figure 14.12: MAP Production Flowsheet

So long as this plant depends on importing ammonia its competitive position is limited. If an ammonia plant were built on site, ICL would have a competitive advantage in this market.

14.4.6.3 Mono Kalium Phosphate

Up to 65ktpa of MKP fertiliser is made in a separate plant that uses white phosphate rock concentrate from Oron, white phosphoric acid and potash from the Dead Sea Works. This plant produces a gypsum waste product that is transported by truck to a separate smaller gypsum mountain close to the plant.

From time to time, NPK (Nitrogen, Phosphorus, Potash) fertilisers are made at Rotem, although this is not a regular product.

There is oil shale overlying the phosphate deposit at Rotem and about 4 – 500ktpa is processed in a plant that crushes it in a jaw crusher. Secondary crushing is carried out using a Mining Machinery Developments (MMD) sizer (toothed roll crusher).

It is then burnt in a fluid bed boiler at 950°C to generate steam which is used to drive a turbo-generator producing electricity and low pressure steam that is used throughout the plant. Ashes from the grate of the boiler are used as dairy bedding or kitty litter, while fines from the cyclone are used for neutralising acids or taken to a dump in the pit.

There is spontaneous combustion of oil shale at some places in the open pit and a significant opportunity exists for the economic exploitation of the oil shale.

14.4.7 Oron Production Data

A summary of the recovery data for the Oron beneficiation plant is given in Table 14.9.

Table 14.7: Oron Processing Plant Production Data						
	Feed		Concentrate		Mass Recovery	Recovery
Year	Tonnes	Grade P_2O_5 (%)	Tonnes	Grade P_2O_5 (%)	P_2O_5 %	P_2O_5 %
2017	2,411,767	24.02	1,103,398	31.19	46	59
2018	2,521,798	23.23	1,131,809	31.30	45	60
2019	2,509,009	23.36	1,057,666	31.39	42	57
2020	2,413,758	23.50	1,110,677	31.30	46	61
2021	2,509,017	23.19	1,103,334	31.31	44	59

The performance of the Oron processing plant has remined consistent of the period, with feed tonnages ranging from 2.41 Mtpa to 2.52 Mtpa and feed grades ranging from 23.2% to 24.0% P_2O_5. Concentrate production has ranged between 1.06 Mtpa to 1.13 Mtpa and concentrate grades have ranged from 31.3 to 31.4% P_2O_5. The plant (Mass) recoveries are low, ranging between 42% and 46%.

There is currently no plan to significantly expand the production at the Oron plant and thus power, water, and process material requirements are expected to remain in steady state. Further information on energy and water requirements are presented in Section 15.3.2 and 15.3.4 respectively.

14.4.8 Rotem Production Data

A summary of the recovery data for the Rotem beneficiation plant is given in Table 14.8.

Table 14.8: Rotem Beneficiation Plant Data			
Rock for Fertilizer			
Year	Grade P_2O_5	Mass Recovery (%)	Production (t)
2017	31.00	56.9	419,196
2018	30.80	56.7	439,432
2019	30.60	53.7	434,156
2020	31.00	59.1	423,078
2021	31.30	49.3	453,739
Rock for Phosphoric Acid			
Year	Grade P_2O_5	Mass Recovery (%)	Production (t)
2017	31.71	49.3	929,747
2018	31.74	45.5	945,043
2019	31.81	52.6	720,175
2020	31.78	52.3	886,882
2021	31.71	49.4	879,629

The production of direct application rock phosphate has ranged from 419,195t to 453,739t at grades ranging between 30.8 and 31.3 % P_2O_5. Mass recoveries have generally been low, ranging from 49.3% to 59.1%.

The production of phosphate concentrate for phosphoric acid production has ranged from 750,175t to 945,053t at grades ranging between 31.7% and 31.8 % P_2O_5. Mass recoveries have also generally been low, ranging from 45.5% to 52.6%.

There is currently no plan to significantly expand the production at the Rotem plant and thus power, water, and process material requirements are expected to remain in steady state. Further information on energy and water requirements are presented in Section 15.3.2 and 15.3.4 respectively.

14.4.9 Fertiliser Production

The fertiliser production records for 2017-2021 are summarised in Table 14.9.

Table 14.9: Rotem Fertiliser Production

	Plant 50						
Year	**GTSP ***	**GTSP +**	**GSSP 20 +**	**GPK 25-25**	**GPK 20-30**	**GPAPR 40**	**Total Plant 50**
2017		396,631	80,931			12,738	490,300
2018	20,196	463,730	100				484,025
2019	8,294	492,736		18,878			519,908
2020		424,889			24,097		448,985
2021		528,124		18,041			546,165
Total	**28,490**	**2,306,110**	**81,031**	**36,919**	**24,097**	**12,738**	**2,489,384**
	Plant 42						
Year	**GTSP ***	**GTSP +**	**GSSP 20 +**	**GPK 29-5 +**	**GPAPR 40**	**Total Plant 42**	**Plant 42+50**
2017	2,714	256,589	207,823			467,125	957,426
2018		178,390	325,474			503,865	987,890
2019		157,975	342,709		12,294	512,978	1,032,886
2020		75,504	395,973			471,476	920,462
2021		113,096	414,948	7,874		535,918	1,082,082
Total	**2,714**	**781,554**	**1,686,927**	**7,874**	**12,294**	**2,491,362**	**4,980,747**

**Standard European Grade*
+Brazil

Total annual fertiliser production from the two plants has ranged from 920,462t (2020) to 1,082,082t (2021).

14.4.10 Personnel Requirements

The personnel requirement for the Rotem processing operation is given in Table 14.10. The plants are operated using a three times eight hour shift rota.

Table 14.10: Rotem Processing Personnel Requirement	
Facility	**Employees**
Fertilizer plant	75
Quality Assurance	3
Engineering	8
Beneficiation lab	9
Raw material	6
R&D	21
MKP plant	45
Analytical lab	27
Oron beneficiation plant	43
Rotem beneficiation plant	39
Sulfuric acid plant	37
Phosphoric acid plant	79
White Phosphoric acid plant	61
Energy plant	21
Rotem transportation	36
Asdod transportation	16
Offices and Householder	101
Personal contract / Managers	130
Total	**627**

14.5 DSW

14.5.1 Overview

The DSW operation recovers KCl, chlorine, bromine and magnesium from the salt solutions originating from the northern Dead Sea basin. Water is pumped from the northern Dead Sea basin to an area of ponds and ponds immediately to the south (DSW). Here the solutions are allowed to evaporate which results in the sequential precipitation of halite (NaCl) followed by carnallite ($MgCl_2.KCl.(H_2O)_6$).

The precipitated carnallite is recovered (harvested) using barges and the crude carnallite product, which contains some NaCl, is pumped to a land based processing facility. The solutions exiting the carnallite precipitation ponds are returned to the northern Dead Sea basin.

In the carnallite processing plant the feed is processed by flotation and selective crystallisation to produce KCl.

In addition, chlorine, bromine, and magnesium are produced as by products. Chlorine is produced by electrolysis of the brine solutions to produce chlorine, hydrogen, and sodium hydroxide. Bromine is produced by treating brine from Pond 36, where it is most concentrated, with chlorine to produce bromine and magnesium chloride.

Lastly, magnesium is produced through the electrolysis of molten carnallite to produce magnesium metal and chlorine..

14.5.2 Solution Pumping into the DSW

The halite rich brines are pumped from the Dead Sea via a network of pumps to a series of precipitation ponds where halite and carnallite are recovered sequentially. The pond system includes:

- Salt precipitation ponds (97km^2); and
- 14 Carnallite ponds (49.3km^2).

A simplified plan of the DSW solution flows in shown in Figure 14.13.

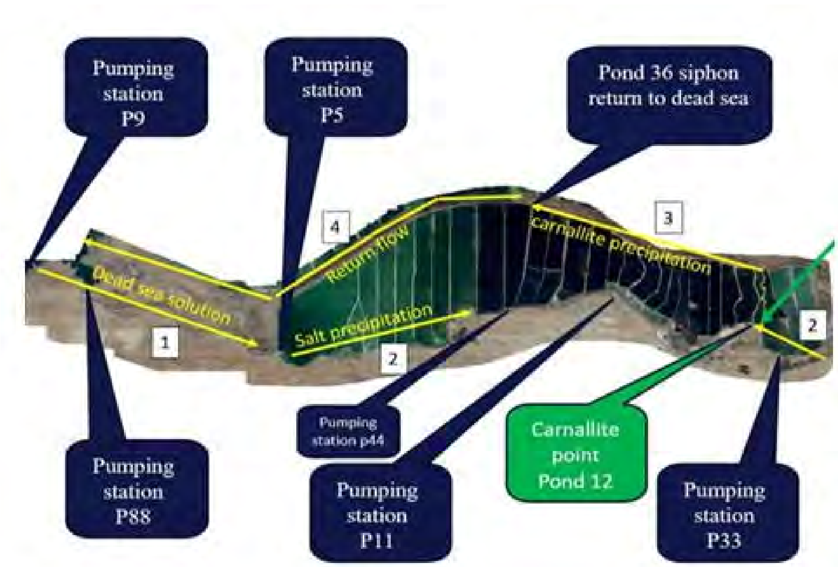

Figure 14.13: Schematic Plan of DSW Solution Flows (schematic)

The solutions flow from the northern Dead Sea basin (shown on the left of Figure 14.13) and are pumped via a series of pumps to the salt precipitation ponds. In 2021, a total of 443Mm^3 was pumped (P88) into the DSW processing operations. A new pump station - P9 - will be fully operational in Q1 2022 and is located 3km north of the existing main pumping station (P88). The P9 pumping station consists of 8 pumping units arranged in two rows (4+4) on a steel structure 36m x 53m located in the sea on tubular steel piles.

Each pumping unit includes a vertical pump with a nominal capacity of 18,000m^3/hour and a motor of 5.6 MW power.

The project was created in order to assure steady solutions supply to the operation ponds and to overcome issues with the reduction in solution levels around the existing pump stations.

Pumping stations P11 and P13 are used to pump solution from the northern salt ponds to southern salt ponds, and after this to the carnallite ponds. The pumping volume in these stations depends on the flow intensity, which in turn depends on the evaporation rates, rainfall and the carnallite precipitation point.

In total, six Pumping stations and one siphon are used to circulate the solution in order to control the KCl concentration and carnallite precipitation and throughout the carnallite ponds.

14.5.3 Solution Chemistry

Carnallite, the mineral which potash is been extracted from in ICL DSW, is defined as $MgCl_2$ KCl $(H_2O)_6$ and contains 27% potash, 34% magnesium chloride and 39% water. In the DSW the crude carnallite product recovered, referred to as "Pond Carnallite" also contains sodium chloride (14%).

The pond's concentration changes throughout the solution flow. At the initial ponds, the salt ponds, salt is precipitated, decreasing the NaCl concentration and increasing the KCl concentration. The levels of dissolved salts are shown in Figure 14.14.

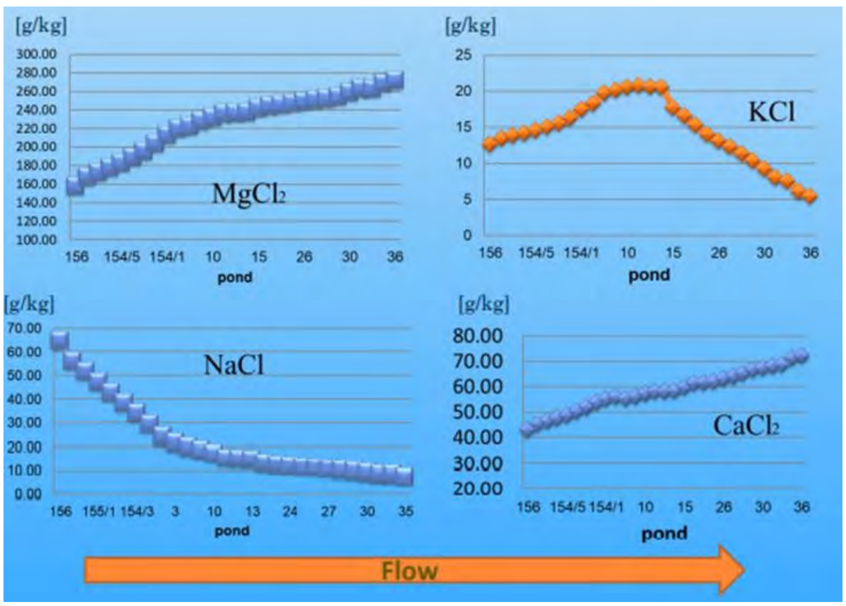

Figure 14.14: Dissolved levels of K, Mg, Ca and Na in the DSW Pond System

Starting from Pond 12, carnallite is precipitated, with KCl is at ≈20 g/kg (compared to sea water where potash is 0.39 g/kg). After harvesting the carnallite the returning flow from the last pond to the dead sea with contains approximately 5 g/kg of KCl.

Carnallite precipitation depends on several factors:

- The amount of carnallite harvested;
- The ponds geometry (area, depth, ponds sub-division);
- Environment (temperature, radiation, wind speed, humidity); and
- Solution properties.

14.5.4 Salt Harvesting Project

Pond 5 covers an area of 80km^2 out of a total pond evaporation area of 146.7km^2. The average rate of salt precipitation is estimated to be about 16-20cm per year, equating to 16 million cubic meters per year. The precipitation of salt raises the level of the bottom of the pond.

In order to allow the continuous production, the brine volume of the pond must be maintained. Until recently, the level of the pond was raised every year according to the rate of salt precipitation. However, there are hotels and other infrastructure on the west shoreline and raising of the pond level might result in some degree of flooding of these properties.

Accordingly, since mid-2021 a Cutter Suction Dredger is being used to recover 5.5 Mm^3 per year, equating to 6,000m^3/h of 20-25% of solids in brine. This material will be returned to the northern Dead Sea basin area by overland conveyor although a final deposition strategy has yet to be finalised. It is also planned to acquire further dredging capacity.

14.5.5 Carnallite Process Plant Capacity

14.5.5.1 Introduction

The crude carnallite is pumped to a processing facility located to the west of the carnallite ponds. Here the carnallite is decomposed to produce final KCl product and magnesium chloride brine.

There are two separate facilities including a hot leach plant, that use steam energy, and cold leach plant.

The capacity of the process plant exceeds the carnallite production capacity of the pond system.

14.5.5.2 Cold Leach Plant

In the Cold Leach Plant the crude carnallite passes to flotation where NaCl is recovered and sent to a waste stack. The flotation tailings are thickened and filtered and pass to a carnallite decomposition stage, together with the original coarse fraction from the first stage of screening.

In the carnallite decomposition stage KCL is produced together with a magnesium chloride brine. The brine solutions are returned to the ponds and the KCL and NaCl are filtered and pass to a NaCl dissolution stage. The insoluble KCl product is thickened, filtered and dried before being conveyed to the compaction plant.

14.5.5.3 Hot Leach Plant

The fine fraction is thickened and filtered to provide a feed stock for the plant. This material is then decomposed to produce KCl and magnesium brine. The pulp is then thickened and filtered and the solids pass to a crystallisation stage. Here the solids are mixed with hot water and the KCl is dissolved. The solution then passes to two lines of crystallisers and condensers where the KCl is recovered, thickened, filtered, and dried. The insoluble NaCl product is dewatered and stacked in waste piles.

14.5.5.4 Compaction Plant

Approximately 40% of the KCL passes to the Compaction Plant and is obtained from both the Hot and Cold Leach Plants. The compaction flowsheet is given in Figure 14.15.

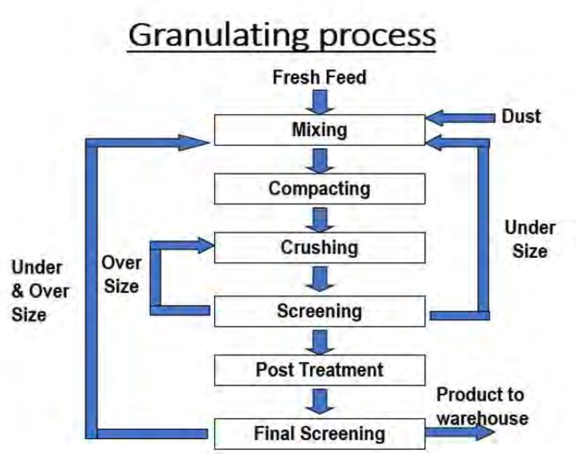

Figure 14.15: KCL Product Compaction Process at the DSW

Feed is divided between two silos – a Western silo which feds 5 units and an Eastern silo which feeds 2 units. The main additive is an amine which is a caking agent.

The compacted material is crushed and screened. The oversize is returned to crushing and the fines to the head of the process for further compaction.

14.5.5.5 Chlorine

Chlorine is produced by electrolysis of the brine solutions to produce chlorine, hydrogen, and sodium hydroxide.

14.5.5.6 Bromine

Bromine is produced by treating brine from Pond 36, where it is most concentrated, with chlorine to produce bromine.

14.5.5.7 Magnesium

Magnesium is produced through the electrolysis of molten carnallite to produce magnesium metal and chlorine and bromine.

14.5.6 Product Transport

The potash products are being transferred via two ports:

- Ashdod port – from the production site to a terminal at Tzafa via a 18km conveyer and from Tzafa to Ashdod by train or trucks. The products can be trucked from the production site to Ashdod in the event of a conveyor malfunction; and
- Eilat port – from production site to Eilat port by trucks.

14.5.7 Waste Salt Removal and Deposition

Pond 5 has an area of 80km^2 out of a total pond evaporation area of 146.7km^2.

The average rate of salt precipitation in Pond 5 is estimated to be 16-20 cm per year, which equates to 16 Mm^3 per year. The precipitation of salt raises the bottom of the pond. In order to allow continuing production the brine volume of the pond must be maintained. Until recently, the level of the pond was raised every year according to the rate of salt precipitation.

There are hotels and other infrastructure on the west shoreline and raising of the pond level requires protection from flooding.

Accordingly, a Build-Operate-Transfer (BOT) agreement has been signed with Holland Shallow Seas Dredging (HSSD) to operate a 5.5 Mm^3 per year dredge. The dredge can recover 6,000m^3/h of pulp at 20-25% solids and is shown in Photo 13.2.

The slurry passes through a floating line to a shoreline and to a stockpile which is built and managed with excavators. The waste salt is dried using the sun and the brine is returned to the pond by gravity. The maximum stockpile height is 15m.

It is planned to transfer the waste salt back to the Dead Sea using a 24km conveyor system.

Recovery from the stockpiles and loading of the conveyor belt will be carried out by a contractor. It should be considered that this will be a substantial operation involving the transfer of huge amounts of salt and with a significant visual impact in a tourist area.

It is planned to dredge the following volumes of material:

- 2021 - 2025 : 5.5 - 7 Mm^3 (7 - 9 Mt) per year
- 2025 - 2030 : 11 - 14 Mm^3 (14 - 18 Mt) per year
- 2030 - 2037 : 14 - 16 Mm^3 (18 - 21 Mt) per year

The planned conveying tonnage is 21Mtpa from 2025 - 2030 and 24Mtpa from 2030 - 2037.

14.5.8 DSW Process Consumables

The operation uses a range of flotation reagents, caustic soda, pink dye, filter cloths, screen mesh together with electrical energy and steam as required to achieve the required process plant performance.

14.5.9 DSW Production

KCl production has remained relative constant over the period (in 2019 potash plants paused production for a period of almost a month for planned maintenance). Approximately 40% of the KCL production is sold as a compacted product and this proportion has remained constant over the period.

Bromine production has ranged from 162.0kt (2016) to 180.9kt (2019). Chlorine production (bromine by product) has ranged from 35,453t (2016) to 41,601t (2020) and from 45,504t (2018) to 49,399t 2017) (magnesium by product).

Cast magnesium production has ranged from 18.211t (2020) to 23,751 (2017).

NaCl production has trended downwards over the period to 124,724t in 2020. The $MgCl_2$ production has shown the most variation, ranging from 83,902t (2017) to 136,929t (2019).

The DSW production for 2016 - 2021 is given in Table 14.11 and Figure 14.16.

Table 14.11: DSW Production 2016-2021 (tonnes)

Product / Year	2016	2017	2018	2019	2020	2021
Potash Division	3,738,534	3,633,141	3,804,028	3,334,135	3,959,712	3,899,708
Compacting plant	1,288,464	1,579,469	1,506,347	1,218,324	1,707,213	1,857,866
Bromine	161,986	178,879	173,373	180,867	171,248	181,645
Cast Mg	23,478	23,751	22,035	22,338	18,211	18,036

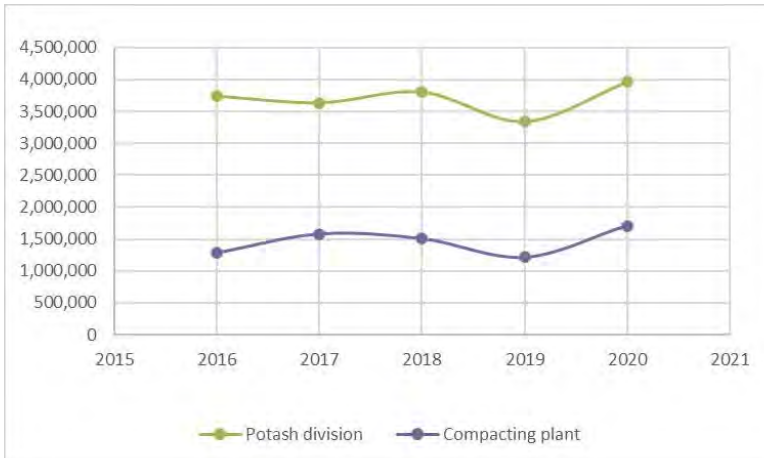

Figure 14.16: DSW Potassium Chloride Production 2016-2020

The recovery of KCl ranges between 67-74%.

There is currently no plan to significantly expand the production at DSW and thus power, water, and process material requirements are expected to remain in steady state. All energy requirements for DSW are met by its own dedicated gas fired power stations with the gas piped directly into the facility from the national grid. All water required for this operation is derived and returned to the Dead Sea.

14.5.10 Product Quality

The specifications for the DSW KCl products are given in Table 14.12.

Table 14.12: DSW Potash Product Specification		
Standard Grade		
Potassium Oxide Equivalent	K_2O	61.3
Potassium chloride	KCl	97.0
Sodium chloride	NaCl	2.00
Particle size (mm)	Tyler mesh	
0.21-1.7	-10+65	Min 65%
Fine Grade		
Potassium Oxide Equivalent	K_2O	61.3
Potassium chloride	KCl	97.0
Sodium chloride	NaCl	2.00
Particle size (mm)	Tyler mesh	
0.85	+20	Max. 5%
0.15	+100	Min. 70%
0.075	+200	Min 95.0%
Granular Grade		
Potassium Oxide Equivalent	K_2O	61.0
Potassium chloride	KCl	96.5
Sodium chloride	NaCl	2.00
Particle size (mm)	Tyler mesh	mm.
4.8	+4	0.0% max.
2.00	+9	97.0% min.
0.50	+32	99.9% min.

14.5.11 Personnel Requirement

The personnel requirement of the DSW processing operation is shown in Figure 14.17.

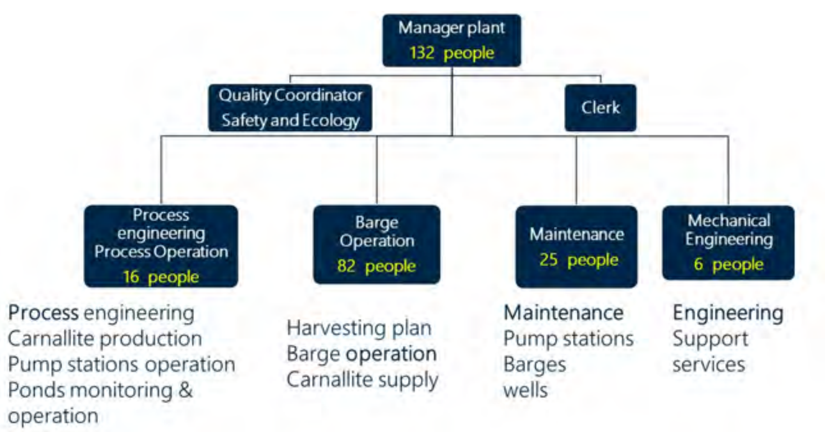

Figure 14.17: DSW Process Personnel Requirement

There are four shifts crews operating a three time 8 hour shift system. Each shift is led by a Shift Manage and there are 15 operators on each shift. In addition, there are 13 employed in maintenance, a Harvesting Engineer, an Operations and Logistics Manager, and an additional three managers, all employed on day shift. The operation works 24/7.

None of the operating teams works on the pump station and all the operating team have a licence to operate a boat on the ponds.

The personnel requirement for the KCL Production Plant are given in Table 14.13.

Table 14.13: Personnel for KCl Plant

Department	Number
Hot Leach Plant	91
Cold Leach Plant	74
Granulation Plant	53

However, on an average day, ICL DSW directly employees 1,200 personnel, a further 350 at DSM, and contracts a further 450 personnel.

14.6 YPH

14.6.1 Overview

The Haikou ores are processed mainly in two stages:

1) Beneficiation stage which uses unit operations such as crushing, screening, scrubbing and flotation; and
2) Chemical processing stage that involves attacking the beneficiated ores with sulfuric acid in order to produce phosphoric acid and from that to produce fertilizer products (MAP, MKP, TSP, and WSNPK) and purified phosphoric acid.

Both stages and associated plants (at different locations) employ state of the art technologies, typical in the phosphate industry.

The mine has recently included an optical sorting process unit enabling lower grade Phosphate to be separated from waste rock ahead of the scrubbing and flotation process. This inclusion has enabled lower grade ore fractions to be included in the ore stream at lower unit costs of beneficiation.

There is currently no plan to significantly expand the production at YPH and thus power, water, and process material requirements are expected to remain in steady state. Further information on energy and water requirements are presented in Section 15.5.2 and 15.5.3 respectively.

14.6.2 Phosphate Beneficiation Plants

The Haikou mine has two beneficiation plants: flotation and scrubbing. The flotation plant is processing the low-grade phosphate and blends low grade with medium grade from the mine or purchased phosphate. Phosphate as low as 18% P_2O_5 can be enriched to a saleable product.

The scrubbing plant can use only medium-high grade phosphate, mined, or purchased. The process is based only on removal of the fine materials after crushing, washing, and separating.

14.6.3 Flotation Plant – General Description

The Haikou mine operates a flotation plant based on reverse-flotation where the carbonates (mainly dolomite) are being removed (floated) and sent to a tailings pond. The phosphate flotation tails (concentrate) are produced with 10 flotation cells, having a volume of 50m^3 each.

The flotation plant can process 3.4Mtpa of feed material. As described below, the process in the flotation does not include de-sliming, meaning there is no fines separation and removal, and all the ground phosphate directly reports to the flotation cells. The only waste material is the flotation froth mainly composed by carbonates rejects. As a result, the yield is high, with 67% for a 22% P_2O_5 feed and 58% if the feed grade drops to 19% P_2O_5. The target concentrate quality is 28.5% P_2O_5 which the minimum required by the chemical processing plant located at the "3Circle site".

The annual concentrate from the flotation plant is 2.2Mt. The fine product at P90 >74 micron is pumped to the acid and fertilizer plant with a 6.5km pipeline.

14.6.4 Flotation Process

The flotation plant at Haikou has two sections:

1) Crushing – receives raw material (ROM) from the mine and reduces the size to less than 25mm. Crushing section flow sheet (Figure 14.18).
   - Primary impact crusher receives its feed from the mine, after screening out the very large rocks (over 800mm). The primary crusher reduces the rock size to 40mm.
   - The under size of 100mm screen and primary crusher product are fed to a 25mm screen. The undersize is the final product and the over size is fed to a secondary cone crusher for another size reduction. The secondary crusher is in closed circuit, in which its product goes back to the 25mm screen.
   - The final crushed product is being piled in an 11 piles array that feed the grinding & flotation section.

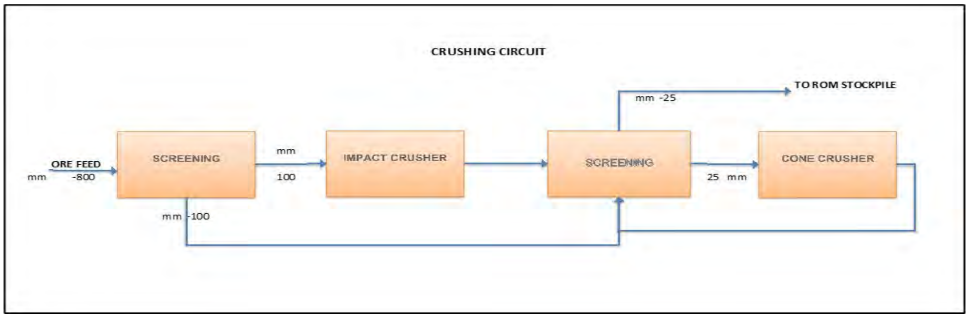

Figure 14.18: Crushing Flow Sheet

2) Grinding & flotation – further size reduction to less than 74mm and removes the main impurity, which is MgO.
   - The crushing section product is fed to two stages grinding circuit for (Figure 14.19):
     i. Grinding by rod mill in open circuit.
     ii. Grinding by ball mill in closed circuit with a hydro cyclones cluster.
   - The grinding circuit product (overflow of the hydro cyclones) contains at least 85% – 74mm particles.
   - The overflow is sent to the first mixing tank, where sulfuric acid is added as pH modifier. The slurry from the first tank is transferred to a second tank where phosphoric is added (as depressant) and collector.
   - The flotation circuit is a three-stage process:
     i. Rougher cells – first stage receive the fresh feed.
     ii. Cleaner cells receive the rougher product as a final beneficiation.
     iii. Scavenger cells– receives the reject (the flotation froth) from the cleaner to recover the P_2O_5 and reduce the losses.
   - The plant has two identical lines for grinding and flotation.

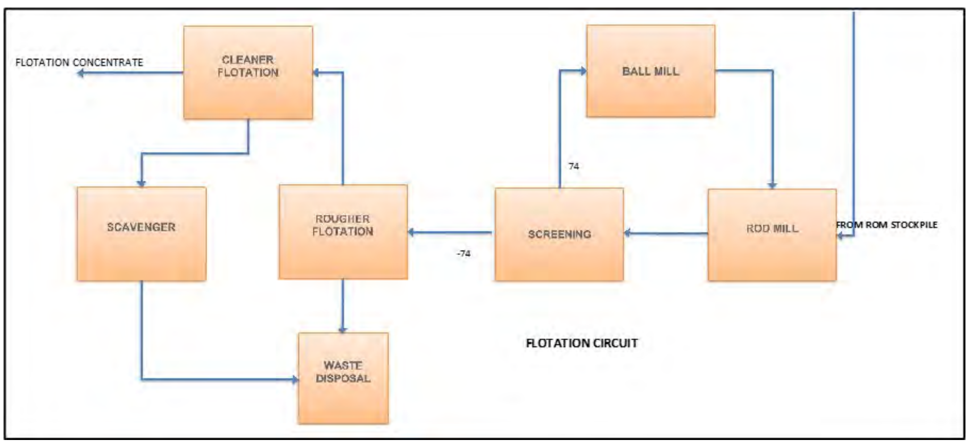

Figure 14.19: Grinding and Flotation Flow Sheet

14.6.5 Scrubbing Plant

The scrubbing plant processes medium to high grade run of mine. Phosphate rock above and average of 27% P_2O_5 and less than 1.5% MgO is delivered from the mine to the scrubbing plant to produce a concentrate of 28.3% P_2O_5 or greater.

The process utilized in the scrubbing plant is based on removal the finest size fraction (-74µm), since it has much lower P_2O_5 concentration and higher MgO and R_2O_3.

The process (Figure 14.20) starts with a 2-stage crushing circuit followed by size separation on a 40mm screen. The oversize (+40mm), which accounts for 60% is the main product. The screened material is then washed in spirals, which further separates the fines from the coarse particles. The undersize stage is the second product, 15-40mm. The oversize (the fines from the spirals) is sent to the hydro cyclones cluster to separate the 74µm material. The hydroclyclones overflow is sent to a belt filter to remove the water and obtain the third product. Around 12-15% of the phosphate in the feed, ends up as waste to a tailings pond that has about 15-17% P_2O_5.

To summarize, the scrub plant has three products:

- +40mm
- -40mm ≈ +15mm
- -15mm ≈ +0.074mm

Until 2015 the +40 mm product was sold to the thermal phosphoric acid plant and the other products to the wet phosphoric acid plant. Since YPH was established, the three product streams are sent to the grinding plant at the Three Circle Chemical (3C) for the production of wet phosphoric acid.

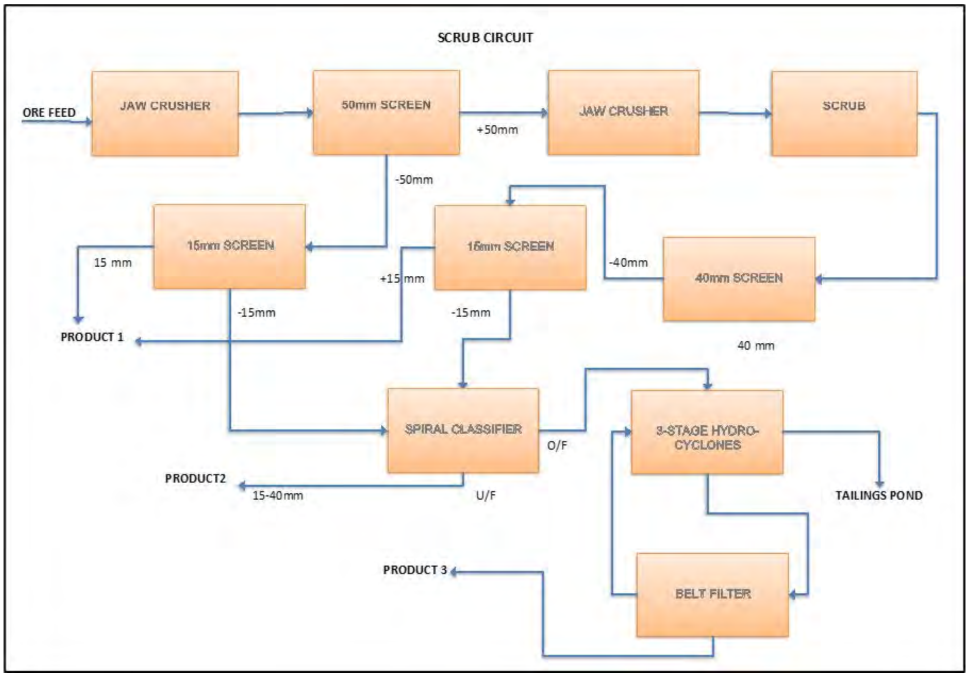

Figure 14.20: Scrubbing Plant Process Flow Sheet

Table 14.14 provides a summary of key process design parameters used for the process design. Processing recoveries vary between the different ore deposits.

Table 14.14: Summary of Key Process Design Parameters

	Crushing Plant	Flotation Plant	Scrubbing Plant
Processing rate TPA		2.5	
% P_2O_5		18-22%	>27%
Product/Concentrate TPA		1.5-1.6	
Average P_2O_5 Grade %		28.5%	>28%
Number of Stages	2+2	3	5
Product1 Size mm	40mm	0.074	40 mm
Product2 Size mm	<25mm		-40 +15mm
Product3 Size mm			-15 -+0.074mm
Estimated Recovery		58-67%	85%

14.6.6 Chemical Plant

The Three Circle plant (Yunnan Three Circles Chemical Co), is a classic fertilizer plant using traditional technology and produces:

- 1.75 Mtpa Sulphuric Acid
- 650,000 tonnes of Phosphoric Acid
- 350,000 tonnes Triple Super Phosphate (TSP)
- 300,000 tonnes of Mono Ammonium Phosphate (MAP)
- 60,000 tonnes of Mono Ammonium Phosphate (MAP73)
- 200,000 tonnes of Mono Ammonium Phosphate+ Sulphur (NPS)
- 60,000 tonnes of purified phosphoric acid (technical grade)
- 70,000 tonnes of purified phosphoric acid (food grade)
- 17,000 tonnes of Mono Ammonium Phosphate+ Potash (MKP)
- 10,000 tonnes of Water-soluble Fertilizer (MPK)

The plant raw materials are phosphate rock, sulphur to produce sulphuric acid and ammonia for the production of MAP. A schematic process diagram is shown in Figure 14.21.

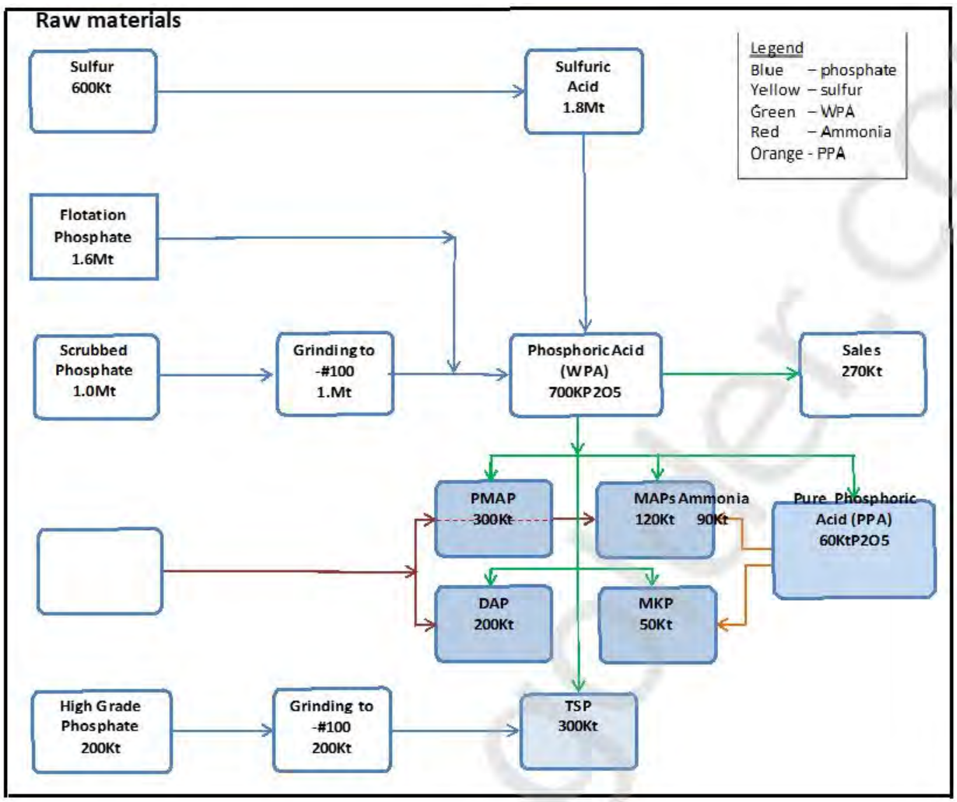

Figure 14.21: Schematic Process Diagram of Three Circle (3C) Fertilizer Plant

15 PROJECT INFRASTRUCTURE

15.1 Boulby

15.1.1 Overview

Infrastructure associated with the operations includes the Boulby underground mine, mineral processing plant and associated infrastructure and mine dewatering / effluent tunnel and pipeline. In addition, final products are transported to the Teesside deep water port facility via rail. A general infrastructure map of the Boulby Mine area with key connecting rail route to Teesport is shown in Figure 15.1 and a layout plan of the Boulby mine site is presented in Figure 13.4.

As with virtually all the UK there is a well-maintained network of paved highways, rail service, excellent telecommunications facilities, national grid electricity, an ample supply of water and a highly educated work force. The availability of experienced mining, processing and technical personnel is not considered a challenge due to the decline of the coal industry in the UK though Boulby is also recruiting ‘green labour’ with no previous experience into all areas of the business. The mine site is well served by telecommunications with good mobile phone coverage.

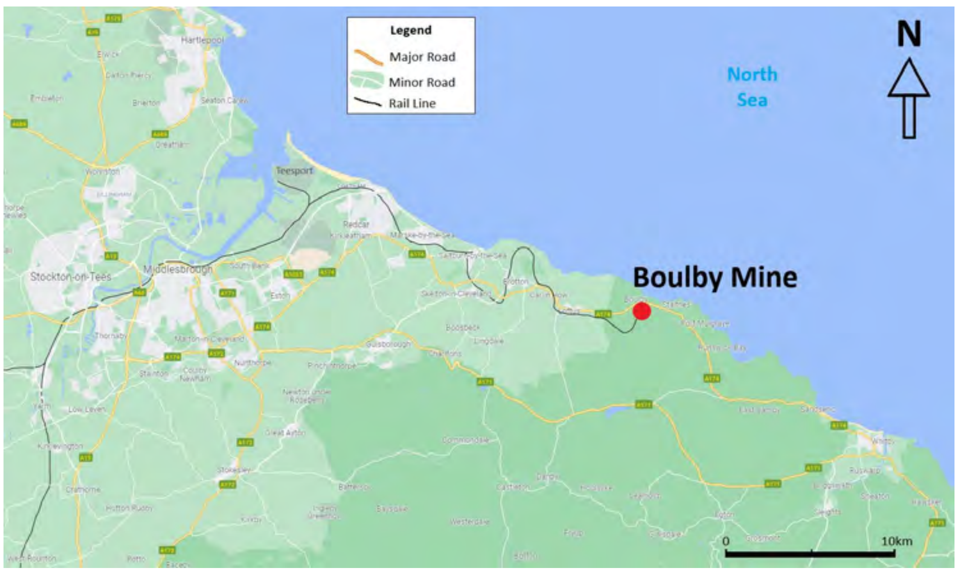

Figure 15.1: General Infrastructure Around Boulby Mine

15.1.2 Energy

The energy mix of the ICL Boulby site is 70% electricity and 30% natural gas. There is also some gas oil and propane used across site in smaller amounts. Electrical power and gas are provided by direct connections to the UK National Grid giving round the clock access to reliable power within contracted levels. Gas oil and propane are delivered to site on a regular basis by the road network and are used to replenish on-site bunkerage to give an operational buffer against potential shortage or delay.

Annual electricity consumption consists of a fixed baseload and a variable operational load. The fixed baseload results from the operation of the underground working, where the same amount of electricity is required to operate the underground pumps and fans/ventilation independent of mineral extraction tonnage at any given time. The base load equates to ≈51GWh per annum.

In 2021, the total energy consumptions and costs were:

- Electricity: 86,239 MWh @ £11,580,589.
- Natural Gas: 35,667 MWh @ £1,055,116.

Life of mine strategy includes projects to introduce efficiency improvements from new technology. The variable operational load covers the actual extraction activities underground and the associated surface processing activities. This load is highly variable and entirely dependent on the tonnages mined, transported, and processed.

Boulby mine also owns and operates 2 combined heat and power engines. These are currently used for "Triad" avoidance and are operated during times when the spark gap is great enough for their use to be economically viable.

15.1.3 Water

The operations at ICL Boulby have a well-defined water management system, which controls all surface sources of water and also manages the removal and disposal of brine which is generated when dewatering the mine workings.

The site draws fresh water from a mains supply and seawater from the dewatering of the discharge tunnel beneath the North Sea. Surface runoff and washdown water is captured in drains and gravity fed through a catchment valley to an interceptor pit before being sent to the discharge facility for combination with brine from mine dewatering and discharge to the sea.

15.1.4 Effluent / Mine Dewatering

Historic mining of the Boulby Potash seam resulted in some areas of the mine being subject to ingress of brine. This is predominately sourced from the Bunter (Sherwood) Sandstone located 30-80m (depending on location) above the Potash Seam. The Bunter sandstone is an extensive aquifer and inflows will be a continuous and permanent feature for the life of the mine.

The mine pumps remove approximately 2.5 m^3 of concentrated brine per year from the underground workings to enable dewatering and control of inflows from various points within the mine. A comprehensive network of pumping ranges, monitoring stations and buffer lagoons is maintained within the mine to control this brine. The combined results of the underground pumping are fed from the mine to surface in a dedicated large bore pumping range that then directs the flow in near-surface pipelines to the discharge facility on the coastline.

Brine removed from the underground workings together with all site drainage is fed to the effluent tunnel discharge facility some 300m to the East of the site. Access to the tunnel is via № 3 shaft which is approximately 143m deep. The tunnel and pipe system enable discharge of effluent approximately 1,600m offshore from a valve arrangement on the seabed.

Samples are required to be collected from the discharge facility to enable monitoring for solids content and other constituents for compliance with permitting requirements.

15.1.5 Rail

ICL Boulby transports its products from the mine site to its deep-water port facility at Teesside via 34 km of railway of which ICL Boulby owns approximately 5 km from the mine site to Carlin How. At Carlin How the railway is owned by Network Rail and ICL Boulby has legally binding arrangements in place to "run firstly over" the Corus railway line to Saltburn-by-the-sea and from there Railtrack's line to Teesport.

The railway wagons are owned by VTG Nacco. ICL European Cooperative and ICL Boulby have a 5-year rental contract with VTG Nacco starting from 1st January 2021. Upon expiration the contracts opened for a tender process, however ICL have been working with these contractors for many years.

ICL Boulby currently operates its railway transport on a 5 day per week basis. The railway timetable for ICL Boulby allows for 8 rail paths from the mine to the dock and 8 rail paths from the dock to the mine per day. A single train typically consists of a locomotive and 15 wagons with each wagon having a capacity of approximately 62 tonnes of product. There is a limitation on the length of trains due to some sections between Carlin How and Middlesbrough being single track, where freight must give way to passenger trains. The maximum length of a train is a locomotive and 17 wagons.

15.1.6 Port Facilities

ICL Boulby (trading as Cleveland Potash Limited) operates the 22-acre Teesport facility which consists of covered storage, open storage, rail reception, material handling equipment and ship loading facilities. The ICL Teesdock site is owned by PD Ports (owner and operator of the ports of Tees and Hartlepool) and leased to Cleveland Potash Limited on a 20-year lease until 2034.

All shipping entering the Tees river port follow the requirements laid out by the Tees and Hartlepool Port Authority. ICL Boulby has no restriction on the number of ships entering and exiting its port terminal and the Teesdock facility is capable of handling vessels up to 50,000T in size.

The product handling conveyor systems are designed to receive and dispatch products by rail, road, and sea at rates up to 1,000tph. Covered storage capacity is circa 100,000 tonnes and uncovered capacity is circa 250,000 tonnes.

The majority of product is received from Boulby by rail, currently operating 5-days per week. The rail infrastructure and terminal are capable of handling up to 1.8Mtpa with capability to increase further.

15.1.7 Tips/Stockpiles

ICL Boulby maintains a series of surface stockpiles and tips of material on its surface site. Stockpiles are of uncovered and covered types and contain both raw ore and in some cases processed final product prior to shipping to the end user.

ICL Boulby has a legal responsibility as the mine operator to “ensure that tips are designed, constructed, operated and maintained so as to ensure that – (a) instability; or (b) movement, which is likely to give rise to a risk to the health and safety of any person is avoided.” Under Part 8, regulations 60-67 of the Mines regulations 2014. To ensure compliance with this the tips and stockpiles are scanned on at least a monthly basis for volumetric analysis and are assessed against the criteria as laid out in the above sections of the Mines Regulations for compliance and any remedial work is undertaken.

15.2 Cabanasses and Vilafruns

15.2.1 Overview

The operations are well established mines with associated facilities for waste storage, water treatment, mineral processing and product transportation (including rail and port). In addition, there is an 80km pipeline from the operations to the Mediterranean from which a proportion of the salt waste (as brine solution) is transported for disposal. A general infrastructure map of the Cabanasses and Vilafruns area with key connecting rail route to the Port of Barcelona is shown in Figure 15.2.

15.2.2 Energy

The operations are connected to national service providers for all electricity and gas required.

15.2.3 Water

The operations are connected to national service providers for water. In addition, ICL Iberia has abstraction permits to take water from the Cardener River for industrial use.

15.2.4 Effluent Water

The mines are dry and no water is required to be pumped from underground to surface (with the exception of some water collected on the declines). Ground water and run-off associated with the surface storage of salt waste from the processing plants is collected and processed through water treatment facilities to reduce levels of dissolved salt.

Figure 15.2: General Infrastructure Around Cabanasses and Vilafruns

15.2.5 Rail

A designated railway line is used for the transport of potash to the port at Barcelona. The train engine and part of the bulk freight car rolling stock is operated by the owner and operator FGC (Ferrocarrils de la Generalitat de Catalunya).

15.2.6 Port

A dedicated terminal at the port of Barcelona (Trafico de Mercancias – Tramer) includes bulk potash and salt storage facilities and freight-car and rail-truck conveyor unloading facilities.

15.2.7 Salt Transportation Pipeline

A second pipeline (along-side the existing pipeline) is due for completion in 2024 and will provide sufficient capacity for all surplus salt produced by the operation to be transported for disposal in the Mediterranean (see Figure 4.7). As such, no further surface waste disposal at the operation should then be required.

15.3 Rotem

15.3.1 Overview

The Rotem refinery complex produces a number of mixed acid and fertilizer products from phosphate, sulphur and potash minerals, some of which are mined locally. The Rotem refinery and mine complex comprises:

- Phosphate open pit rock mines;
- Primary and secondary crushing;
- Benefaction plant;
- Refinery Acid and Fertiliser facilities; and
- Import storage for sulphur, potash ammonia and lime closed and in final stages of remediation.

Israel has a well-developed road network covering the whole country as well as a more limited rail infrastructure utilised by ICL. A regional map of the main ICL sites is shown in Figure 15.3 along with main roads and rail.

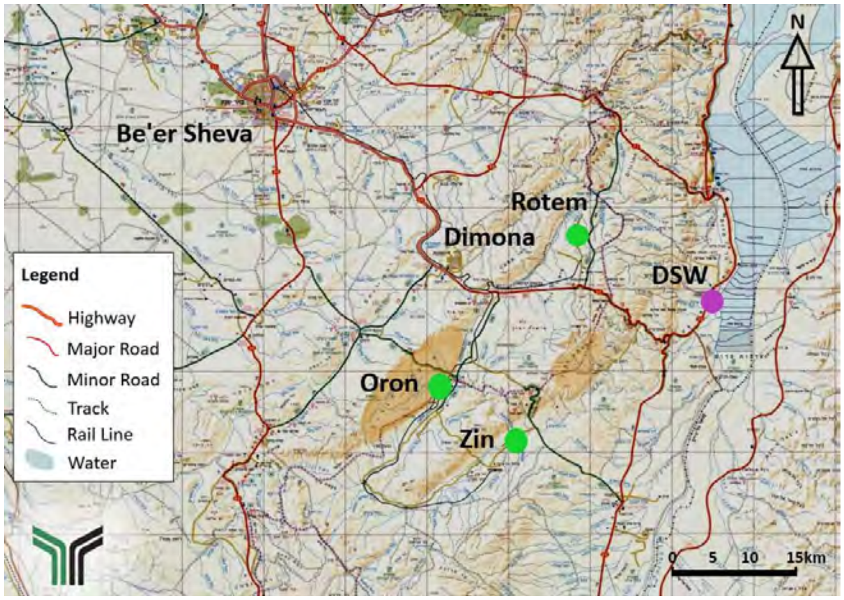

Figure 15.3: General Infrastructure Around the ICL Operations in Israel

The Rotem operation has three main facilities that form the fertiliser operations:

Rotem

- Mine Site
- Processing Plant
- Bulk Material Handling Facility

Oron (closed and under remediation)

- Mine Site
- Processing Plant

Zin

- Mine Site
- Processing Plant

ICL also operates two port facilities:

1. Ashdod (Mediterranean) contains a sulphur terminal and product storage facilities with shipping services
2. Eilat (Red Sea) has product storage facilities with shipping services

ICL Rotem is the business unit that controls transportation logistics and infrastructure within Israel. The company transports products via road and rail to either the Port of Ashdod or to the Port at Eilat where it is then shipped via Negev Star (Partnership with Zim Lines). ICL Tovala is responsible for transporting phosphate rock from the Oron processing facilities in road-going rigid trucks and trailers. The entire electricity requirements for Rotem is self-generated from the Sulphuric Acid plant production, whereby exothermic heat is used to heat water into steam to generate electricity.

An overview of the Rotem process plant is shown in Figure 15.4 and the Oron site layout in Figure 15.5.

Figure 15.4: Rotem Process Plant Layout

15.3.2 Power

The Rotem complex has five separate sources of electrical power:

- Two primary electrical feeds from the Israeli National Grid (IEC); and
- Three feeds from the refinery on site generation stations TG1, TG2, and Pama project power station.

Current total power demand is 37 MVA and is forecast to rise to approximately 48.8 MVA in the future. Monthly electrical consumption of the whole complex is 70,088,929 kWh. A number of standby generators (630 kVA 400v 3-phase 50 Hz) are also available strategically located if required.

The entire electricity requirements for Rotem is self-generated from the Sulphuric Acid plant production, whereby exothermic heat is used to heat water into steam to generate electricity.

At Oron, the electrical supply to the mine complex is obtained from the IEC, and comprises one overhead incoming power line operating on a 110 kV, 3-phase, 50 Hz system. The 3.3 kV transmission is transformed down to 400V and is used to feed surface equipment in and around the mine complex. Presently there is more than adequate installed capacity to deal with the expected maximum demand of 3.8 MW.

Figure 15.5: Oron Site Layout

The Zin electrical supply is obtained from the IEC. The mine complex intake transmission and distribution substation comprises of one 110 kV incoming switchgear and two, 110/3.3 kV step-down supply transformers, each of 18 MVA capacity. Presently there is more than adequate installed capacity to deal with the mine's expected maximum demand of 5.7 MVA, with a normal operating load of 4 MW. A 1.25 MVA capacity standby generator is available for the main surface utilities etc.

15.3.3 Gas / Fuel Supply

Rotem's processing refinery is supplied with natural gas from INGL (Israeli National Gas Ltd) which originates from Israeli Mediterranean Sea offshore gas fields. The gas station is owned and operated by INGL and is securely locked and protected from unauthorised access.

The gas supply main supply pipe runs to the ICL Rotem filter and divider station located in close proximity to the INGL gas station inside the fenced curtilage of the complex. Total plant gas consumption amounts to 5,000 m3/h. The spare mains capacity available is 3,000 m^3/h for future drying works.

The rotary kiln at Oron consumes 40 MWh of power drying white sulphate (150ktpa). Contracts are presently being placed with NEGEV (Israeli Natural Gas Grid Supplier) for the pipeline supplies to the mine sites.

The Zin mine complex has two 32 MW dryers fuelled at present with HFO (Heavy Fuel Oil). The plant operates with one dryer running and the other standby maintenance to supply one scrubber unit.

ICL future plans are for the introduction of a natural gas supply at both Zin and Oron mine sites in order to fuel and power the rotary kiln dryers. This will involve the conversion of the HFO burners to natural gas in the white acid drying plants.

At Rotem, Maastrichtian age oil shale, containing 10 - 22% organic matter, occurs above the caprock and the bituminous phosphate. This was mined as an energy source for the nearby Rotem power station. The 13 MW demonstration plant was completed in 1989 and generated power sold to the IEC. The oil shale power station is owned and operated by Rotem Amfert Negev and forms part of the energy systems of the plant, providing approximately 10 - 12% of the operations' power. The power station used around half a million tonnes of oil shale annually, which was mined and transported from the mining operation. In 2022 the plant switched to natural gas and the concession for oil shale ended in May 2021 and was not renewed.

15.3.4 Water

The state-owned National Water Company (Mekorot) is responsible for bulk water supply through the national water grid to both the Rotem and Oron facilities with sufficient supplies to meet their needs.

The Rotem refinery is supplied with two types of water:

- Potable water which can be used for drinking; and
- A saline brackish water also supplied via the National water grid.

The brackish water is termed technical water and is used and recycled within the refinery plant processes.

15.3.5 Port Facilities

ICL operates out of 2 port facilities in Israel, Ashdod Port is located approximately 40km south of Tel Aviv on the Mediterranean coast and approximately 120km North West of the Rotem site. The Port of Eilat is located in the far south of Israel on the Red Sea coast, 180km due south of Rotem, and about 200km from Sodom, and is accessed by road via Highway 90.

Ashdod port was constructed in 1965 and has two ship loading facilities, a linear berth with ship loading and a second berth with a radial ship loading facility. Ashdod port provides links to Europe, North and South America and is a modern port facility utilising the latest computerized port management systems for the handling of logistics. Ashdod port has two ship loading facilities, a linear berth with ship loading and a second berth with a radial ship loading facility. It is a deep water berth of 15.5m deep that can accommodate panamax sized vessels capable of 65,000t payloads. The 2 largest warehouses contain phosphate rock which is stored undercover. Rail wagons enter the facility and off-load the product through floor grids directly onto a conveyor which takes the product to the storage warehouse. Ships are loaded via a Cleveland Cascade by a series of conveyors that can deliver product from any one of ICL's 5 storage warehouses. There are around 28 members of ICL staff working in 3 shifts at the Port of Ashdod while the Port Authority provides their own staff to load and unload the ships at Ashdod.

Eilat opened as a port facility in 1957 and allows shipments exiting to the Far East, whereas sales to Europe and the U.S. exit from the Ashdod port. Shipping volume from the Port is relatively low compared to Israel's other 2 ports at Ashdod and Haifa and is restricted by the fact that there is no deep water berth. Typically ships arriving at Eilat are capable of holding around 35,000t payloads. These sizes of ships take 3 days to load working 24 hours around the clock. There are around 30 members of ICL staff working in a similar shift pattern to that observed at Ashdod at the Port of Eilat and again the Port Authority provides their own staff to load and unload the ships at Eilat. All of ICL's products for Eilat are transported by road and then onto global markets.

Sales of fertilizers and potash from Rotem, and the DSW, are not shipped from the Haifa port since it has no infrastructure for loading bulk products and the cost of overland transport is more expensive than transport to Ashdod.

15.4 DSW

15.4.1 Overview

The DSW operation comprises 146.7km^2 of salt ponds, a system of pumps and channels to direct water in from the northern Dead Sea basin, and return water from the process plant, as well as the processing facilities that also includes fuel storage, power plant (old and new), workshop, R&D and storage areas. A regional map of the main ICL sites in Israel is shown in Figure 15.3, along with main roads and rail, and a general site map of the DSW processing facilities is presented in Figure 15.6.

15.4.2 Pumping Station

The DSW operation begins with the pumping of mineral rich brine out of the northern Dead Sea basin into the salt ponds at the northern end of the operation. There are currently two pumping stations, the original P88 and the new P9 which are both used to both pump water and control the solution level in the ponds. Due to the continuous decline in the water level of the northern Dead Sea basin (circa 1.0m per annum), it is necessary to relocate pump station P88. From P9, the water is pumped up to a stilling basin from where it enters an open channel allowing gravity to deliver the water into the salt ponds.

The operating summary of these pumping stations is summarised in Table 15.1, Table 15.2, and Table 15.3.

Table 15.1: Pumping Station Performance P88 and P5 (2016 – 2021)

	2016	2017	2018	2019	2020	2021
Pump Station	**P88**					
Pumping Mm^3	417.6	422.0	431.6	436.5	454.7	443.0
Water Usage m^3	153,206	429,358	579,107	379,993	512,517	524,163
Electricity (MWh)	70,023.4	76,882.4	78,554.7	84,815.8	87,711.6	91,822.1

Further pumping (stations P11 and P33) is required to transfer solution from the northern salt ponds to the southern salt ponds and after this to parlor (‘Traklin’) and carnallite ponds. The pumping volume of these stations depends by flow intensity (evaporation rate and rain fall) and carnallite point.

Table 15.2: Pumping Station Performance P11 and P33 (2016 – 2021)

	2016	2017	2018	2019	2020	2021
Pump Station	**P11**					
Pumping Mm^3	268.7	241.3	226.4	239.5	226.1	255.2
Water Usage m^3	68,300	20,478	82,595	168,328	73,518	144,362
Electricity (MWh)	7,543.6	6,952.3	7,363.3	7,752.6	7,143.7	8,143.4

The final key pumping station is required to transfer solution (end brine) with low potassium chloride concentration back to the northern Dead Sea basin. However, because it pumps from a higher elevation pond to the Arava stream it does not draw electrical power.

Table 15.3: Return Streams to North Dead Sea Basin (2016 – 2020)

Year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Volume (Mm^3)	261.7	256.9	269.2	274.8	293.2	282.0

Figure 15.6: General Site Map of the DSW Processing Facility

15.4.3 Power Station

The DSW is heavily dependent on electrical power and as such has a dedicated power plant producing up to 263MWh from a Combined Cycle Power Plant utilising both gas and steam turbines (173MWh and 90MWh respectively). The plant produces enough heat and electricity for both the DSW and input into the local electricity grid. The power station also provides both steam and energy to the process plant and facilities. The energy source is natural gas but can run off light fuel oil (LFO).

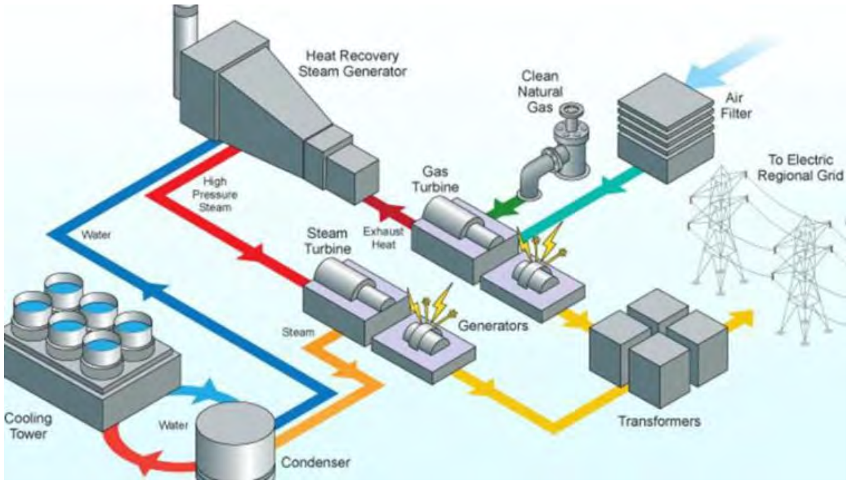

Figure 15.7: DSW Combined Cycle Power Plant Configuration

15.4.4 Rail

Material is transferred to Tzafa rail terminal by a conveyor and from there by rail or by trucks to Ashdod port.

15.4.5 Port Facilities

The DSW transfer product to either the port of Ashdod (Mediterranean) or port of Eilat (Red Sea). For Ashdod, where ICL has its own dedicated facilities, an 18km conveyor transfers potash product from the DSW to a terminal at Tsafa and then onwards by train or road truck. For transport to Eilat, road trucks are used for the entire journey.

15.4.6 Waste Tips

There are no tailings facilities as such for the DSW. However there is a salt/brine dump deposited on the pond sides and allowed to desiccate. Future plans include returning the salt back to the northern Dead Sea basin. Return water is recycled back into the northern Dead Sea basin via the Arava stream.

15.5 YPH

15.5.1 Introduction

The Haikou mining district is densely populated and heavily industrialised with a well-developed infrastructure network and is linked regionally with good quality roads and highways. A rail network of high-quality links the mine area via a branch line (6.4Km) from Baita village station to the state Kunyu rail lines. A general infrastructure map of the area around Haikou Mine, showing the proximity of key connecting road and rail routes and urbanisation, is shown in Figure 15.8.

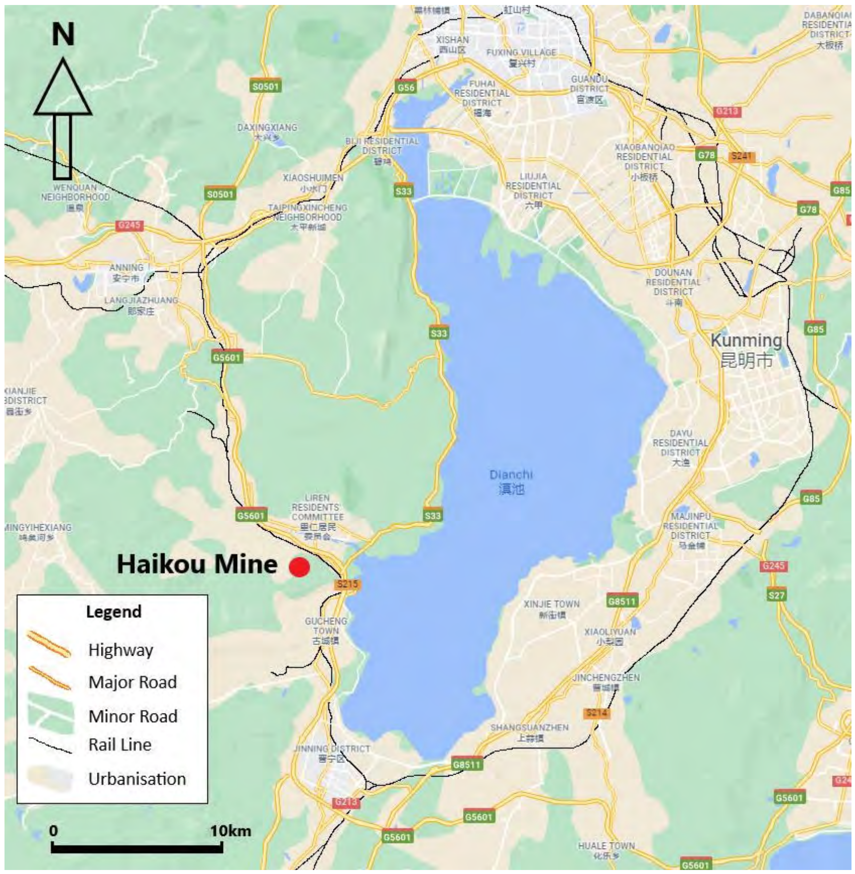

Figure 15.8: General Infrastructure Around Haikou Mine

15.5.2 Onsite Power Plant

The mine and process plant are supplied with mains supplied electricity with the region being a major supplier of hydroelectric power.

15.5.3 Water Usage

The site has access to sufficient water for processing and mining activities. The site is reasonably close to one of China's larger river systems and has adequate supplies of water available for the processing needs of the operation.

15.5.4 Site Access and Infrastructure

The Haikou mine is an established operation that has undergone as series of expansions since mining first commenced in the late 1960s. The access and infrastructure are adequate for the needs with ready access to highways and rail links.

15.5.5 Labour and Accommodation

Permanent labour for the Haikou operation is sourced from the nearby towns and villages, with all accommodation being external to the mine. Camp facilities are available for the operation with the Haikou mine and process plant but only required for casual employees and maintenance shutdowns.

The permanent employees, plant and mine, are housed in the local towns and villages.

16 MARKET STUDIES AND CONTRACTS

Due to the fact that ICL Group Ltd. is a producing issuer, the properties that are the subject of this TRS are currently in production. Information relating to market studies and contracts are commercially sensitive and the reader's attention is referred to the company's annual reports (SEC Form 20-F) which sets out relevant information in this regard.

17 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

17.1 Boulby

17.1.1 Licence and Permitting

In 1998 ICL Boulby secured planning permission from the North York Moors National Park Authority (NYMNPA) to mine and refine Sylvinite, Salt and Polyhalite. This current planning permission expires in 2023. A planning renewal application was submitted for a further 25 years (2023 - 2048) and includes an Environmental Impact Assessment (EIA), which has now been approved. In summary the operating licences are:

- Crown Estates for polyhalite extraction until Dec 2035; and
- Planning application to extend permission a further 25 years has been approved (2023 – 2048).

Boulby operates under UK Legislation and Environmental Regulations, compliance is monitored by environment agency, North York Moors National Park the marine management organisation and local authorities). Environmental permits for Boulby are summarised in Table 17.1. Boulby ensures compliance with the regulations through an environmental management system (ISO14001-2015 Certificate № 24604 Issued 29 May 2021 – Expiry 28 Nov 2023).

17.1.2 Chemicals and Fuel

A list and information on chemicals and fuel used at Boulby has been provided. There are 3 main fuel bays, 2 satellite fuel bays, a refuelling bus (NPC-2) and 3 oil stores. Copies of maintenance blue cards for 5 years are available. Boulby have provided examples of inspection check sheets.

17.1.3 Underground

There are 3 main fuel bays, 2 satellite fuel bays, a refuelling bus (NPC-2) and 3 oil stores. Copies of maintenance blue cards for 5 years are available and Boulby provided examples of inspection check sheets which are considered acceptable.

Table 17.1: Summary of Environmental Permits		
Permit reference	**Function**	**Compliance Agency**
Permit EPR/BL7973IW 2002	Combined heat and power (CHP) plant and consumption of energy and water.	Environment Agency
Permit RCBC/P001/14 2015	Environmental performance and emissions on main stack on-site.	Redcar and Cleveland Borough Council
NYMR/003/0043B/PA 1998	Restrictions imposed: • All HGVs must be covered / sheeted; • Maximum mineral movement 150,000 T/pa; • Maximum of 66 trucks per day; • HGVs may enter site 0645hrs, loading time 0700-1700hrs and no departures after 1900hrs (Monday to Saturday); • No HGV movement Sundays and Public Holidays; • Report monthly HGV movement, load type and tonnages to National Park Officer; • HGV not to use Blakey Ridge Road; and • Report details of EMS to National Park Officer annually.	North York Moors National Park Authority
IPPC The Environmental Permitting (England & Wales) Regulations 2010 (formerly Consent to Discharge) EPR/BB3037RC	Discharge of effluent from the mine via its effluent tunnel into the North Sea	Environment Agency
License to Abstract Water 2/27/29/131	Abstraction licence for surface water drainage only on site.	Environment Agency. 26th June 2012
Marine License: L/2016/00111/1	Dredging of the sea floor of material, details of dredging activity, volume of materials and any spill that occur.	Environment Agency 2016
Greenhouse Gas Emissions Permit: UK-E-IN-11399	• Monitoring the quantity of carbon emitted to atmosphere; • Acquisition of carbon credits if needed; • Prepare an approved EU ETS (Emissions Trading Scheme); • Monitor gas consumption across the site.	Environment Agency 2020

17.1.4 Waste Management and Disposal

Boulby has a 50 year history of processing its extractive minerals. Tailings (gangue minerals) are not produced. The mineral extracted is the product and is only subject to crushing and screening. Boulby have prepared: "Environmental Operational Procedure – Waste Management ME72(E) Rev 1". The procedure includes hazardous and non-hazardous wastes handling, storage and disposal. The procedure also includes the segregation of wastes and the management of outside contractors. Boulby achieved a zero to landfill status mid-2017.

17.1.4.1 Mine Dewatering

Mine brine produced from dewatering activities is pumped out to an effluent facility ≈300m north of the mine. This facility pumps out mine brine and surface water from the mine into a discharge pipe out from the coastline on the bed of the North Sea, see table 1 for regulation parameters. Monitoring information has been provided in accordance with the IPPC (Integrated Pollution Prevention Control) Permit.

In 1979 Boulby has commissioned a benthic survey to monitor the health of the flora and fauna of the seabed. Since the transition to polyhalite mining in 2018, the levels of pollution on the seabed surrounding the discharge pipe as well as at monitoring locations north and south of the discharge location have reduced due to the cessation of potash processing and associated insoluble tailings.

17.1.4.2 Tips/Stockpiles

Boulby stockpiles both raw ore and the final product before being transport to a buyer. Boulby has a legal responsibility as the mine operator to ensure that tips/stockpiles are designed, constructed, operated and maintained for stability, under Part 8, regulations 60-67 of the Mines regulations 2014. The QP understands that the tips and stockpiles are surveyed on at least a monthly basis for volumetric analysis and movement. Boulby commissioned DAB Geotechnics' to undertake a stability report: "Tips inspection and appraisal report" dated 5 October 2020. The report indicates the tips are secure and recommendations had been implemented.

17.1.4.3 Non-Mining Waste

Boulby mine produces a variety of other waste as part of its operation including dry mixed recycling, general waste, hazardous waste, timber and scrap metal, a waste management plan has been prepared.

17.1.4.4 Non-Mining Water and Effluent Management

Surface and wash down waters are captured in drains and is gravity fed through a catchment valley. The water is pumped from the valley to an interceptor pit before finally being pumped to the effluent discharge facility where it is combined with mine brine and discharged to the North Sea.

On-site sewage treatment is also processed and discharged into the interceptor pit where it follows the same route out to sea. As a requirement of several permits, samples are taken from the effluent pump house to monitor for solids content and other determinants for compliance.

17.1.4.5 Hazardous Materials Storage and Handling

Hazardous waste storage procedures are outlined in the waste procedure and are in-line with local government regulations. ICL Boulby produces an array of hazardous wastes including oils, batteries, industrial chemicals, greases, electric (WEEEE) waste and others. ICL Boulby is compliant with UK regulations for the provision of documents for the handing and storage of hazardous materials.

The removal of waste oils is managed by a licenced third party both from underground and at surface level.

17.1.5 Water

Boulby have a water management system in place which controls all surface water sources and manages the removal and disposal of brine which is generated when dewatering the mine workings.
The site draws fresh water from a mains supply and seawater from the dewatering of the discharge tunnel beneath the North Sea. Surface runoff and washdown water is captured in drains and gravity fed through a catchment valley to an interceptor pit before being sent to the discharge facility for combination with brine from mine dewatering and discharge to the sea.

Historical mining of the Boulby Potash seam resulted in some areas of the mine being subject to ingress of brine. This is predominately sourced from the Bunter (Sherwood) Sandstone located 30-80m (depending on location) above the Potash Seam. The Bunter sandstone is an extensive aquifer and inflows will be a continuous and permanent feature for the life of the mine.

The mine pumps remove approximately 2.5Mm^3 of concentrated brine per year from the underground workings to enable dewatering and control of inflows from various points within the mine. A comprehensive network of pumping points, monitoring stations and buffer lagoons is maintained within the mine to control this brine. The combined results of the underground pumping are fed from the mine to surface in a dedicated large bore pumping point that then directs the flow in near-surface pipelines to the discharge facility on the coastline.

Brine removed from the underground workings together with all site drainage is fed to the effluent tunnel discharge facility some 300m to the East of the site. Access to the tunnel is via № 3 shaft which is approximately 143m deep. The tunnel and pipe system enable discharge of effluent approximately 1,600m offshore from a valve arrangement on the seabed.

Samples are collected daily from the discharge facility to enable monitoring for solids content and other constituents for compliance with permitting requirements.

17.1.5.1 Surface Waters

Boulby mine is located close to the North Sea, less than 500m to the north. Easington Beck, which flows into Staithes Beck, discharges into the North Sea, at the south western boundary of the site. During inclement weather, Boulby mine is permitted to discharge into Easington Beck.

17.1.5.2 Water Supply

Surface processing of the mineral makes use of the water from several streams on site. The make-up of the water comprises fresh water, sea water and mine brine. Boulby maintains an aspects and impacts register that includes water related risks.

The QP understands that a register has been prepared aligned with current regulations, active permits and international best practices. Incidents and events relating to water are communicated and shared at site and corporate level.

17.1.6 Energy

Boulby site is energised by 70% electricity and 30% natural gas, with some gas oil and propane used across site in smaller amounts. Electrical power and gas are provided by direct connections to the UK National Grid giving round the clock access to reliable power. Gas oil and propane are delivered to site on a regular basis by the road network and are used to replenish on-site bunkerage to give an operational buffer against potential shortage or delay.

Boulby mine is part of two major energy compliance schemes; The European Emissions Trading Scheme (EU ETS) and a Climate Change Agreement (CCA). These schemes regulate combustion products (Greenhouse gases) and electricity consumption per tonne, respectively. The schemes are drivers for reducing consumption across the site. Boulby is committed to reducing energy consumption and is currently progressing towards ISO 50001 accreditation. Additionally, there have been several successful energy reduction initiatives across site. For example, lighting projects looking at replacement of all light fixtures with LED fittings, movement sensors and night/day sensors.

17.1.7 Air Quality and Noise

17.1.7.1 Dust

A source-pathway-receptor semi-quantitative assessment was carried out in relation to air quality and dust to determine whether continuing operations at Boulby would significantly affect sensitive residential receptors in the local area. A visual inspection was undertaken by others at Boulby and would suggests there is minimal wind-blown dust beyond the site boundary and air quality concentrations are generally within recommended levels, as well as there being very few sensitive receptors in the area, it is concluded that there will be no significant effects.

Boulby mineral processing can cause atmospheric emissions, in particular:

- Combustion gases and particulate matter from the three mineral driers which combine and vent to atmosphere via a CHP 87.5m high stack. CHP Plant is tested every three years for Carbon Monoxide and Oxides of Nitrogen; and
- Fugitive dust emissions.

The atmospheric emissions are regulated under the Environmental Protection Act 1990 Part 1 and the surface operations classified as a Part B process and regulated by Redcar and Cleveland Borough Council under Authorisation reference MPCPL-209.

Dust monitoring on the site boundary has been in place since 1989 and other air quality assessments, including dispersal modelling in 2016 have been undertaken by third parties. Dust is an inherent part of the mineral workings, mine site results show that there have been dust monitoring results that exceed the national guidelines on dust deposition.

In some areas dust ventilation measures are required. Dust has been visible in the air above the mine site from external locations, however, monitoring would indicate that this dust falls within the site boundary, therefore does not impact of neighbours. However, the dust is visible and gives the perception that it could be a nuisance, therefore Boulby are introducing measures on site to reduce the dust that can be seen in the air. This includes the following:

- Video monitoring of the site to identify where dust is noticeable; and
- Monitoring of all known exhaust points to confirm the levels of dust emitted.

Quick fix improvements have already been implemented such as:

- System 8 ducting replacement;
- The installation of speed doors on the west side of the PotashpluS plant:
  - 3 doors on west face of compaction fitted, awaiting electrical installation; and
  - 1 door on the south face fitted and fully operational.
- Sheeting repair and replacement to the exterior of the PotashpluS plant:
  - 95% completed. Gaps around ducting to the stack are to be patched to complete this work.
- Route 2 Reliability (R2R) / Polyhalite Plant:
  - Donaldson dust extraction recommissioned; and
  - All accessible areas of extraction system ducting cleaned.
- Fines screw conveyor fully commissioned.

Future plans (2021) are to repair dust fencing around the main working areas.

Boulby recently transitioned to a sticky pad method for monitoring fugitive emissions across site boundaries. A dust management plan to monitor and remedy excessive dust on site has been prepared.

17.1.7.2 Noise

Recent noise and vibration studies have been undertaken as part of the EIA process for existing sensitive receptors. In order to provide an ambient noise level, surveys were carried out during a shutdown period. These were compared to noise levels generated when the mine is operational. The surveys were undertaken by third parties.

However issues have been raised with regard to a 'droning' sound coming from Boulby which has caused some disturbance even though the noise volume is low. Boulby has investigated and identified 'System 7' fan is the source of the noise. System fan 7 fan is part of the main plant building which filters dust out of internal building space. Operation of this fan is required for appropriate working conditions within the main plant building.

In April 2021 an internal cowling to the system 7 fan housing was installed and noise monitoring is currently being carried out. First impressions monitored by others indicate that this specific noise problem has decreased. General noise monitoring provides automatic alerts when certain volumes are exceeded, but is not able to provide alerts with regard to the tone of noise.

During the investigation at Boulby other high volume readings were identified from a static compensator located in the south west corner of the Mine Site, close to the rail line. The location of compensator is at a sufficient distant not to impact on neighbouring properties.

17.1.7.3 Light Pollution

As part of the EIA studies an assessment of lighting at Boulby was undertaken. The study identified some light sources did have an impact from being too bright or incorrectly positioned and from light grouping (glow impact). Boulby plans to address the current situation and going forward improve its lighting structure. A Lighting Plan is being developed following the review, with some action already implemented such as:

- Whether existing lighting can be removed or switched off;
- Where they cannot be removed:
    - Can they be repositioned, be fitted with cowls or have their direction adjusted to reduce light spill/glow;
    - Can they use, or can they be replaced by lights which do use, LED bulbs1;
    - Can they be fitted into remote/automatic management systems which can be used to ensure they are turned off when not needed.

Photographs of the improvements were provided in the data supplied to the QP.

Since the submission of the planning application (reference: NYM/2019/0764/MEIA) in October 2019, the applicant (ICL Boulby) has been in a dialogue with some local residents and the National Park Authority with regard to noise and dust arisings from the Mine Site. Dust and Noise monitoring and assessment work shows that all emissions fall below statutory limits or national guidance. ICL Boulby intend to prepare and implement mitigation and additional control measures. An issue with regard to the tonality of a noise has been investigated and addressed. Visual impact and light pollution are in the process of be addressed, with some quick fix measures already implemented. As an operational mine, there will always be some level of emission from noise or dust, but the QP understand that ICL Boulby is committed to improving the currently situation and addressing issues further in the planning for the extension to the life of mine.

17.1.8 Flora and Fauna

A study on flora and fauna in the EIA has considered the current environmental effects and the proposed development on biodiversity on site as well as the surrounding area on statutory and non-statutory biodiversity sites, priority habitats and species, and legally protected and controlled species that are within a defined zone of influence (ZOI). The ZOI are listed below:

- North York Moors SAC;
- North York Moors SPA;
- Bats;
- Great crested newts (GCN);
- Amphibians;
- Notable aquatic fauna (for example brown trout);
- Birds;
- Invertebrates;
- Terrestrial mammals;
- Semi-aquatic mammals; and
- Reptiles.

The above studies concluded that there is a potential for direct and indirect effects, but none of which have a significant impact upon valued biodiversity receptors.

The surface operation is bordered by a large wood to the south of the site known as “Mine Wood”. The wood is home to an array of wildlife from deer and otters to rare species of orchid and butterfly. As part Boulby`s continual improvement of the local area, a biodiversity action plan in conjunction with a local ecology contractor has been prepared. This plan aims to improve the biodiversity both on and off site. Recent actions include;

- Wildflower meadow planting;
- Planter planting;
- Moth Survey;
- Bat survey; and
- Barn Owl box installation.

Environmental measures incorporated into the new extension scheme will include minimising land take within valued habitats, habitat creation and management, the employment of standard best practice working methods, and replanting of habitats as close to their location and type as is possible, with the aim of biodiversity gain. It is intended that a Habitat Management Plan (HMP) would be developed, which incorporates all mitigation measures.

Currently Boulby has mitigation measures in place which are being applied.

17.1.9 Traffic/Transportation

17.1.9.1 Overview

The UK has an extensive network of paved roads, rail service, excellent telecommunications facilities, national grid electricity, an ample supply of water and an educated work force and local community. There are no residential properties within 500m of the mine site.

An assessment has been undertaken of the environmental effects of the traffic generated by Boulby Mine on the surrounding local road network. The assessment takes into account the forecast for the future day to day operation of the site and assesses these movements against the Institute of Environmental Management and Assessment (IEMA) guidelines which specify general thresholds for traffic flows that trigger the need for the assessment of effects. A study considers the impacts on sensitive receptors for the two main routes between Boulby Mine and the wider road network. The study established that for a future baseline of 2048, the impacts are not significant.

Access from Boulby to Teesport facilities is via Boulby`s own rail link which connects the site with Network Rail track at Carlin How and then continues to Teesport on Network rail owned infrastructure. The rail link is well maintained by both ICL Boulby and Network rail to allow movement of final product to ICL facilities on Teesside some 30km to the North West.

The nearest airports to the site are Tees Valley, Leeds Bradford, Newcastle and Durham. Port facilities are located at Teesside, Newcastle, Whitby and Hull/Immingham. Leeds is the largest City within Yorkshire and is approximately 130km from the Mine site.

17.1.9.2 Boulby Rail Link

ICL Boulby transports its products from the mine site to its deep-water port facility at Teesside via 34km of railway of which ICL Boulby owns approximately 5km from the mine site to Carlin How, where it transfers to UK Network Rail. Boulby has a legal agreement to used Network rail line: Corus railway line to Saltburn-by-the-sea and then on Railtrack's line to Teesport. A new haulage agreement was reached in 2021, via GPO Amsterdam, and the vendor is DB rail freight (DB Cargo UK).

The train can operate 8 return trips per day, 5 days per week. In general, the locomotive pulls 15 wagons each with a capacity of approximately 62t of product. Limitation on the length of trains applies due to some sections between Carlin How and Middlesbrough being single track, where freight must give way to passenger trains.

17.1.9.3 Port Facilities (Teesport)

Boulby (trading as Cleveland Potash Limited) operates the 22-acre Teesport facility which consists of covered storage, open storage, rail reception, material handling equipment and ship loading facilities. The ICL Teesdock site is owned by PD Ports (owner & operator of the ports of Tees & Hartlepool) and leased to Cleveland Potash Limited on a 20-year lease until 2034.

All shipping entering the Tees river port follow the requirements laid out by the Tees & Hartlepool Port Authority. Boulby has no restriction on the number of ships entering and exiting its port terminal and the Teesdock facility is capable of handling vessels up to 50,000t in size.

The product handling conveyor systems are designed to receive and dispatch products by rail, road and sea at rates up to 1,000tph. Covered storage capacity is circa 100,000t and uncovered capacity is circa 250,000t. The rail infrastructure and terminal are capable of handling up to 1.7 to 1.8Mtpa with a capability to increase when required.

Teesport facility has been audited internally and externally in 2021. A Corrective Action Report (CAR) has been prepared and updated information provided 23 July 2021. However, there are a significant number of items still open and dating back to 2019.

17.1.10 Community and Social

17.1.10.1 Social

Boulby maintains positive relations with the local communities through informal and formal stakeholder engagement activities, including through community initiatives and continuous interaction via social media.

17.1.10.2 Social Initiatives and Community Development

Boulby is voluntarily committed to an extensive ongoing programme of local engagement, local business and community funding. Local organisations and individuals can apply for funding that contributes towards projects that will have an impact on the lives who reside in the local community.

Projects range from aesthetic improvement of local towns, building projects to fitness classes. Over the last four years, a total of 82 projects have benefitted from this programme with Boulby providing financial support, volunteers, tools and expertise to local causes, for example:

- Boulby donates polysulphate products for the upkeep of local sports grounds and raises funds for local charities and groups through initiatives such as the “Auction of Promise” which auctions visits underground.
- Boulby is a member of several local corporate groups, including Redcar & Cleveland Ambassadors through which the company engages with local businesses, is involved in community projects and offers support to the region.

17.1.10.3 Stakeholder Dialogue and Grievance Mechanisms

Boulby hosts an annual general meeting with its local stakeholders: local council and other permitting authorities, relevant contractors and senior management.

ICL Boulby has maintained a complaints log since 1997 for external environmental complaints. This log tracks details of the complaint as well as site conditions and mitigations. Complaints of a certain threshold can be escalated into an incident for proper investigation and root cause analysis. The log is managed by Enablon system and is available to the ICL Group Ltd. For data protection details of the complainants cannot be viewed specifically, but a screen shot of the system has been provided. ICL representative states in an email 23 November 2021 “We currently have no penalties or fines outstanding”.

17.1.10.4 Health and Safety

The operations infrastructure, including access roads and energy sources, meets best practise requirements and general housekeeping, safety and security standards. The mine is compliant with the Health and Safety at work act and governed by the Mines Regulations 2014 as part of UK legislation.

Boulby has prepared an induction workbook for all new employees, the workbook is for both surface and underground workers. The induction training is to provide knowledge and skills to participate in the organisation's safety and health system at the onset of their jobs. The workbook includes a copy of the Company policy. Boulby operates a zero tolerance for H&S. The induction training lasts for 2 or 3 days depending on specifics of their work.

The workbook contains the following chapters:

- General Induction;
- Manual Handling;
- Hand Arm vibration;
- Risk Assessments;
- Noise at Work;
- LMS Induction;
- Fire Safety;
- HR Department;
- Safety Department;
- Well-being Department;
- Quality Department; and
- Environmental Department.

In the opinion the QP, the workbook covers sufficient information along with suitable training to enable safe working behaviours.

17.1.10.5 Occupational Health and Safety

There is an Occupational Health Department on site located in the Technical Services Building. The department is staffed 24 hours a day for treatment and medical advice, regardless of whether or not the problem is work related or not. There is a reporting procedure for being ill or injuries sustained at work and it is mandatory that these are recorded before staff leave site.

On site there are fully trained first aider with additional assistance from the duty medic. A dedicated number has been allocated for calling the duty medic for assistance.

Boulby requires all employees, whether they are permanent staff or contractors, to undertake a pre-placement medical prior to commencing their induction safety training.

17.1.10.6 Health Checks and Surveillance

Boulby have implemented a health check for all staff. The rolling programme of health screening is every two years. Other additional health checks provided at site are:

- Random Drugs Testing Policy;
- Holistic Health Treatments;
- Counselling Services; and
- Chiropody.

17.1.10.7 Lost time Analysis

Lost Time Analysis (LTA) figures have been provided by Boulby for 2021 (Figure 17.1).

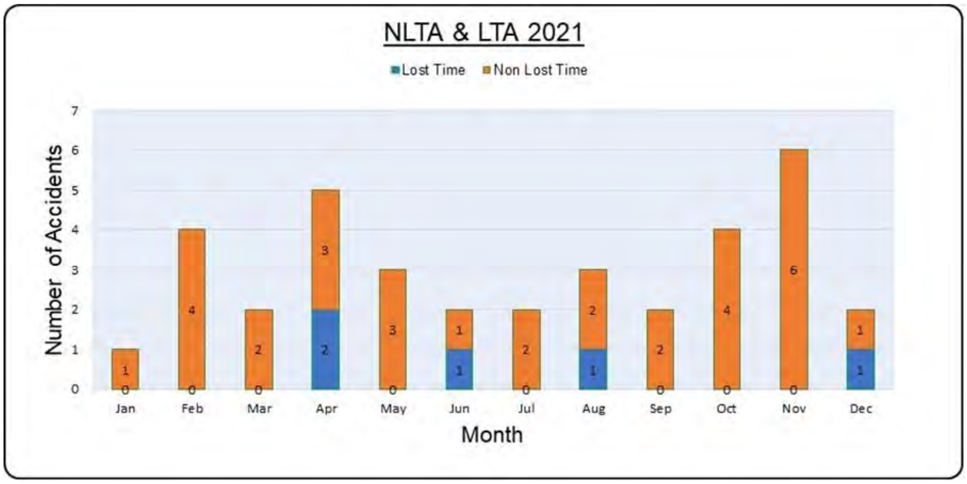

Figure 17.1: Lost Time Analysis for 2021 (ICL Boulby)

LTA refers to incidents that result an employee missing work due to an injury. Only injuries deemed work related are counted. The resulting figures represent the number of lost time injuries in a given period compared to the total number of hours worked during that period. The LTA reflects the company's safety performance in 2021. The total headcount for the ICL Boulby operation is 488 total workers in 2021.

The QP understands that after any injury or accident a report and analysis is undertaken to investigate in order to provide information and improvement in procedures and equipment if needed.

ICL Boulby has provided a record of incidents which have occurred at site and also for ICL Boulby associated infrastructure such as rail link to network rail and Teesside port. It would appear that reports have been prepared, however these have not been provided for review in order to assess the reporting standard/criteria for such as incident impact, mitigation, lessons learned and any after care actions e.g. update of protocols, procedures and employee impacts. Mining is an inherently a high-risk activity; ICL Boulby is heavily regulated by the Health and Safety Executive (HSE) and the Mines Inspectorate and cannot operate without the approval of these organisations.

17.1.10.8 Local Procurement and Hiring Commitments

Boulby mine has around 460 employees, 90% of whom live within 16km of the mine. There is also a high number of long-term employees within the workforce, and though the availability of experienced mining personnel is not considered a challenge, the Company is not averse to recruiting 'green labour' with no previous experience into all areas of the business to maintain these levels of employment.

17.1.11 Environmental Management

17.1.11.1 Environmental and Social Impact Assessment (ESIA)

Environmental Impact Assessments have been carried out periodically since the mine commenced operation, the most recent of which was carried out in 2017. The scope of the EIA was extended to the surrounding woodlands and looked at the mines impact on local flora and fauna.

In 2020 a social impact was commissioned. Any negative impacts identified are reportedly actioned.

17.1.11.2 Environmental Management

Since 2009, Boulby has been accredited with ISO 14001 Environmental Management System (EMS). An EMS management systems ensures continual environmental improvement. Boulby have provided their "Aspects and Evaluation Register" for 2021. The register includes impacts and a scoring matrix for significance. The QP can confirm that the register is appropriate for ISO 14001 EMS. The aspect register has identified relevant references to management plans for environmental and human health protection. The QP has no reason to believe these are not in place.

The general manager reports directly to ICL Group Ltd. with all relevant environmental communication. Environmental management is also looked at on a group level. Incidents and events are reported across the business as a whole and learnings from each site are communicated where they may be relevant to others.

An environmental policy was prepared in 2009. Recently an Integrated Management System has been implemented combining ISO 45001 (health and safety), ISO 9001 (quality) and ISO 14001 (environment), each aspect preparing an integrated policy statement.

17.1.11.3 Environmental Management Staff & Resources

The environmental team consists of two permanent employees. The IMS defines competency standards for employees that are operationally involved with any of the management systems. Where competencies are required, relevant training is provided to those individuals to ensure human resources available.

As part of the IMS, Boulby has developed operational procedures. These procedures are written to ensure the effective management of environmental aspects across the site. These procedures include waste management, dust control, complaints handling, mine closure, biodiversity control, emissions monitoring, and many permit specific protocols amongst others.

17.1.11.4 Environmental Monitoring, Compliance & Reporting

In addition to physical monitoring of the environment; dust, odour, noise and light pollution. Boulby also monitors their performance against their written procedures through internal audits. Nonconformities or opportunities for improvement are recorded on one of several compliance trackers. The findings are assessed for patterns and where trends are identified, actions are generated into the site improvement plan to bring about more widespread improvement.

17.1.11.5 External and Internal Auditing

The QP reviewed the CAR provided which discusses the audits undertaken at site and the correction actions required, and notes the following:

- Legal Compliance Audits CAR – 10 Open;
- External Audits CAR – 22 Open;
- Corporate Audits CAR - all closed;
- Internal Audits (Boulby) CAR - 9 Open; and
- Teesdock Audit CAR – 27 Open.

17.1.12 Mine Closure Plan

A conceptual mine closure plan (PN981101) was commissioned in 1998 by Boulby (operating as Cleveland Potash Ltd), prepared by Environmental Reclamation Services Ltd (ERS). This covered the site in general, the mine and the effluent tunnel facility.

This plan was reviewed and updated in 2004 and 2011 (PN981102) by ERS. The estimated cost of closure in the 2011 review was £6.3 million. This plan is due be reviewed and assessed against current UK planning and environmental regulations in 2021.

17.1.13 Adequacy of Current Plans to Address Any Issues Related to Environmental Compliance, Permitting, and Local Individuals, or Groups

It is the QP's opinion that the Boulby operation's current actions and plans are appropriate to address any issues related to environmental compliance, permitting, relationship with local individuals or groups, and tailings/waste management.

17.2 Cabanasses and Vilafruns

17.2.1 Environmental Permitting

17.2.1.1 Water sources

The Catalan Water Agency (ACA in Catalan) has provided ICL Iberia with two water concession permits issued in June 2017 to collect water for industrial processes from two local sources. The first permit, with registry number A-0012925, authorises ICL Iberia to collect water from the Cardener River and a contiguous shallow alluvial groundwater well from the same river. The second permit, with registry number A-0012926, allows ICL Iberia to collect water from the mine decline drain. Taken together, the ACA authorised a maximum flow of 66.5 L/s and a maximum volume of 1,000,000m^3 per year.

In 2020, ICL Iberia requested a modification to the permit due to an updated calculation of the decline drain water considering an average catchment of 0.30 hm^3 per year, which was approved in April 2021. The Technical Unit of Concessions of the ACA issued the favourable resolution to increase the total volume that ICL Iberia may capture from both the river and decline to a total of 1,400,000m^3 (or 1.4 hm^3) per year with the same limit to pump no more than 1 hm^3/a of the Cardener River.

In 2020, a third permit was issued by ACA concerning a water concession for the industrial use of regenerated water, or that coming from secondary treatment of wastewater treatment facilities. The permit, ref. CC2016000177, allows ICL Iberia to use regenerated water from the Manresa waste water treatment plant with a maximum annual volume of 6.86 hm^3 per year. ICL Iberia is required to present a Management Plan and Sanitary Self-Control Programme complying with the regulations of Decree 1620/2007 on the legal regime for the reuse of treated water. The ACA conducted its latest water use monitoring inspection in June 2021 as reviewed by the Author.

17.2.1.2 Water discharges

The Catalan Water Agency (ACA in Catalan), through the 2019 renewal resolution TES/1198/2019, authorises ICL Iberia to discharge industrial, mining, and salt deposit wastewater into territorial sea through the submarine pipeline of the *Prat de Llobregat* treatment plan after the wastewater has been treated from the brine collector. The ACA conditioned wastewater discharges to the limits and monitoring frequency presented in Table 17.2.

Table 17.2: ACA Wastewater Discharge Limits

Parameter	Fixed value		Monitoring frequency
	Maximum	Unit	
Annual flow	1,670,000	m^3/year	-
Half flow	190.8	m^3/h	-
Tip flow	53	l/s	-
Suspension matters	250	mg/l	monthly
Sedimented matters	30	ml/l	monthly
Temperature	35	ºC	monthly
pH	6-10	--	monthly
Total hydrocarbons	15	mg/l	semestral
Cl-	160	g/l	-
(SO4)2-	10	g/l	-
(SO4)2-/(Cl)-	0.01-0.15	g/l	-
(CO3H)-	1	g/l	-
Na+	100	g/l	-
K+	50	g/l	-
(Ca)2+	3	g/l	-
(Mg)2+	20	g/l	-
Oils and fats	50	mg/l	semestral
Total phosphorous	30	mg/l	-
Phosphates	90	mg/l	trimestral
Nitrates	100	mg/l	trimestral

In addition, wastewater discharges cannot surpass the limits of Resolution MAH/285/2007.

17.2.1.3 Air emissions

The Catalan Climate Change Office, part of the General Directorate of Environmental Quality and Climate Change, renewed ICL Iberia's authorisation for greenhouse gas emissions. The authorisation, AE2130145 issued in December 2020, covers 29 sources of air emissions, including dryers, boilers, air conditioners and generators used in ICL Iberia's activities.

Monitoring must be held on a yearly basis, based on the calculation of CO2 equivalent emissions. Monitoring levels are set per source of air emissions as indicated in Table 17.3.

Table 17.3: Air Emission Monitoring Levels

Source flow type	Source flow	Emission source	Activity data	Net calorific value	Emission factor	Oxidation factor
Primary	Natural gas	S1 to S5, S20 to S27	2	2a	2a	2
De minimis	Gasoil B	S18, S19, S28 and S29	2	2a	2a	2
De minimis	Gasoil C	S6 a S17	2	2a	2a	2

The calculation of CO2eq emissions from the facilities will be carried out in accordance with the Implementing Regulation of the EU 2018/2066 on the monitoring and notification of GHG emissions. In March 2021, a modification to the authorisation of GHG emissions was provided as ICL Iberia submitted their new Monitoring Plan to include further installations. The latest report on air emissions was completed in August 2021.

In terms of noise, ICL Iberia hires a control entity for the preventions of acoustic contamination to carry out regular monitoring rounds. Results from the latest report, issued in July 2020, cover the indicators set by Law 16/2002 on acoustic contamination, and its regulating Decree 176/2009. Different noise sources are monitored, including process facilities in the plant, such as the crushing and cooling towers, dust collectors, vehicle use and equipment, as well as sources of noise in the mine, such as the elevators, machinery, conveyor belts, and electric sub-station.

Results indicate that no assessment level is exceeded by more than 5 dB (A) for more than 30 minutes in day or night periods as required by the law. Two sources within the plant surpassed the levels by 1 dB(A) and 5 dB(A) during the night.

17.2.1.4 Waste

The Catalan Waste Agency (ARC in Catalan) requests yearly declarations on industrial waste to comply with Decree 93/1999. ICL Iberia submitted the latest report on March 2021, under the waste producer register code P-00299.1. ICL Iberia is listed as a Large Producer of waste, including hazardous waste. The ARC has also received ICL Iberia's study to minimise special wastes for a 2021-2024 plan.

ICL Iberia started segregating their waste 10 years ago, implementing a recycling and waste separation programme that has been successfully organised in the offices and partially in the underground mine areas.

17.2.2 Environmental Impact Assessment and Monitoring

17.2.2.1 EIA Resolution

ICL Iberia submitted an Environmental Impact Assessment (EIA) study for the ampliation of the salt deposit of Fusteret in 2018, and an EIA study for the expansion of mining activities in Súria from 750,000tpa to 1.0Mtpa, including Project modifications such as the construction of the mine decline, new salt processing plant, and the new terminal in the Port of Barcelona (see section 17.3.4) to the General Directorate of Energy, Mines and Industrial Safety (DGEMSI in Catalan). This process is framed under the Mining Law 20/2009 concerning the environmental control of mining activities and Law 21/2013 concerning the environmental impact assessment criteria.

ICL Iberia received a positive resolution, known as an Environmental Impact Declaration (DIA in Catalan), in July 2018 for the environmental code permit B3DIA170279 (AE/84/0687-03), and in June 2021 for the code permit B3DIA190737 (AE 84/06/87-05). Operations in the Port of Barcelona also hold their specific environmental licence, including reception, unloading, storage, handling and loading of ships. The licence was originally authorised in 2016 and an update was authorised in 2020 for non-substantial modification of activities once the new terminal was completed.

17.2.2.2 Impact summary

Given that the mining expansion is planned eastwards, away from the locality of Súria (approx. 7k people in the area), there are no expected community impacts from future operations.

17.2.2.3 Environmental liabilities

Since the acquisition of the Súria site in 1998, ICL Iberia has been challenged by historical environmental liability. Since potash mining commenced in Súria (Cabanasses) and later in Sallent (Vilafruns), brine runoff from the salt deposits have reached the local rivers, contaminating the Cardener River. In spite of the implementation of mitigation measures[12] and due to the continuous brine runoff and underground filtration, in 2013 the Superior Justice Tribunal annulled the environmental permits in Sallent and demanded a restoration programme. The sentence was ratified in 2015 and operations in Sallent were annulled, leading to the diversification and augmentation of planned activities in Súria.

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[12] A brine collector was implemented in 1989 in the area, covering both the Suria and Sallent sites. However, brine from the Sallent salt deposit filtered underground, as the deposit is unlined, and polluted the Llobregat river in 2002. Following restoration programmes by the regional government of Catalunya in 2003 and a precautionary closure of salt deposit dumps in Sallent, new contention ditches were built in Suria and Sallent in 2005 and 2006, and the Sallent (Vilafruns) deposit had a waterproofing restauration in 2010.

The 2014 environmental permit (DIA) for the Súria (Cabansses) site already contained significant management measures for the salt deposit and reduction of generated brine. In the same year, the criminal court № 1 of Manresa and the Prosecutor's Office issued a judicial sentence[13] against ICL Iberia and former senior corporate figures due to the environmental impact of water salinisation in Sallent, Santpedor, Callús and Súria. This decision is ratified in 2016 by the regional government in Barcelona. In 2017, ICL Iberia signs a collaboration agreement with the government of Catalunya to allow the extension of mining activities in Súria and a transitioning use of the salt deposits in Sallent until they were decommissioned[14].

Following a change in ICL Iberia management in 2017, further underground brine drainages are installed and a comprehensive plan to collect brine in compliance of the court sentence is presented. The extension of the Súria salt deposit 'Fusteret' from the unlined Reservoir A to the lined Reservoir B, as mentioned above, was approved in 2018. In 2020, following the definite closure of Sallent (Vilafruns), Reservoir B of the 'Fusteret' salt deposit in Súria started operating. In 2021, a 200m long concrete barrier along the Cardener River, adjacent to the Cabanasses operation, was built. The barrier is 9m in depth and collects groundwater containing elevated levels of dissolved salt prior to it entering the river. The collected water is then treated and de-salinised.

Based on this background, the new transition plan has focused on reducing the salt deposits by creating salt processing facilities that can diversify the products in Súria, and transporting brine through the public brine collector built by ACA to discharge wastewater to the sea near the Port of Barcelona. As noted above, these transitional strategy started since the 2016 ratification of the 2014 sentence, and was further supported by the management change in ICL Iberia in 2017. ICL Iberia expects that the new salt processing facilities, still under construction, and the planned expansion of the brine collector pipeline to the Port of Barcelona can help them eliminate brine generation, reduce the salt deposits, and uphold a continuous recovery of the salt deposits in the future.

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[13] ICL Iberia sentenced to indemnify owners, pay procedure costs, and completely control the brine runoff in Sallent and Suria, as well as the costs of the ecologic recovery until baseline salinity levels are reached.

[14] Further extensions to the Vilafruns mine operations in Sallent are issued, based on this transition plan, until 2019. In 2019, salt deposit works are completely stopped in Sallent salt deposit 'Cogulló' and the mine activities in Vilafruns come to an end in 2020.

17.2.2.4 Investment in management measures

In 2020 and 2021, ICL Iberia completed the following components:

- Cabanasses mine decline – a 5.2km long decline reaching a depth of 900m (below surface) to extract minerals, improve ventilation and work safety conditions, as well as to facilitate the transport of equipment to reduce the need of business-related truck traffic. In operation since July 2021.
- Train logistics update – railway logistics from the mine to the Port of Barcelona to be increased on a yearly basis, adding a new daily train, from two to three daily trains in 2019 to seven daily trains in 2024. Includes an upgrade from 21 to 24 train cars per train.
- New terminal in the Port of Barcelona – increasing cargo load capacity from 800,000t to 4,000,000t per year and allowing the arrival of large capacity container ships, of up to 70,000t, to port, reducing the need for additional vessel traffic.

17.2.3 Environmental Health and Safety Management

17.2.3.1 Policies and certifications

ICL Iberia has developed an Ethics Code in alignment with global ICL guidelines, which includes mentions of labour and human rights with limited detail. However, the Code clearly states a company-wide anti-discriminatory stance. Non-discrimination is enacted through the Equality Programme. In addition, a Diversity, Inclusion and Belonging (DIB) initiative is implemented from the wider ICL Group Ltd. into the local ICL Iberia activities.

ICL Iberia has the following certifications:

- UNE 22480 - Sustainable mining management certification by the Spanish Normalisation Organisation (UNE) promoted by the National Confederation of Mining and Metallurgy Companies (CONFEDEM) and aimed at adopting the Mining Association of Canada
- IS0 14001 – Environmental management
- ISO 9001 – Quality management
- ISO 45001 – Occupational Health and Safety
- ISO 14067 – Carbon footprint of products
- ISO 22000 – Food safety management
- BS OHSAS 18001:2007 – Occupational Health and Safety
- FEIQUE Responsible Care – Corporate social responsibility certificate issued by the chemical industry federation in Spain

ICL Iberia is aiming to structure their sustainable mining management structure to align with the UN Sustainable Development Goals. Specifically through the following:

- Strategic impact in SDG 2 (zero hunger)
- Direct impact in SDGs 8 (decent work and economic growth), 9 (industry, innovation and infrastructure), and 12 (responsible consumption and production)
- Indirect impact in SDGs 3 (good health and well-being), 6 (clean water and sanitation), 10 (reduced inequalities), 13 (climate action) and 15 (life on land)

17.2.3.2 Personnel and occupational health and safety

ICL Iberia is staffed by a total of 899 people who are not all directly employed by ICL Iberia, from which 133 employees work as administrative support, and 766 employees work in the mining operation, including processes and activities. 707 people, or approximately 92% of the employees related to the mining operation are affiliated to a worker union and under collective contract agreements. The number of employees working directly underground in mining activities in Cabanasses ranges from 130 to 160 miners, covering 24hr operations through three shifts. Each shift is comprised of 40 to 60 miners working eight hours.

The Environmental, Health and Safety (EHS) department is comprised of a director, two senior technicians, dedicated to water, salt deposit and biodiversity restauration, and air emissions, noise and climate change, as well as a person in charge of the environmental policies and certifications mentioned above, and a support technician.

Occupational Health and Safety (OHS) is overseen by the Health and Safety department, led by the Security Manager and a team of six senior technicians for labour risk prevention, three technicians in charge of first aid teams, as well the worker unions. Security Representatives of unionised workers, known as Mining Delegates, participate in daily decision-making processes regarding OHS. Mining Delegates are in charge of worker safety and they have a stop work authority in case of any identified risk.

The Human Resources department and the HR Manager have a composite team working for the ICL Group Ltd. programmes and functions, as well as local HR management for social security, health check and local contractual aspects. 10 Senior technicians work among tasks comprising personnel selection, marketing and logistics, learning and development and labour relation administration.

Approximately 90% of the ICL Iberia staff is comprised of men, with most women employed in administrative and technical jobs outside of the mine and in directing roles. Three women work underground in mine activities. ICL Iberia has an employee grievance mechanism through corporate telephone numbers and anonymous feedback boxes in the office. While the grievance resolution process is not systematised and registered, ICL Iberia does implement a resolution through discussions with the grieved parties. There have been no harassment incidents or reports in the grievance mechanism.

17.2.3.3 COVID-19 prevention and management

A corporate level health and safety committee was formed in 2020 to focus decision-making processes regarding the COVID-19 pandemic. Prevention measures such as social distancing and face masks are still in place, while more cautious measures were implemented throughout 2020 and early 2021, such as the continuous disinfection of common places, distanced sitting places in diner areas, and uneven shift starts to discourage the grouping of employees using the mine shaft elevators.

Reportedly, office employees were given the option to work remotely, and site workers were supported through hygiene measures to increase the cleanliness of workplaces, tools, and equipment, as well as through the provision of individual protection equipment. The medical service follows up on positive cases, advising and performing the pertinent tests for safe return to work.

Reportedly, ICL Iberia suspended operations during two to three months in 2020 due to the local government restrictions. Reinstated activities were supervised by the corporate health and safety committee. The protocol established any positive cases to be taken to the medical services for isolation until broader public medical services could take the person. A PCR test must be undertaken by staff after returning to work and having spent 10 days in quarantine. Personnel visiting the site conducted PCR tests before traveling to the Project site.

17.2.4 Plans, Negotiations or Agreements with Stakeholders

17.2.4.1 Stakeholder engagement

Stakeholder engagement activities are undertaken by the Corporate Relations department and its External Communications Manager. Engagement is guided by a stakeholder mapping process which identified key stakeholders such as regional and local authorities, Civil Society Organisations, mining unions, and other private businesses. Even though no community representatives or inhabitants are identified in stakeholder mapping processes, there are engagement activities with the local communities.

In terms of corporate communication, ICL Iberia has disclosure material in both Catalan and Spanish languages for local and regional population. Since 2013, ICL Iberia has released annual reports on sustainability indicators (Memoria de Sostenibilitat), as well as corporate magazines, bulletins and newsletters. Face to face engagement activities include regular talks with local town hall authorities every six months and working with public administration to hold open community forums where new Project developments are presented.

Reportedly, historical relations between the mine and the community of Súria were very limited before the 1998 acquisition by ICL Iberia. Interviewed staff reported the historical relation as being paternalistic in terms of investment and unilateral in terms of communication. ICL Iberia now receives feedback through their open community forums and social media, although the Corporate Relations department only has one person in charge of community relations.

17.2.4.2 Engagement with worker unions

In Spain, unions have a high historical affiliation from mine workers, making mining unions a very relevant stakeholder group. As mentioned above, 92% of the workers in ICL Iberia are affiliated to a worker union and most of the workers are under a collective contract agreement. Negotiations with the unions are reported as efficient and continuous. As previously described, Mining Delegates represent the workers through a role known as the Company Committee during agreement meetings. For instance, during the Sallent site closure, a planned collective dismissal of 160 employees was negotiated with the Company Committee and a compromise was reached to allow for 17 applicable pensioneers to voluntarily leave and 28 people to be retrenched. Negotiations were reached in good faith and workers' rights were overseen by the unions through the Company Committee. Any contractual matters under collective agreements must be discussed with the Company Committee.

17.2.4.3 Social development

ICL Iberia supports community development through different ongoing agreements. These include collaborations with town hall environmental commissions, investment in public infrastructure (e.g. reconstruction of public road roundabout near ICL Iberia facilities entrance), support of and donation to local food banks, collaboration with local university for internship programmes and cultural collaborations, and general staff volunteering activities.

17.2.4.4 Public perception

Public perception has reportedly improved since the mine acquisition in 1998 by ICL Iberia, and perception has been monitored since 2017. Perception is gauged through participatory surveys, undertaken with the community of Súria. Some of the main registered community concerns about the Project activities include grievances about dust and noise from Project-related activities and road use of Project trucks, as well as questions about job availability.

The start of operations of the new mine decline has allowed ICL Iberia to eliminate the use of up to 80 transport trucks that transited through the city of Súria. Reportedly, public perception improved following this reduction of truck transit, as noise and dust from the project-related traffic was now prevented.

Although Project opposition groups were not identified as part of the stakeholder mapping process, they were identified in the EIA. Opposition groups include environmental collectives such as Prousal, Montsalat and the ecologist collective l'Alzina[15]. On a global and national level, the Boycott, Divestment, Sanctions (BDS) group opposes the work of ICL in Spain.

17.2.5 Local Procurement and Hiring Commitments

According to the 2021 EIA, 87% of ICL Iberia workers are hired locally, as well as 60% of supply chain workers. Approximately 60% of the indirect jobs generated by ICL Iberia activities are located in Catalunya, with the rest located in Spain and the EU.

The HR department used to have a supply chain management area. However, after the establishment of supply contracts, any monitoring and oversight activity with the supply chain is held by the OHS department and the Safety Manager. This department can sanction suppliers when they do not comply with OHS provisions and risk management measures.

[15] Public opposition from these groups was mainly directed against the Cogulló salt deposit from the Sallent activities and currently against the Fusteret salt deposit from Súria. Water salinisation is one of the main concerns of these civil society environmental organisations.

17.2.6 Mine Closure Plans

The 2021 EIS presents a Preliminary Closure Project as Annex III-1 of the Restoration Plan, for the dismantling / restoration phase. However, the DGEMSI conditioned the DIA resolution for ICL Iberia to the development of a complete decommissioning and restoration project and the inclusion of a specific environmental monitoring programme once the Project closure phase commences.

17.2.7 Adequacy of Current Plans to Address Any Issues Related to Environmental Compliance, Permitting, and Local Individuals, or Groups

It is the QP's opinion that Cabanasses and Vilafruns operation's current actions and plans are appropriate to address any issues related to environmental compliance, permitting, relationship with local individuals or groups, and tailings/waste management.

17.3 Rotem

17.3.1 Overview

ICL's Rotem asset includes production plants at Mishor Rotem (variously leased until 2028 to 2041), and ICL Phosphate's Oron and Zin sites (leased until 2017 to 2024). For the purposes of this review, ICL's Rotem asset comprises:

- Rotem (Arad) and Zafir (Oron- Zin) phosphate mines located in the Negev, including:
  - Beneficiation plant
- Mishor Rotem processing plants, including:
  - Sulphuric acid plant
  - Green phosphoric acid plant
  - White phosphoric acid plant
  - Superphosphate, granular fertilizer pant
  - MKP plant
  - Oron beneficiation plant (high-grade, multi-purpose phosphate products)
  - Zin beneficiation plant (high-grade, multi-purpose phosphate products)
  - Combined heat and power, oil shale electricity power plant and steam plant

The Zin, Oron and Arad mines are operated in accordance with two mining concessions, which were valid until the end of 2021. The immediate future of ICL's mining operations at Rotem depend upon ICL obtaining approvals and permits from the authorities, including an Emissions Permit under the Israeli Clean Air Act. ICL is also proposing the development of the Barir field located in the South Zohar deposit, Negev Desert.

It is understood that production at Rotem commenced before the formalized planning system that required the preparation of environmental impact assessments to be conducted as part of the planning application process was introduced. As such Rotem may not have an EIA, and one has not been provided. However, the planning and permitting process has been outlined, which requires an EIA for every new 'project' and, for existing projects an application to update the environmental permit is required. In this way the Ministry of Environment is able to keep track of emissions and discharges and issue requirements for updating environmental monitoring and reporting.

17.3.2 Rotem Environmental Organisational Structure

The organogram (Figure 17.2) illustrates the organisational structure for the implementation of environmental management at ICL's Rotem asset.

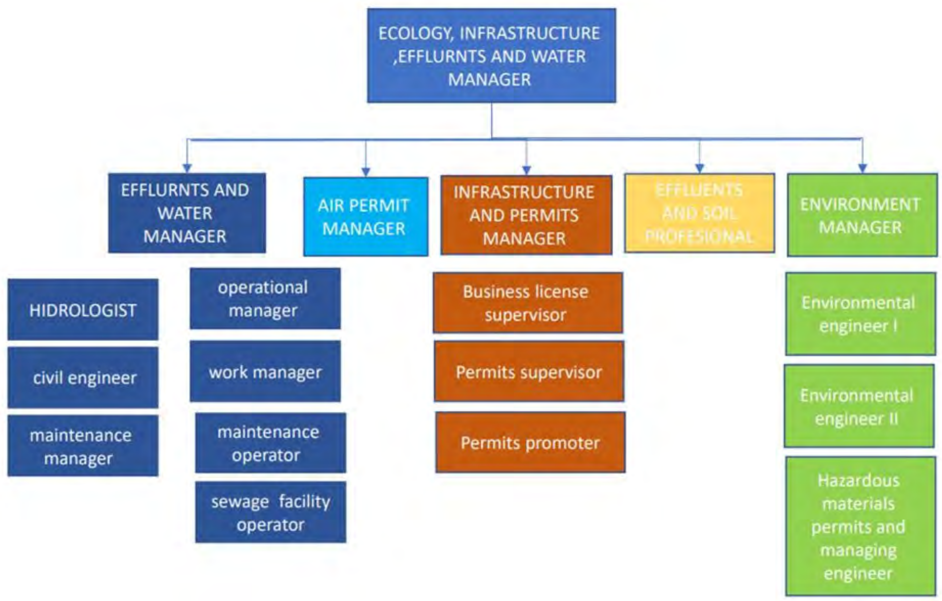

Figure 17.2: ICL Rotem Environmental Management Department

17.3.3 Policies

Rotem follows and implement ICL Group Ltd.'s (common) Environment, Health, Safety and Security Policy. ICL's EHS&S policy applies to all businesses and employees within ICL. The publication, 'Quality, Health, Safety and Environmental Company Policy and Guidelines' presents and is the basis for the implementation of Rotem's Environmental Policy, Health and Safety Policy, and Occupational Health and Safety Policy.

- ICL Sustainability Strategy and Vision
- ICL Group Supplier Code of Conduct
- ICL Group Sustainable Procurement Policy

17.3.4 Health, Safety and Environmental Procedures

17.3.4.1 Rotem HSE Implementation

ICL personnel have stated, 'Every employee conduct a safety training once a year.' It is not known whether this applies across all ICL sites in Israel, however, in line with the corporate HSE system it is assumed that is the case.

17.3.4.2 Rotem HSE Procedures

Rotem maintains a list of all the legal requirements including a register of national legislation and site specific permits and carries out audits to check and verify compliance. ICL Rotem implements the following HSE procedures:

- Travel within the mine areas
- Permit to enter the mine
- Accident / Near Accident Reporting
- Using a cell phone
- Mediation training for a new contractor employee
- definition of mine works
- Definition of environmental risks in mines
- Rehabilitation while mining
- Site Preservation
- Ground shocks, noise, and dust
- Contractors' work in the mines
- Road planning in the mine
- Workspace operation
- Switching operators between shifts
- Introduction of an IDF operator into a new work area

17.3.4.3 Rotem HSE Management

Figure 17.3 illustrates the HSE management structure for the Rotem mine sites.

Figure 17.3: Rotem HSE Management Structure

17.3.4.4 Environmental Procedures

The following environmental procedures are implemented by ICL Rotem:

- Poison permit and treatment of hazardous substances
- business licence
- Work in open areas
- Adherence to conditions in permits - business licences and their renewal
- Dealing with HOME FRONT COMMAND regarding hazardous substances and submitting reports
- Requirements under any law and other requirements
- Goals, objectives, and environmental management plan
- Communication with the environmental regulator (and submitting reports)
- Operational control
- Inconsistencies and corrective and preventive actions
- Engineering, safety and environmental rules for fuel storage facilities and internal gas stations in the company
- Training and awareness
- Monitoring and measurement
- Reporting and documenting environmental events and exceptions
- AIR quality Detectors on the business fence(border-line)
- Prevention of soil contamination by chemicals, fuel and oils
- Treatment of hazardous materials and waste disposal
- Prevention of harm to flocks of migratory birds
- Prevention of soil and groundwater pollution from evaporation and stora
- Disposal of electrical and electronic equipment, batteries, and accumulat
- Pipe marking

Rotem manages chemicals (purchase, conveying/shipment, storage & consumption) using SAP and other software. In addition Rotem runs internal and third party audit plans that include auditing the management of chemicals. All chemicals purchased and stocks are registered and are managed using SAP. As per statutory and legislative requirements, Rotem holds permits issued by the Ministry of Environmental Protection and Civil Defence Headquarters for all its hazardous chemicals.

17.3.5 Corporate Responsibility Reporting

ICL Group Ltd. environmental reporting is reported via the ICL Corporate Responsibility Report, the information for which is managed and archived through the Domino/Enablon QMS.

ICL 2020 Corporate Responsibility (CR) Report, published 02 August 2021, was prepared in accordance with the Global Reporting Initiative (GRI) Standards 'Core Option'. The GRI provides common standards (GRI Standards) for reporting publicly on a range of economic, environmental, and social impacts. ICL's 2020 CR Report incorporates relevant SASB (Sustainability Accounting Standard) and TCFD (Task Force on Climate-related Financial Disclosures) indicators that report on governance, strategy, risk management, and metrics and targets that help investors understand how reporting organizations assess climate-related risks and opportunities and, importantly, how organisations are addressing GHG emissions reduction commitments.

ICL's 2020 CR Report was evaluated and assessed in line with AA1000 Assurance Standard of the Accountability Organisation by the Corporate Social Responsibility Institute (CSRI) on 01 August 2021 for its fulfilment of three key principles, namely, Inclusiveness, Materiality and Responsiveness. CSRI found that ICL's 2020 CR Report fulfilled "these principles and the GRI SRS (at the level of 'In Accordance' - Core) guidelines satisfactorily." Further, the CSRI reported that the performance indicators in ICL's 2020 CR Report "are also presented adequately according to the global Sustainability Development Goals (the SDGs)".

17.3.6 Reporting to Israel's Statutory Authorities

ICL Rotem and Dead Sea Works report directly to the Ministry of Environmental Protection (MEP), which is Israel's statutory authority responsible for the protection of the environment and public health. MEP is responsible for regulating development within Israel through the issue of planning permissions (licences) and the regulatory authority responsible for the management of atmospheric emissions, waste management, hazardous materials, exploitation of natural resources, and enforcing environmental laws.

Real-time continuous environmental monitoring systems (CEMS) operate at ICL's processing plants transferring emissions and discharge data directly to the Ministry.

ICL Rotem (and DSW) submit annual environmental monitoring reports to MEP in March each year. The annual reports present all emissions and discharge data, as well as solid and liquid non-hazardous and hazardous wastes. The environmental reports are publicly disclosed through MEP's website.

17.3.7 Environmental Permits

With reference to S-K Item 101(c), ICL Rotem and Dead Sea Works should demonstrate that environmental permits and/or updates to environmental permits are in place for all their developments, emissions, and discharges. The following national permitting requirements should be noted:

- Any new project or development not included in an existing permit, no matter its scale and associated risk, requires an environmental permit application for its inclusion in the blanket environmental permit for the property.
- Prior to award of an environmental permit, or an update to an existing environmental permit/licence, the Final Draft of the environmental permit is issued by MEP for public consultation.
- Environmental permits are valid for a period of seven years.

17.3.8 Permit Conditions

Environmental permits are issued subject to binding conditions. An environmental permit is issued for the project as described in the permit application and/or the application for a variation to an existing permit application. The conditions of the environmental permit include conditions specific to a project, development, process, emission, or discharge whilst stating the requirements to ensure compliance with environmental laws promulgated by the Government of Israel.

17.3.9 Permit Renewals

All environmental permits are presented in ICL's Domino / Enablon QMS. An application for permit renewal must be submitted to MEP 1-year prior to the expiration of the active permit.

17.3.10 Fines and Penalties

ICL Rotem has disclosed two environmental incidents:

1. Ashalim Stream Discharge
   Date: July 2017
   Incident description: An area of one side of the embankment of Pond № 3 subsided resulting in 100,000 m^3 liquid slurry phosfogypsyum being discharged to the Ashalim stream (a nature reserve).
   Effect of the incident: The nature reserve was closed to visitors after the event, and was re-opened in June 2020 following clean-up and restoration and a concluding state IRBCA survey.
   Statutory involvement: The statutory authorities continue to monitor the incident area to check the ecological situation.
   Outcome: ICL built a new pond (№ 5) designed by Ardaman and Associates (USA).

2. Discharge from Pond (a TMF) № 11, Tzin Plant
   Date: February 2019
   Incident description: A rare rain event caused a stream to flow through the Pond (a TMF) № 11 in Tzin plant which resulted in approximately 100m^3 of salty water discharging from the pond.
   Statutory regulator involvement: ICL was called before a hearing in the Ministry of Environment.
   Outcome: ICL changed the point of pumping the water back to the plant to the centre of the pond instead of the edge of the pond, removing liquid (pore) pressure on the pond embankment.

WAI has not been informed of any other environmental incidents recorded by ICL Rotem.

17.3.11 Permits and Licences Held by ICL Rotem

ICL Rotem holds the following environmental permits:

- Business licence, Hatrurim Mine (Rotem) — Valid until 30 June 2022
- Hazardous materials permit, Rotem site — Valid until 04 October 2022
- Business licence, Oron Mine — Valid until 30 December 2028
- Hazardous materials permit, Oron site — Valid until 23 November 2022

17.3.12 Summary of Risks

The following examines regulatory compliance risks associated with ICL's plants and operations. Section 17.3.13 highlights cases of material note arising from and relating to ICL's operations at Rotem. The review examines how ICL has, or is, addressing and reporting compliance, environmental management, and incidents.

The review is based primarily upon publicly-sourced information, including ICL's own, publicly-disclosed annual Corporate Responsibility reports, as well as information gained through interviews with ICL personnel.

17.3.12.1 Air Quality and Groundwater Monitoring

As stated in ICL's 2017 CR Report, all ICL's plants in Israel have received air emissions permits. The air emission permits include provisions regarding application of BAT, monitoring, control and reporting to the Ministry of Environmental Protection.

WAI were informed by ICL on 16 December 2021 that ICL has implemented measures to address the requirements of air emission permits in coordination with the Ministry of Environmental Protection, including the installation of three Constant Emissions Monitoring Systems (CEMS) air quality monitoring stations pursuant to the Clean Air Law which report directly to the National Monitoring Centre of the Ministry of Environmental Protection. The data are publicly disclosed.

ICL has implemented an air quality monitoring system in accordance with the requirement of the Ministry of Environmental Protection and MEP's Environmental Unit since 2017.

WAI has received information from ICL Rotem confirming the location of ambient air quality (particulates) monitoring locations for the Hatururim mine site. Rotem has submitted an Air Quality Monitoring Plan to the Ministry of Environmental Protection for approval. The plan will be implemented.

In addition, at the Rotem site third party explosions monitoring is carried out and groundwater monitoring including water level monitoring (piezometric head) and groundwater quality analysis.

17.3.12.2 Green House Gases

To address climate change associated with greenhouse gas emissions ICL has converted its main plants to natural gas and implemented energy efficiency initiatives. ICL's 2017 CR Report states, "The combined results of these efforts has resulted in 25% reduction in the global GHG emission of ICL between 2008 and 2016." ICL has converted its combined power and steam plant from shale oil to natural gas and light fuel oil.

As stated in ICL's 2017 CR Report, "ICL reports its emission data annually and its efforts in the climate change field to the Carbon Disclosure Project (CDP). As a result of ICL's comprehensive transparency efforts and the significant reduction in its emissions, the CDP awarded ICL the second best possible score, A- for its 2007 report".

17.3.12.3 Circular Economy

ICL has reported its intention to create new products from waste and recyclable materials including products from phospogypsum accumulated at the Rotem site; Flurosilicic Acid (H2SiF6); cement clinker; and oil spill absorbent materials.

17.3.12.4 Contaminated Land

As per a requirement associated with the issue of a business licence by the Ministry of Environmental Protection all of ICL's plants in Israel have conducted historical land surveys. ICL carried out a contaminated land survey submitted to MEP circa 2015. ICL has either received or is awaiting the instruction of MEP regarding areas of ground contamination.

17.3.12.5 Waste Management

As reported in ICL's 2017 CR Report, a master plan for treating waste has been implemented at Rotem with the aim of reducing effluent quantities, utilising effluents for new products (i.e. extracting other minerals from the wastewater), recycling wastewater, reducing water consumption, and treating and neutralizing wastewater. This initiative has been partly in response to the Ashalim Stream incident in 2017 (refer 17.4.10.1).

17.3.12.6 Hazardous Materials

ICL's operations in Israel store, transport and use hazardous materials in accordance with the Israeli Hazardous Substances Law, 1993, for which permits are renewed and issued annually for all ICL plants.

17.3.12.7 Cultural Heritage

In accordance with Israel's laws, the Rotem site implements a Chance Find Procedure for possible sites of archaeological and cultural heritage interest. The law requires archaeological surveys to be conducted prior to entering and commencing quarrying.

17.3.13 Disclosure of Risk

17.3.13.1 Rotem – ICL's Reporting and Disclosure of the Ashalim Stream 2017 Pollution Incident

ICL reported the release of process plant effluent from a retaining pond into the Ashalim Stream in ICL's 2017 CR Report. It was estimated that between 100,000 and 200,000 m^3 acidic phosphogypsum effluent discharged consequent to a breach in one of Rotem processing plant's effluent detainment ponds. The discharge of effluent resulted in the contamination of 20 km of the Ashalim stream (Nahal Ashalim), which flows through an area designated as a nature reserve managed by the Israel Nature and Parks Authority (INPA).

Full public disclosure of the incident and the measures taken by ICL to remediate Ashalim stream is presented on the www. (https://2019.icl-group-sustainability.com/reports/ashalim-creek-nahal-ashalim-incident). ICL is continuing to work with INPA to monitor the long term impact of the effluent discharge on the wildlife and habitat of the Ashalim stream. Following its remediation the Ashalim stream was re-opened to the public in 2020.

17.3.14 Personnel and Occupational Health and Safety

ICL has implemented a new Operational Excellence Management System - OMES-EHS addressing health and safety across the organisation since 2020. ICL has also introduced 'HOP', Human and Organizational Performance which supports ICL's five safety principles. HOP aims to provide ICL's employees with an open forum to assist and develop professional training, safe operating behaviours, proactive learning and facilitate a culture of implementing pre-emptive actions to identify and remove hazards. In addition ICL is implementing a system to promote organizational competence referred to as 'PSM', Process Safety Management. ICL's occupational health and safety systems comply with recognised industry best practices and standards for the jurisdiction in which they are implemented, which are variously EU Seveso Directive, OSHA PSM Regulation and the UK HSE Control of Major Accidents.

During 2020 ICL's Emergency & Crisis Management module was successfully implemented by most of ICL's sites globally.

ICL implements a corporate Code of Ethics addressing commitments to the environment, safety, occupational health and safety, prevention of discrimination, implantation of company procedures etc. as well as employment rights and worker rights

ICL Group Ltd. has been assessed by the Standards Institution of Israel and has been certified to implement a Voluntary Code For Prevention of Sexual Harassment in the Work Place (Initial approval awarded 23 December 2020, valid for 2-years).

Rotem hold a Security Policy and has reported to WAI that there are no Tier 1 or Tier 2 security risks.

17.3.15 Rotem Medical Facilities

Rotem operates a medical clinic for site personnel. The facilities provided by the medical clinic are available to the local population at times of emergency only. The clinic provides basic medical facilities and treatment only. An ambulance is available on site. All clinic employees are trained and certified.

17.3.16 Personnel and HSE Statistics

ICL Rotem directly employees 143 male personnel and 0 female personnel at its Rotem Mine, but this information is not available for Oron Mine.

ICL reports its HSE Statistics for all its global assets.

A summary of the HSE statistics for Rotem are presented in Table 17.4. The clinic event in 2021 is related to the Garage (maintenance) department, currently the mine and the Garage are under the same organisation structure.

Table 17.4: HSE Statistics –Rotem

	Clinic Events		Lost Work Day Case		Fatalities	
Site	**2020**	**2021**	**2020**	**2021**	**2020**	**2021**
Rotem	0	1	0	2	0	0

17.3.17 Stakeholder Engagement

To engage with its investors, ICL publishes financial reports and holds regular sessions with financial analysts. It responds to various information requests, ranging from its sustainability policy to its ESG performance and practices, via specialized platforms such as the Carbon Disclosure Project (CDP), Ecovadis, and others.

The frequency of most disclosures is on an annual basis, excluding financial reports that are published on a quarterly basis. Sustainability issues are disclosed and discussed by ICL mainly through its annual Corporate Responsibility Reports which follow the requirements of the independent Global Reporting Initiative (GRI). ICL has also designed a new investor portal on the Company's website, incorporating an Interactive Data Tool that provides current and historical Company-specific quarterly and annual financial data, ESG-related indicators and interactive charting capabilities, downloadable to Excel, making ICL's financial and ESG data more accessible and visible to its investors.

In addition, to serve local stakeholder groups, ICL reports to Maala – Business for Social Responsibility in Israel and to the Israeli Voluntary Reporting Mechanism for Greenhouse Gases. The Company also occasionally publishes various voluntary reports and professional publications on a case by case basis. Local stakeholder groups are also reported to have direct communication with the Company.

The Rotem site has indicated that it maintains a grievance register and a Community Contribution process to facilitate public consultation and disclosure plans. Rotem has an appointed community liaison officer to address community-related issues. Rotem has indicated that a formalised system of stakeholder engagement is not implemented as a standard procedure.

ICL Rotem has not disclosed which groups it holds agreements with, though it is understood that ICL Rotem works closely with the Ministry of Environment with regard to the monitoring of the Ashalim Stream.

17.3.18 Local procurement and Hiring Commitments

ICL Rotem has not provided information pertaining to any commitments to ensure local procurement and hiring. However, as disclosed in accordance with the GRI Standards, ICL supports the livelihood of approximately 32,000 families in Israel including around 19,000 families in the Negev region of south Israel. Breaking this figure down, ICL is directly responsible for the livelihood of 4,200 families in the Negev, indirectly an additional 12,200 jobs, and 15,100 induced jobs. ICL indirectly supports the livelihood of approximately 5,600 Bedouin-Israeli employees, mostly as contractor workers employed by ICL's direct contractors in varying capacities. ICL is consequently responsible for 15% of the Negev's economic activity, worth approximately $2.95 billion in GDP locally, and to 1.2% of the GDP of Israel (2019 figures).

17.3.19 Mine and Facility Closure Plans

It has been noted that the Rotem site is in a constant state of progressive development, closure and reinstatement: The operation of the Rotem quarries requires topsoil, overburden and interburden to be stripped, stockpiled and replaced as the quarries develop. Mine closure is therefore constantly ongoing. It is understood that:

- ICL Rotem, a representative from the Ministry of Energy, the Parks Authority and the Dead sea drainage authority meet every month. They look at the active programmes, they review how they are progressing and they address any issues and look for areas for improvements.
- ICL is working with Be'er Sheva University (Professor Yaron Ziv, Ecology) and the Parks Authority looking at the long term impact of the reclamation after 5 years' time and areas for improvement.
- Reclamation at Rotem is taken very seriously - Pits are fully backfilled with overburden, topsoil replaced, and to the untrained eye it is not noticeable that the area has been mined.
- Reclamation costs are managed by the mines, where for every tonne phosphate removed money is put aside for reclamation. This financial provision differs from other quarries in Israel where money is paid to an Authority that reclaims the area once quarrying has finished.

17.3.20 Capital Expenditure on Environmental and Social Management

ICL Rotem have disclosed the following related information relating to ESG:

Table 17.5: ICL Rotem Capital Expenditure on ESG

Asset	Capital Expenditure - ESG			
	2019	2020	2021	2022
Rotem	27.2	19.5	20.4	43.2

17.3.21 Adequacy of Current Plans to Address Any Issues Related to Environmental Compliance, Permitting, and Local Individuals, or Groups

Environmental compliance – ICL Rotem is required by law to submit annual environmental reports and operate continuous environmental monitoring systems that relay information to the environmental regulator. ICL Rotem has not disclosed any breaches in compliance.

Permitting – From the information ICL Rotem has disclosed, it is understood that ICL Rotem's environmental permits and related permits are currently up to date and are valid.

Local individuals and groups – ICL Rotem has not disclosed information relating to stakeholder engagements that may have been undertaken.

In the absence of data and information pertaining to current plans to address any issues related to environmental compliance and local individuals or groups, the QP is unable to comment. Information pertaining to environmental permitting has been provided, from which it is indicated that ICL Rotem holds the necessary permits to operate. It is recommended that ICL Rotem should consider more closely the requirement to disclose information more clearly and separately from the overall corporate responsibility report and information disclosed on the ICL corporate website. In this regard disclosure of environmental compliance, which is not readily accessible and has not been provided, and information pertaining to engagement with local stakeholders and stakeholder groups is considered inadequate.

17.4 DSW

17.4.1 Overview

For the purposes of this environmental and social review, the Dead Sea Works (DSW) comprise:

- Raw water transfer from the northern Dead Sea basin;
- Evaporation ponds;
- Potash plant;
- Magnesium plant;
- Bromine plant; and
- Combined gas turbine and light fuel oil power station.

The current concession granted to ICL by the government of Israel under the Israeli Dead Sea Concession Law, 1961 as amended in 1986 (the "Concession Law") to utilize the carnallite resources of the Dead Sea expires in 2030.

In January 2019, the Israeli Ministry of Finance released the final report prepared by the inter-ministry team headed by Mr. Yoel Naveh (Naveh Committee), which reviewed the Israeli governmental actions required in preparation for the expiration of the Dead Sea concession period in 2030. One of the main conclusions included in the report was that the extraction of resources from the Dead Sea carries great and substantial benefits to the Israeli economy and to southern Israel in particular. In light of this, and subject to the government's comprehensive policy regarding the Dead Sea, the committee recommended continuing the extraction of resources from the Dead Sea while taking measures designed to restrict the scope of the industry's negative environmental impacts.

It is understood that production at DSW commenced before the formalized planning system that required the preparation of environmental impact assessments to be conducted as part of the planning application process was introduced. As such DSW may not have an EIA, and one has not been provided. However, the planning and permitting process has been outlined, which requires an EIA for every new 'project' and, for existing projects an application to update the environmental permit is required. In this way the Ministry of Environment is able to keep track of emissions and discharges and issue requirements for updating environmental monitoring and reporting.

17.4.2 Quality Management System

ICL operates the Domino Quality Management System (QMS) for document control and Environmental Resources Management's Enablon to assist and support environmental and social performance, risk management, sustainability, health and safety performance, and compliance. These systems aim to promote a culture of quality within the company, track compliance, increase efficiency and reduce costs.

Enablon is used as a work system for HSE including as a document archive and to monitor and manage actions and facilitate the compilation of group data into reports.

ICL's Enablon / Domino are available to all ICL employees globally. Managers and executives receive and access the system for performance reports.

17.4.3 DSW Environmental Organisational Structure

The organogram (Figure 17.4) illustrates the organisational structure for the implementation of environmental management at ICL's DSW.

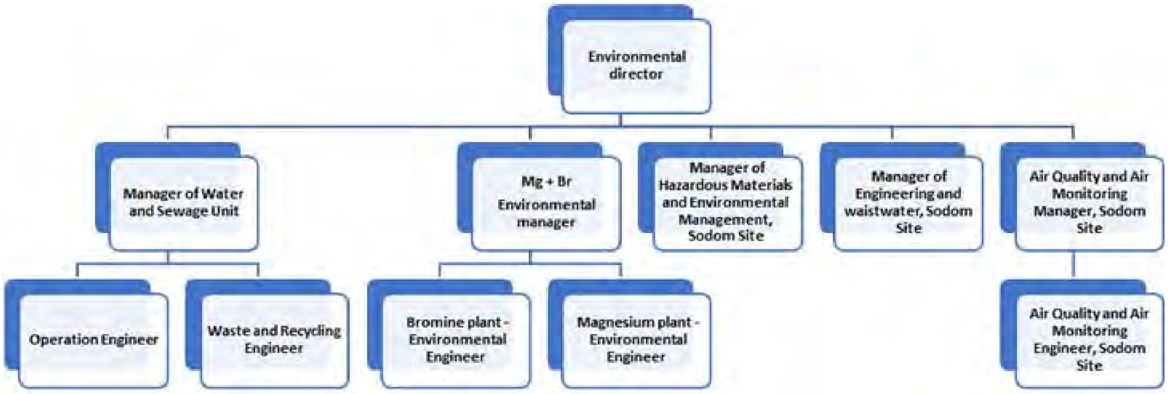

Figure 17.4: ICL DSW Environmental Management Department

17.4.4 Accreditations

DSW, which for the purposes of ISO accreditation includes ICL Dead Sea Works Ltd., ICL Dead Sea Bromine Ltd., ICL Dead Sea Salts Ltd., and ICL Dead Sea Magnesium Ltd., hold the following ISO Certifications:

- ISO 9001:2015 – demonstrating the implementation of an effective quality management system
- ISO 14001:2015 – demonstrating the effective implementation of an Environmental Management System
- ISO 50001 – demonstrating continual improvement with energy management.
- ISO 45001:2018 – demonstrating ICL's commitment to occupational health and safety.

ICL DSW has held the above ISO certifications since 2019 and will seek recertification in December 2022. ISO Auditing is carried out at DSW every three years, most recently by the Standards Institution of Israel in 2019.

17.4.5 Policies

The DSW follows and implements ICL Group Ltd.'s (common) Environment, Health, Safety and Security Policy. ICL's EHS&S policy applies to all businesses and employees within ICL. DSW does not implement site-specific EHS&S policies. The publication, 'Quality, Health, Safety and Environmental Company Policy and Guidelines' presents and is the basis for the implementation of DSW's Environmental Policy, Health and Safety Policy, and Occupational Health and Safety Policy.

In addition to which DSW follow the Group guidance:

- ICL Sustainability Strategy and Vision
- ICL Group Supplier Code of Conduct
- ICL Group Sustainable Procurement Policy

17.4.6 Health, Safety and Environmental Procedures

17.4.6.1 DSW HSE Procedures

ICL DSW has provided a comprehensive list of procedures relating to health and safety, permits to work and those implemented to ensure correct and standardised modes of operation. The DSW implement the following procedures:

- Natural gas emergency state
- Odorizing facility
- Lock out tag out
- Risk assessment
- Assistance to outside persons in case of emergency
- Violators of safety provisions
- Referent employees
- Safety division activity in non-regular working hours
- Communication procedure
- Safety referent
- Risk management
- Pressure vessels
- Construction
- Safety permit
- Lifting apparatus and machines
- Confined space entry
- Safety training
- Flammable gases cylinders
- Personal protective equipment
- Radiation
- Safety committee
- Shelters
- Weather situations preparedness
- Emergency equipment checks
- Emergency HQ operations
- Incidents reports
- Certified person working near rotating equipment
- Working near flammable materials
- Safety in laboratories
- Safety working with angle grinder
- Safety working with open flame tools
- Safety in portable electrical equipment
- Safety using high pressure equipment
- Piping marking
- Electrical permit
- Working in heights
- Gas measurement
- Safety signs
- Safety programme
- Valve opening\closing
- Lifting of people using a forklift
- Communication in emergency scenarios
- Emergency behaviour
- Earthquakes preparedness
- H&S procedure
- Incidents investigations
- Industrial hygiene procedure
- Industrial hygiene monitoring
- Harmful dust
- Transportation safety
- Forklift safety
- Trucks safety
- Connecting\Disconnecting of fire systems
- Fire-fighting - reporting of events
- Closed breathing systems
- Fire truck
- Pregnant employee works
- Ambulance operation
- Clinic operations
- Hazardous materials
- Natural gas safety procedure

17.4.6.2 DSW Environmental Procedures

The following environmental procedures are implemented by the DSW.

- Air quality assurance
- Reports to environmental authorities
- Risks and opportunities
- Complaint handling
- Customer satisfaction
- Measurements and monitoring
- Managing toxic permit
- Organizational structure, roles, and authorities
- Environmental internal communication
- Confidentiality of information and conflict of interest
- Acceptance and delivery of hazardous materials
- Hazardous Materials Transportation
- Preparation, maintenance, and operation of a toxin permit
- Environmental Aspects Identification and Scaling
- Sewage Disposal from the canals
- Prevention of fuel and oil wastewater pollution
- Procurement, storage, and handling of chemicals
- Transport and storage of chemicals
- Mining sites (wadi material): Responsibility and authority
- Data Analysis
- Operation of environmental air monitoring stations
- Annual environmental training programme
- Internal audit report
- Mining sites (wadi material): Responsibility and authority
- Operation of environmental protection trustees
- A list of environmental law requirements
- Treatment of pollutant emissions from chimneys
- Work order level of service
- Actions to be taken- high conductivity in the sewage system
- Operation of the Membrane Facility (wastewater treatment)
- Responsibility for management and communication in the organization
- Reporting and documenting environmental events and exceptions
- Procedure for handling and disposal of waste

17.4.7 Fines and Penalties

With reference to S-K 103 (legal proceedings) ICL DSW has confirmed that it has not received fines or penalties from the Ministry of Environmental Protection.

17.4.8 Permits and Licences Held by the DSW

ICL DSW holds the following environmental permits:

• Air Emissions Permit 1528	Valid until 28 September 2023
• Air Emissions Permit 1233	Valid until 14 January 2022
• Hazardous Materials Permit	Valid until 04 October 2022
• Wastewater Discharge Permit	Valid until 31 December 2024
• Water Production Lease	Valid until 01 June 2022
• License Permit	Unlimited

17.4.9 Summary of Risks

The following examines regulatory compliance risks associated with ICL's plants and operations. Section 17.4.10 highlights a case of material note arising from and relating to ICL's operations at DSW. The review examines how ICL has, or is, addressing and reporting compliance, environmental management, and incidents.

The review is based primarily upon publicly-sourced (i.e. www) information, including ICL's own, publicly-disclosed annual Corporate Responsibility reports, as well as information gained through interviews with ICL personnel.

17.4.10 Disclosure of Risk

17.4.10.1 DSW – ICL's Reporting and Acknowledgement of its Influence on the Reduction in the level of the Dead Sea's Northern Basin

According to ICL's reports to the Ministry of Environmental Protection, over the last 5-years the DSW plants have pumped in the region of 417-455 Mm^3 /annum [water] from the northern basin of the Dead Sea and return upon completion of the extraction process about 160 Mm^3 through Wadi Arava. Net pumping amounts to about 155-165 Mm^3/annum after seepage of 70 Mm^3/annum from Pond 5.

It is estimated that the activities of the DSW, and Jordan's Arab Potash Company (APC), abstracting from the Dead Sea contribute 30-40 cm/year to the 1.1m overall annual average decline in the level of the Dead Sea. The combined abstraction of the Israeli and Jordanian chemical industries is in the region of 520-600 Mm^3/yr with about 270 Mm^3 returned to the northern basin via Wadi Arava1. The remaining, and the bulk of the decline in the level of the Dead Sea is the result of abstraction by the Israeli National Water Carrier from the Sea of Galilee and abstraction and diversion of the Yarmuk River, which has led to the reduction of the flow of the River Jordan from an estimated 1,500 Mm^3/yr to <150 Mm^3/yr, with some estimates as low as 30 Mm^3/yr. The continued reduction in the level of the northern basin has led to:

- The development of hundreds of sinkholes around the shores of the Dead Sea,
- Exposure of mud and salt flats,
- Dewatering and sediment shrinkage leading to localised ground sinking; and,
- Rapid geomorphological changes leading to damage to surrounding infrastructure, including to bridges and roads.

Whilst not wholly responsible, the operation of ICL's DSW and APC is contributing to the decline in the level of the Dead Sea: Currently, the total deficit in the Dead Sea's water balance amounts to about 700-800 Mm^3/yr, hence the net loss of water associated with pumping water from the northern basin for purposes of the Dead Sea plants is not the main cause of the Dead Sea's decreasing water level. ICL acknowledges that its abstraction of water from the northern basin currently contributes 23% of the overall annual lowering of sea level. Nonetheless, the more the sea level decreases, its salinity and density increase and the rate of evaporation declines, which is expected to result in an increase to the relative contribution of the plants' water pumping to the decreasing water level. In the event that projects designed to decelerate the rate of dropping water levels in the northern basin are carried out, such as the Two Seas Conveyance Project, the relative contribution of ICL's (and APC's) plants to the lowering of water level will continue and may increase to maintain production.

The Government of Israel recognises both the benefits and negative impacts of the operation of the DSW which include the development of the tourism industry in the region that developed on the banks of ICL's evaporation ponds. The tourism industry in the southern basin is reliant upon ICL continuing to abstract water from the northern basin. It is therefore acknowledged by the Government that the continued operation of the region's tourism industry centred on the southern basin is reliant upon the continued operation of ICL's plants.

Thus, whilst the Government of Israel recognises both the benefits and negative impacts of the operation of the DSW, ICL has to consider how the measures to halt and reverse the decline of the Dead Sea may influence the long term productivity of the industry.

17.4.11 Medical Facilities Dead Sea Works

DSW operates a medical clinic for site personnel. The facilities provided by the medical clinic is available to the local population at times of emergency only. The clinic provides basic medical facilities and treatment only. An ambulance is available on site. DSW's clinic operates 24 hours per day, 7-days per week, 365 days per year. All clinic employees are trained and certified.

17.4.12 Personnel and HSE Statistics

ICL DSW, on an average day, directly employees 1,200 personnel, a further 350 at DSM, and contracts a further 450 personnel.

Table 17.6: HSE Statistics – Sodom site

	Clinic Events		Lost Work Day Case		Fatalities	
Site	**2020**	**2021**	**2020**	**2021**	**2020**	**2021**
DSW	243	203	18	12	0	0

17.4.13 Stakeholder Engagement

See Section 17.3.17. DSW has not disclosed which groups it holds agreements with.

17.4.14 Local Procurement and Hiring Commitments

Refer to Section 17.3.18.

17.4.15 Mine and Facility Closure Plans

The extraction of minerals by ICL's DSW from brine is, for the purposes of this review, considered a form of mining. However, it is not mining in the conventional sense where minerals/elements are extracted from geological materials. Mine closure of the DSW will require a decommissioning and abandonment plan for the chemical works, which may require an ESIA, and long term environmental management and monitoring plan both for the processing area as well as for residual impacts to the Dead Sea. ICL DSW considers that relative to the remaining mineral reserves and resources, the preparation of a mine and facility closure plan is not required at this time due to anticipated continued production at the site for many decades to come. Provision has therefore not been made by DSW for mine closure in the event that the value of the resource decreases consequent to changes in market demands for DSW's products, nor other factors that may result in the cessation of the works. With reference to accepted international best practice, including the guidance provided by the International Council on Mining and Metals (ICMM), it should be expected that as part of both the immediate and long term operation of the business that DSW should maintain a strategy for decommissioning and abandoning the site, in terms of Corporate Responsibility and revenue forecasting as well as in line with the requirements of the MEP for the decommissioning and abandoning industrial developments.

Site monitoring is a statutory requirement. DSW reports to the Ministry of Environment on a continual basis with real time monitoring systems (CEMS – continuous environmental monitoring systems) relaying data to the Ministry. All monitoring data are publicly disclosed through the Ministry.

DSW does not generate tailings as such, brine depleted of the resource minerals may be the equivalent, which is discharged to the Dead Sea's northern basin.

As mentioned above, DSW does not have a mine closure plan, which it has been stated is due to the ongoing requirement to exploit the resource, and which it is considered will continue for a prolonged period of time. However, as has been expressed previously, market forces or environmental forces may require the DSW to be closed, an event for which ICL DSW should have an exit strategy as well as the necessary finances to carry out. As such, a closure, decommissioning and abandonment plan has not been disclosed.

17.4.16 Capital Expenditure on Environmental and Social Management

ICL DSW has disclosed the following related information relating to capital expenditure of ESG (Table 17.7).

Table 17.7: ICL DSW and Israel Capital Expenditure on ESG

Asset	Capital Expenditure – ESG – $M			
	2019	2020	2021	2022
DSW	60.3	20.6	32.5	37.1

17.4.17 Adequacy of Current Plans to Address Any Issues Related to Environmental Compliance, Permitting, and Local Individuals, or Groups

Environmental compliance –DSW is required by law to submit annual environmental reports and operate continuous environmental monitoring systems that relay information to the environmental regulator. ICL DSW has not disclosed any breaches in compliance.

Permitting – From the information DSW has disclosed, it is understood that the DSW environmental permits and related permits are currently up to date and are valid.

Local individuals and groups –DSW has not disclosed information relating to stakeholder engagements that may have been undertaken.

In the absence of data and information pertaining to current plans to address any issues related to environmental compliance and local individuals or groups, the QP is unable to comment. Information pertaining to environmental permitting has been provided, from which it is indicated that DSW holds the necessary permits to operate. It is recommended that DSW should consider more closely the requirement to disclose information more clearly and separately from the overall corporate responsibility report and information disclosed on the ICL corporate website. In this regard disclosure of environmental compliance, which is not readily accessible and has not been provided, and information pertaining to engagement with local stakeholders and stakeholder groups is considered inadequate.

17.5 YPH

17.5.1 Environmental Studies

The Haikou Mine has obtained all operating permits and environmental permissions to operate the assets. A business licence; mining licence; safety production licence etc. are certified for the Xishan district and Jinning County areas. The operation has been awarded several commendations for the progressive rehabilitation of former mined areas, waste dumps and tailings deposits (Photo 17.1).

Photo 17.1: Progressive Rehabilitation being Undertaken on Former Mined Area (November 2021)

17.5.1.1 Air Quality Impacts Assessment

The mine and process facility are subject to regular government inspections and air quality monitoring. The Haikou mine has satisfied all government requirements with regard to the air quality, noise and dust standards imposed on the operation.

17.5.1.2 Effluents

No contaminated effluent or contaminated water leaves the mine site with all process water either recycled or deposited as part of the tailings discharge.

17.5.1.3 Waste Management

Waste will be generated during operations associated with the Project. These will include tires, lubricants, diesel fuel, oil, oily water, containers and drums, sewage, solid waste, certain chemicals, discarded personal protective equipment, and medical waste. The Haikou operation has developed a site wide waste management plan that governs how discarded products are handled.

17.5.1.4 Tailings Management and Monitoring

The tailings dam undergoes regular inspections both by specialist mine staff and external government bodies. The tailings dams are well maintained and fully lined (Photo 17.2). The disused tailings dam area is progressively revegetated which reduces any potential impact from dust.

Photo 17.2: Haikou Mine Tailings Dam Storage Facility (November 2021)

17.5.2 Local Procurement and Hiring Commitments

The region around the Haikou mine is densely populated and heavily industrialised. The Jinning District has a population of 270,000 (2003) and Kunming city, some 30km to the northeast, has a population of more than 5 million (2006). Local procurement of staff is not considered to be an issue.

17.5.3 Mine Closure Plans

All mine closure plans are up to date, and the mine undertakes a progressive rehabilitation programme with mined out areas and disused tailings facilities having been revegetated to a high standard.

Closure will be addressed for the primary process components of the operation as follows:

- Open Pit;
- Processing plant;
- Waste rock storage facility;
- Roads;
- Water supply, storage, and distribution;
- Water containment systems (e.g., storm water catchment systems and containment ponds);
- Domestic and commercial waste;
- Fuelling facility;
- Power supply and infrastructure; and
- Growth media stockpile.

During operations, and as closure approaches, spent materials will be evaluated to preclude the potential for pollutants from reclaimed sites to degrade the existing environment.

17.5.3.1 Closure Costs

The closure costs are fully accounted for in the operational budget.

17.5.3.2 Closure Schedule

Progressive reclamation is being practiced as part of the operational cycle at the Mine.

17.5.4 Adequacy of Current Plans to Address Any Issues Related to Environmental Compliance, Permitting, and Local Individuals, or Groups

It is the QP's opinion that Haikou operation's current actions and plans are appropriate to address any issues related to environmental compliance, permitting, relationship with local individuals or groups, and tailings management.

18 CAPITAL AND OPERATING COSTS

Due to the fact that ICL Group Ltd. is a producing issuer, the properties that are the subject of this TRS are currently in production. Information relating to capital and operating costs are commercially sensitive and the reader's attention is referred to the company's annual reports (SEC Form 20-F) which sets out relevant information in this regard.

The QP's consider that the operations are adequately funded with appropriate mining and processing equipment, spares, and access to ongoing replacement of parts and equipment. The properties have an established operational history and has provision with the budget for ongoing replacement and refurbishment of both mining equipment and processing facility equipment. Sustaining capital is incorporated within the operational budget process.

19 ECONOMIC ANALYSIS

Under CRIRSCO guidance, a producing issuer may exclude the information required for Section 19 (Economic Analysis) on properties currently in production, unless the technical report prepared by the issuer includes a material expansion of current production.

The reader's attention is referred to the company's annual reports (SEC Form 20-F) which sets out risks, P/L and Balance Sheet along with notes from the auditor of the accounts.

Due to the fact that ICL Group Ltd. is a producing issuer, the properties that are the subject of this TRS are currently in production, and a material expansion of production is not included in the current LOM plans. ICL Group Ltd. has carried out an economic analysis of the properties and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

20 ADJACENT PROPERTIES

20.1 Boulby

The ICL Boulby mine is located within the Cleveland mining district, which formerly hosted numerous historically productive mines and in which mining has been carried out for more than 100 years. There have been a number of historic projects to exploit the evaporite horizons within which the Boulby mine operates.

The only current and applicable project to the polyhalite resource defined in this Technical Report Summary is the Woodsmith project which is now owned by Anglo American (previously Sirius Minerals, acquired by Anglo American in March 2020) and is targeting the same polyhalite horizons within the Z2 Cycle of the Zechstein evaporites as Boulby mine is currently producing from (Figure 20.1 shows relative locations of the two operations).

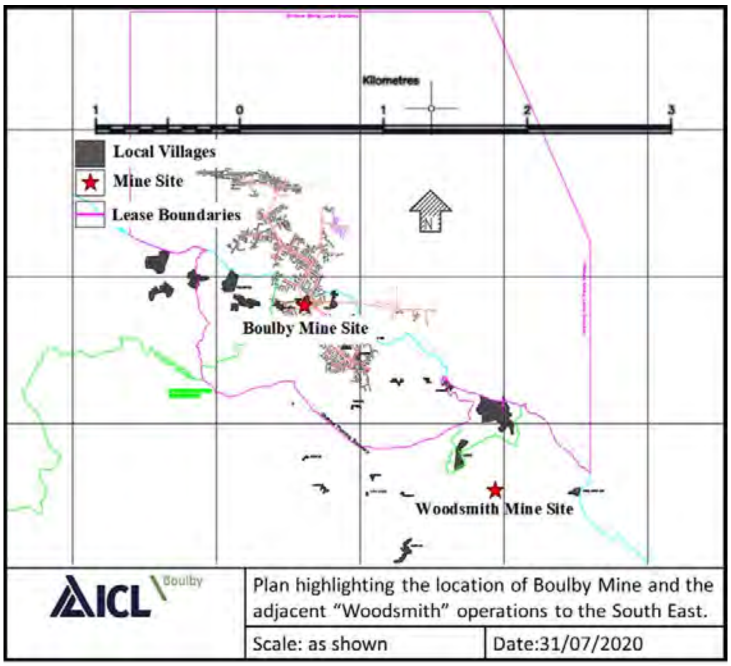

Figure 20.1: Plan Showing the Boulby Mine and the Woodsmith Project to the South East

Geological interpretation of the Mineral Resources and Ore Reserves of Sirius Minerals in the UK highlights the following:

"The polyhalite mineralisation is hosted within the Fordon evaporite, which is part of the Aislaby Group (Z2)."

"Two polyhalite seams have been identified by drilling to date and these have been termed the Shelf Polyhalite Seam (or the "Shelf Seam") and the Basin Polyhalite Seam (or the "Basin Seam"). Both are stratiform shallow dipping bodies and occur at specific position within the stratigraphic column."

"The shelf polyhalite occurs near the top of the Fordon Evaporite and is typically bounded by intergrown halite-anhydrite-polyhalite beneath and anhydrite above."

Whilst the setting for the polyhalite mineralisation outlined at the Woodsmith project is interpreted to be of the same deposit type and located in a similar stratigraphic position as that found at Boulby. Some variation in the exact horizons, and make-up of the ore body, is common on a local scale across evaporite deposits where changes in mineralogy and formation environments can be subtle/gradual and controlled by many variables giving rise to a high degree of short scale variations.

20.2 Cabanasses and Vilafruns

The historical Enrique underground potash mine is located to the south of the ICL Iberia deposits (see Figure 3.6). The underground mine is currently flooded and in the ownership of the regional government of Catalonia. Further, the QP's are not aware of any mineral exploration occurring, or declaration of any mineral resources and mineral reserves on adjacent properties.

20.3 Rotem

There are no properties adjacent to the Rotem, Oron, and Zin properties for which there are recent Mineral Resource or Mineral Reserve estimates. In Israel, ICL has exclusive rights to extract phosphate therefore no other entity is permitted to extract phosphate either adjacent to or within the State. However, within the ICL claims, other operators are allowed to extract other resources/minerals such as sand or oil shale. However, both parties must work in cooperation in order to allow such work to proceed.

20.4 DSW

The eastern border of the DSW licence area demarks the border between Israel and Jordan. Across the border on the Jordanian side, Arab Potash Company (APC) formed in 1956 and now produces some 2.0Mt of potash annually, as well as sodium chloride and bromine. The plant is located at Safi, South Aghwar Department, in the Karak Governorate.

Figure 20.2 shows the proximity and relationship between the DSW, on the Israeli side of the border with APC on the Jordanian side. The border, and separation, between the two operations is demarked by a raised levee.

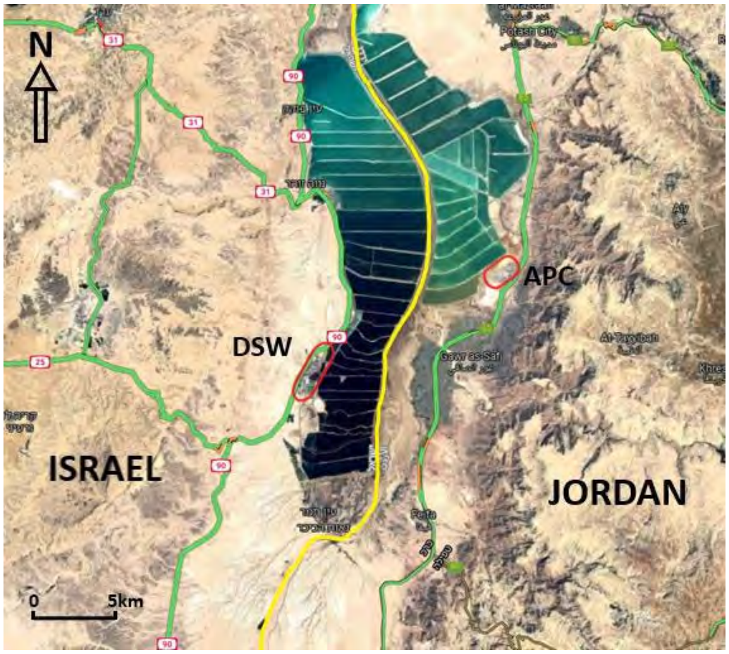

Figure 20.2: Relationship Between the DSW in Israel and APC in Jordan

APC's total production in the year 2020 was approximately 2.4Mt of potash via its four plants in Jordan; The Hot Leach Plant (HLP), the Cold Crystallization Plant (CCP I), the Industrial Potash Plant (IPP) and the New Cold Crystallization Plant (CCP II). APC employs around 2,000 members of staff in total.

As with the DSW, Dead Sea brine is pumped to solar ponds at the Dead Sea Pumping Station, and an initial concentration process is developed. The solids formed in the brine precipitate to form salts in the ponds. Brine is transferred to the pre-Carnallite pond (PC-2) through gravity. The density of the brine is then increased. Brine concentration in the salt ponds and PC-2 is continuously adjusted to achieve satisfactory Carnallite production. Brine is then pumped to two parallel systems and their respective Carnallite ponds. Part of the brine is also sent to the bromine plant.

Carnallite deposited on the pond bed is harvested as slurry from beneath the brine, and delivered to booster pumps on the dikes then to the refinery through steel pipes. Nine floating track system harvesters are used to gather the Carnallite. Carnallite is harvested and pumped to APC's refineries, where HLP, CCP I and CCP II process it to extract the potash. Product is transported to warehouses in Ghor Al Safi or Aqaba.

20.5 YPH

There are no material or relevant properties adjacent to the Project site and as such no data or information have been considered and used from adjacent properties.

21 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is considered necessary to provide a complete and balanced presentation of the value of the properties that are the subject of this Technical Report Summary. The QPs believe that all material information has been stated in the preceding sections.

22 INTERPRETATAIONS AND CONCLUSIONS

22.1 Boulby

The Boulby potash mine has been operating since the early 1970's but converted to 100% polyhalite production in 2018. The plant was forecast to produce approximately 1.1Mt of polyhalite in 2021 with plans to expand production to 1.3Mtpa by 2023 and through to 2025.

The mine is accessed via two shafts approximately 1,150m below ordnance datum with the polyhalite mining area located approximately 6km north-north-east of pit bottom. Underground access is by diesel fleet via an arterial network of roadways excavated in the Boulby Halite horizon. The mining method is modified room and pillar using continuous mining machinery with transport of materials via shuttle cars to the conveyor belt system.

The processing plant located on surface involves the crushing and screening of run of mine ore to create a range of products primarily categorised by particle size. The average run of mine grade, calculated from the three main products (granular, standard, and mini granular) is nominally around 11.3% or 13.6% K_2O equivalent.

In general, the plant data shows consistent performance across the known deposit extents.

For PotashpluS® production, permission to import the Spanish Standard potash product to site may be restricted in future and therefore alternative sites will be looked at, possibly a relocation to Israel.

ICL Boulby markets polyhalite as Polysulphate™ products where it has value as a multi-nutrient fertilizer for direct application or as an ingredient for blended products. Polyhalite has four key nutrients for plant growth including K, Ca, Mg and S.

ICL Boulby transports its products from the mine site to its deep-water port facility at Teesside (via railway, partly owned by ICL Boulby) and has a legally binding arrangements in place to "run firstly over" Corus railway line to Saltburn-by-the-sea and from there Railtrack's line to Teesport.

In 2021, total polyhalite production was 789kt, slightly exceeding forecast.

The unit operating process cost was forecast at US$58.7/t for 2021, increasing to US$69.8/t in 2025 for the expanded production rate of 1.3 Mtpa of polyhalite and plus production of PotashpluS®.

The Mineral Resource estimation involves the use of exploration drill hole and grade control data to construct three dimensional wireframes that define the polyhalite seam. As at 31st December 2021, and at a cut-off grade of 12.9% K_2O equivalent, the Indicated Mineral Resources of polyhalite at Boulby is 24.0 Mt with an average grade of 13.7% K_2O, and the Inferred Mineral Resources of polyhalite are 17.3 Mt with an average grade of 13.5% K_2O. Mineral resources are reported exclusive of mineral reserves.

Mineral Reserve estimation methodology includes the determination of economically mineable blocks which can be mined from three mining districts (at any one time) simultaneously to provide this minimum run of mine grade of 12.9% K2O. The cut-off grade for this scenario is chosen as 12.9% K2O. As of 31st December 2021, and at a cut-off grade of 12.9% K2O, the total Probable Ore Reserve of polyhalite at ICL Boulby are 8.0 Mt with an average grade of 13.8% K2O. The Probable Mineral Reserve has been derived from Indicated Mineral Resources included within the life of mine plan. The current scheduling of the Mineral Reserve is contingent on the simultaneous extraction of a portion of these Inferred Resources on an annual basis. Current and future drilling programmes are focused on the upgrade of these Inferred Resources.

The current mine schedule is set to increase marginally from the current total broken ore of 1.2Mt (2022) to 1.3Mt in 2024 and beyond. The current base case for the life of mine, and geological delineation, continues to nominally 2030. Further work, based on the current Mineral Resource of 24.0Mt is expected to expand the LOM beyond 2030.

Based upon the information and data provided with regards environmental studies, permitting and social or community impact, WAI can conclude that:

1. Sufficient information has been provided to determine that environmental permits and licences are in place to achieve the requirements of Item S-K 101(c) – Description of the business narrative;
2. ICL Boulby meets with the legal requirements of the statutory authorities, thereby achieving Item S-K 103 – Legal Proceedings; and
3. ICL Boulby openly disclose their environmental risks and liabilities, thereby achieving Item S-K 105 – Disclosure of Risk

22.2 Cabanasses and Vilafruns

The Súria (Cabanasses and Vilafruns) potash mine has been operating since the early 1950's. The processing facility includes the areas of ROM ore storage, crushing, wet grinding, flotation, concentrate, and tailings dewatering, drying and compaction. There are separate warehouses for the final standard and granular potash products, a vacuum salt plant (producing two salt products and a white potash product) and a separate warehouse for the vacuum salt products. A new rock salt facility is under construction.

The Cabanasses mine is a flat-lying operation at a depth of between 700 - 1,000m, extending up to 4km metres in width and over 7km along strike. Two potash seams (Seam A and Seam B) are the main targets for extraction, with a prioritisation of Seam B as this has higher grades and overall payability.

A modified room and pillar method is employed with continuous miners, production panels are defined and the continuous miners extract within these following the visible seam in the face. Trucks haul from the continuous miners to an ore pass which allows material to drop to the area of the conveyor system, and ore and some salt produced is conveyed to surface via the decline. The potash seams overlay a rock salt layer in which the main development and infrastructure is located, including access drives and conveyor systems. Ore passes connect the production panels with the conveyors on the salt level.

The process facility is currently undergoing expansion. With limited space, especially with the plant in operation, this requires careful management. The expansion plans require an approximate doubling of potash production, from circa 0.6Mtpa to 1.0Mtpa and finally to 1.3Mtpa. Process plant throughput will increase from approximately 2.5Mtpa to 5.0Mtpa. With three parallel lines of primary crushing and coarse rougher flotation, only two of the lines are in operation. Therefore, it is assumed that additional capacity is available with the current plant configuration. It is reported that the overhead power lines and HV substation have already been upgraded for the planned expansion and a new load out area at the port has been constructed.

The Mineral Resource estimation involves the use of exploration drill hole and grade control data to construct three dimensional wireframes that define the potash seams. As at 31st December 2021, and at a cut-off grade of 10.0% KCl, Cabanasses has a Measured resource of 83.9Mt at 25.7% KCl, Indicated resources of 51.4Mt at 23.3% HCl, plus Inferred resources of 330.5Mt at 29.1% KCl. Vilafruns has a Measured resource of 12.6Mt at 31.0% KCl, Indicated resources of 9.4Mt at 32.1% HCl, plus Inferred resources of 30.7Mt at 28.9% KCl. Mineral resources are reported exclusive of mineral reserves.

As Vilafruns is currently on care and maintenance, only the Cabanasses mine declares a Mineral Reserve at this time. Mineral Resources, with a geological confidence of Measured or Indicated, are converted to Proven or Probable through the mine design process and the consideration of the Modifying Factors. Mineral Reserve blocks are defined using a payability calculation (thickness x grade) and cut-off grade consideration. The economic areas of the deposit are then defined on a panel-by-panel basis in a global database. As at 31st December 2021, and at a cut-off grade of 19% KCl, the Cabanasses Proven mineral reserve is 29.0Mt at 25.5% KCl, and Probable mineral reserve is 61.6Mt at 26.8% KCl.

The current mine schedule is planned to increase to 5.18Mtpa (hoisted tonnes) by 2024 and continue in steady state until 2039, a total of 17 years.

Based upon the information and data provided with regards environmental studies, permitting and social or community impact, WAI can conclude that:

1. Sufficient information has been provided to determine that environmental permits and licences are in place to achieve the requirements of Item S-K 101(c) – Description of the business narrative;
2. ICL Iberia meets with the legal requirements of the statutory authorities, thereby achieving Item S-K 103 – Legal Proceedings; and
3. ICL Iberia openly disclose their environmental risks and liabilities, thereby achieving Item S-K 105 – Disclosure of Risk

22.3 Rotem

The Rotem properties comprises the Rotem, Oron and Zin open pits that have been in operation since the 1950's. Currently the Zin mine is closed and is remediating areas of previous operation. Mining is carried out using conventional quarrying or open pit methods, using hydraulic excavators and dump trucks supported by dozers with rippers or drilling and blasting to 'ease' the material for overburden removal. Front end loaders and trucks are used to excavate the phosphate. Overburden is loaded by a contractor owned hydraulic excavator and their own fleet of haul trucks.

The method of extracting the phosphate is reverse flotation, where the apatite is depressed and the gangue minerals are floated off. The product is then placed on the ground to allow to dry for 3-4 months. The concentrates are then transported by truck to the phosphoric acid plant at Rotem by contractor for further processing.

The Company operates two phosphate processing plants that receive and process the mined ore from the operating mines. In addition, the Company operates downstream fertiliser product plants that take product from the concentrators as feed stock for further processing to produce a range of final products. A part of the Rotem resource contains reactive phosphate rock, which is concentrated at Rotem and exported directly to clients in Brazil. Most of the phosphate concentrate that is sent to the Rotem site is processed into a range of fertiliser and other products.

Much of the higher added value production at Rotem depends on the use of white phosphate rock from the Oron mine that are only sufficient to sustain the existing operations for about another three years, after which some significant changes will be required.

The existing processing plants have been developed and refined over many years. They operate reliably and consistently producing products that meet market requirements. The beneficiation processes are straightforward, involving crushing, grinding, size classification and reverse flotation, however the phosphorus processing recoveries are low, at 45% for Oron and 50% for Rotem.

While the Oron beneficiation plant has been fitted with extensive dust extraction facilities which make it a cleaner plant to operate, the other beneficiation plants would benefit from similar improvements for they are quite dusty.

The Rotem fertilizer plants use the beneficiated phosphate concentrates to produce a range of products using established chemical processing technology which is common to many global fertilizer plants. The major products are Granulated Triple Superphosphate (GTSP) and Granulated Single Superphosphate (GSSP) out of a product mix of some of 1.63 Mt (2021) of fertiliser production.

The Mineral Resource estimation involves the use of exploration drill hole and grade control data to construct three dimensional wireframes that define the phosphate seams. Mineral Resources are based on cut-off grades of 20%, 23% and 25% P_2O_5 to Oron, Zin and Rotem respectively. As at 31st December 2021, Oron has a Measured resource of 70.0Mt at 27.5% P_2O_5. Zin has a Measured resource of 18.0Mt at 27.5% P_2O_5. Rotem has a Measured resource of 156.7 Mt at 25.7% P_2O_5, and Indicated resources of 10.0Mt at 26.0% P_2O_5. Mineral resources are reported exclusive of mineral reserves.

The Mineral Reserves for Rotem as reported here are defined at the reference point of delivery to the processing plant. Proved Reserves have been explored by drill hole intersections typically at 50 - 70m spacing, and Probable Reserves typically at 200 - 250m spacing. The Mineral Reserves above the cut-off grade were obtained from the estimated on-site Mineral Resources considering the mining method, the rate of mining dilution, and plant recovery, based on ICL Rotem's historical data. As at 31st December 2021, and at cut-off grades of 20%, 23% and 25% P_2O_5 are applied to Oron, Zin and Rotem respectively, the Proved mineral reserve at Oron is 11.5 Mt at 23.1% P_2O_5, Zin 30.1Mt a 25.5% P_2O_5, and Rotem 18.6Mt at 26.7% P_2O_5.

The life of the mine at Rotem is currently around 4.5 years based on reserves of nominally 9Mt of low organic/low magnesium phosphate (given the current planned annual mining volume). The annual average production (mining) rate for the low-organic/low-magnesium phosphate ore at Rotem is ≈1.9Mtpa. The current life of the mine at the Oron operation is approximately 3 years based on the reserve of 8.5Mt (White Phosphate) given the current annual mining volume.

Based upon the information and data provided with regards environmental studies, permitting and social or community impact, WAI can conclude that:

1. Sufficient information has been provided to determine that environmental permits and licences are in place to achieve the requirements of Item S-K 101(c) – Description of the business narrative;
2. ICL Rotem meets with the legal requirements of the statutory authorities, thereby achieving Item S-K 103 – Legal Proceedings; and
3. ICL Rotem openly disclose their environmental risks and liabilities, thereby achieving Item S-K 105 – Disclosure of Risk

22.4 DSW

The Dead Sea began to attract interest from chemists, establishing that the sea was a natural deposit of potash (potassium chloride) and bromine, in the early part of the 20th century. The first plant, on the north shore of the Dead Sea at Kalya, commenced production in 1931 and produced potash by solar evaporation of the brine. The DSW was founded in 1952 as a state-owned enterprise based on the remnants of the Palestine Potash Company and in 1995 the company (ICL) and other affiliates were privatised.

The DSW is a unique operation that involves the collection (pumping) and ponding of mineral rich water from the Dead Sea into large shallow ponds (ponds) that permit the evaporation of the water and precipitation of salt, for the recovery of carnallite using dredges. The total area of the ponds is 146.7Km^2, comprising salt ponds (salt ponds = 97.4Km^2), carnallite ponds (49.3Km^2). It should be noted that the precipitation, and therefore carnallite production, is dependent on several factors including pond geometry, precipitation time, environment/climatic conditions, and solution properties. The average rate of salt precipitation in Pond 5 is estimated at 16 – 20cm per year, equating to about 16 Mm^3.

Water from the northern Dead Sea basin is initially pumped into a network of Salt Ponds which are used to reduce the level of NaCl through precipitation. The NaCL is the least soluble salt and is precipitated out before the carnallite. The brine is then pumped into a series of carnallite evaporation ponds where the carnallite, being a hydrated potassium magnesium chloride with formula $KCl.MgCl_2{\bullet}6(H_2O)$, is precipitated. Each of these evaporation ponds is ≈2.0m deep and separated by low dykes connected with pumping stations and pipelines. The carnallite is harvested by floating dredges connected to the shore by a network of cables that allow them to manoeuvre between the various ponds. The carnallite-rich slurry is pumped to a processing facility where the carnallite is decomposed to produce a solid KCl product and a magnesium-rich brine which is pumped back to Dead Sea.

Muriate of potash (MOP) is the main product of the DSW and is the most common form of potash fertiliser and contains 60% K_2O. In addition, chlorine, bromine, and magnesium are produced as by products. Chlorine is produced by electrolysis of the brine solutions to produce chlorine, hydrogen, and sodium hydroxide. Bromine is produced by treating brine (from Pond 36 where it is most concentrated), with chlorine to produce bromine and magnesium chloride. Lastly, magnesium is produced through the electrolysis of molten carnallite to produce magnesium metal and chlorine..

The DSW is not a typical mining operation with a finite Mineral Resource, explored by drilling, to be estimated and classified, nor is it equivalent to a typical solution mining operation that would require an assessment of porosity and fluid flow. The Mineral Resource estimate as summarised and reported by WAI is therefore based on the determination of pumping rate of brines from northern Dead Sea area to ponds, determination of expected recovery of product, definition of Mineral Resource classification based on variation in supply composition, variation in return flow of brines to Dead Sea to assess efficiency and consistency of process, variation in precipitation of mineral amounts, and accuracy of sonar measurements in determining reconciliation. In addition, consideration is made to the extraction licence held by ICL and an assessment of potential changes to any of the above factors during the remaining length of licence.

As at 31st December 2021, the DSW has a Measured resource of 225.0Mt at 20.0% KCl, an Indicated resource of 1,500Mt at 20.0% KCl, and an Inferred resource of 445.0Mt at 20.0% KCl. Mineral resources are reported exclusive of mineral reserves.

The Mineral Reserves for the DSW as reported here are defined at the reference point of delivery to the processing plant. Mineral Reserves for the DSW are classified as Proved on the basis that a high degree of confidence can be placed on the modifying factors based upon production information from the current operations. Proved Mineral Reserves are reported for the period end of 2021 to end of 2030, the length of the current licence. Beyond this date no Mineral Reserves are reported. As at 31st December 2021, the Proved mineral reserve is 172.0Mt at 20.0% KCl.

Based upon the information and data provided with regards Environmental Studies, Permitting And Social Or Community Impact, WAI can conclude that:

1. Sufficient information has been provided to determine that environmental permits and licences are in place to achieve the requirements of Item S-K 101(c) – Description of the business narrative;
2. DSW meets with the legal requirements of the statutory authorities, thereby achieving Item S-K 103 – Legal Proceedings; and
3. DSW openly disclose their environmental risks and liabilities, thereby achieving Item S-K 105 – Disclosure of Risk.

22.5 YPH

The Haikou operation was established in 1966 and has been operating continuously since that date. The YPH JV (YPH), a joint venture between ICL and Yunnan Phosphate Corporation (YPC) owns and operates the Haikou Phosphate Mine and Processing Facility in the Xishan district of China.

Haikou is a conventional open pit operation with initial drilling and blasting, and then utilising a range of diesel hydraulic excavators and haul truck combinations that allow for a high degree of mining selectivity. Total production capacity of the mining fleet is of the order of 6Mm^3 per year. The mine plan and sequence of mining activities is largely guided ensuring a uniform feed grade to the process plant and ensuring a stable economic cost through balancing the strip ratio and sequencing of the ore and waste material. Current mine life is in the order of 23 years, based on an annual mining schedule of nominally 2.5Mt.

Ores are processed mainly in two stages:

1. Beneficiation stage which uses unit operations such as crushing, screening, scrubbing and flotation; and
2. Chemical Processing stage that involves attacking the beneficiated ores with sulfuric acid in order to produce fertilizer products (MAP, DAP, TSP) and purified phosphoric acid.

Both stages and associated plants (at different locations) employ state of the art technologies, typical in the phosphate industry. The objective of the processing facility is to produce Phosphate concentrate of a minimum grade of 28.5% P_2O_5 from the YPH Haikou Phosphate ore. The Phosphate concentrate is delivered to the "3C Site" for processing into saleable products. The 3C site is part of the YPH company. The processing facilities have been operating for several years with considerable performance data, and very effective in providing high recoveries and producing high quality phosphoric acid.

The Mineral Resource estimation involves the use of exploration drill hole data to construct three dimensional wireframes that define the phosphate seams. As at 31st December 2021, and at a cut-off grade of 15.0% P_2O_5, Hiakou has a Measured resource of 2.97Mt at 22.3% P_2O_5, Indicated resources of 2.3Mt at 24.0% P_2O_5, plus Inferred resources of 0.17Mt at 20.0% P_2O_5. Mineral resources are reported exclusive of mineral reserves.

The geological model used to estimate Mineral Resources is the basis for the estimate of Mineral Reserves. Modifying factors (including mining and processing parameters) are applied to mineralised material within the Measured and Indicated resource classifications to establish the economic viability of Mineral Reserves. As at 31st December 2021, and at a cut-off grade of 15% P_2O_5, the Proved mineral reserve is 57.7Mt at 21.8% P_2O_5.

It is the QP's opinion that Haikou operation's current actions and plans are appropriate to address any issues related to environmental compliance, permitting, relationship with local individuals or groups, and tailings management.

23 RECOMMENDATIONS

In general, based on the results presented in this TRS, additional geological work may be performed on the properties as part of future studies to further improve confidence and decrease Project risks. As with any mining project it is always advisable to continue with exploration drilling in order to better define the mineral resources as well as seeking to expand the resource base, supported with a robust QA/QC protocol. This should be supplemented with the utilisation of an SQL (Structured Query Language) based secure database system (e.g. acQuire, GeoSpark) for increased data integrity, auditability, ease of validation and transparency. The estimation (modelling) process may also benefit from the use of geostatistical kriging approaches for estimation of thickness and grade components, that can also be expected to provide greater confidence on local estimates.

The Mineral Reserves have been estimated according to industry standards and practices and have included all relevant modifying factors in applying the appropriate conversion from mineral resources to mineral reserves. Notwithstanding, recommendations for the reporting of mineral reserves and (LOM) planning cycle are also included as deemed appropriate.

All of the properties presented in this TRS are mature operations with a long history of mining (underground and open pit) and processing (potash and phosphate) and have a well-supported network of main roads, rail links and services required to operate a safe and efficient mining and processing operation. Nevertheless, there remains certain areas of the operations that are recommended to further investigate the processes followed and the Health and Safety measures in place. Equally, and whilst most of the required environmental studies, permitting and social or community impacts are in place, or underway, there is clearly an element of stewardship that is required to improve the measures and standards in place and bring the operations in line with full international reporting standards.

The QP's are of the opinion that with consideration of the recommendations summarised in Sections 1 and 23 of this report, any issues relating to relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work. Further, many of the recommendations are operational improvements or adjustments rather than new activities, and the associated costs are considered to be minimal and not requiring separate or standalone budgets.

23.1 Boulby

23.1.1 Geology and Mineral Resources

- Continue the exploration drilling programme to increase geological understanding, add to the Mineral Resource inventory and increase confidence in currently Inferred Mineral Resources.
- Implement and monitor a QA/QC system which incorporates standards, duplicates and blank samples to document sampling and laboratory performance. Establish further (deposit specific) geological standard samples of varying grades and send to external laboratories for assessment and validation.
- Where possible digitize data entry and remove unnecessary manual transcribing of data.
- Establish a robust and georeferenced grade control database. Consider implementation of mining face photography and mapping to quantify nature, frequency, and extent of halite dilution on a mining scale.
- Improve the data storage and availability of reconciliation data for underground, conveyed and processed tonnages and grades as well as verify their accuracy and validity.
- Investigate the slightly lower grades reported by the resource model using drill holes only when compared to the plant production data.

23.1.2 Mining and Ore Reserve

- Establish daily, weekly, monthly, quarterly, annual, and 5 yearly mine plans. Routinely compare their performance to the life of mine plan and iteratively refine as required.
- Establish a stockpile management system which enables day-to-day variation in grade to be smoothed and provide the processing plant with a consistent grade of material.
- Consider implementation of additional grade control methods such as medium scale infill drilling (approximately 100 - 300m horizontally) ahead of mining panels to enable detailed short-term scheduling and crude blending of run of mine material.
- Monitor and review the performance of the mine design tonnages relative to the actual achieved tonnages. In particular, review whether the mining loss factor of 1m thickness of milling currently applied to all designs is valid or whether it needs adapting.
- Once halite dilution frequency has been quantified to a reasonable degree of confidence, consider whether a geological dilution factor is applicable to account for the halite dome structures occurring at a shorter scale than the average drill hole spacing.

23.1.3 Mineral Processing and Marketing

- Continue to develop an understanding of the relationship of run of mine / plant feed grade to the final product grades.
- Implement bulk sampling methods such as K40 gamma decay analysers and automated stream sampling systems to increase frequency and improve representivity of process samples.
- Continue to develop the processing of PotashPluS^{TM}. Consider PotashPluS^{TM} position within the suite of Polysulphate^{TM} products.
- Dust generation in the plant and the dust extraction system should be urgently reviewed, although some improvements have reportedly been conducted already. The resulting downtime required for cleaning the screens and bucket elevators results in very poor overall plant availabilities.

23.1.4 Environmental Studies, Permitting and Social or Community Impact

- Continue using and improving the environmental management system and maintain its ISO accredited standard.
- Continue active engagement with local communities and stakeholders through formal and informal projects and outreach.
- Conclude the currently on-going negotiations of the 18 key mineral leases to enable continuation of access and production of polyhalite from 2025 onwards.
- Mine Effluent resolution, incorporation into Abstraction licence.

23.2 Cabanasses and Vilafruns

23.2.1 Geology and Mineral Resources

- Continue the exploration drilling programme to increase geological understanding, add to the Mineral Resource inventory and increase confidence in currently Inferred Mineral Resources.
- From H1 2021, an updated QA/QC programme for the underground drilling was implemented by ICL Iberia and is considered by WAI to be in-line with industry best practice. WAI recommends that this QA/QC programme should be continued for all underground and surface drilling.
- The geological domains used by ICL Iberia are considered to be generally appropriate. Some instances of vertical off-set of the mineralised zone wireframes are evident at the boundaries of adjacent domains. It is recommended that when drilling occurs near to domain boundaries, the mineralised zones for both domains should be updated so as to form a continuous wireframe surface.
- Instances of drillhole intersections with economic KCl grades that are not included within the modelled potash seams (due to being off-section during geological interpretation) should be reviewed by ICL Iberia.
- Where possible digitize data entry and remove unnecessary manual transcribing of data.
- Continue to monitor and review reconciliation of the resource model with production data (broken, stowed and hoisted material) with emphasis on reconciliation of mining losses at Seam A.

23.2.2 Mining and Ore Reserve

- Vilafurns is currently on care and maintenance. If and when a decision is made to restart mining this will need a detailed review of the resource model in order to develop a new mine plan and schedule and resultant ore reserve estimate.
- In parallel a technical and engineering study will need to be completed to ensure suitable development can be designed and costed to enable mining to restart. Parameters from this will inform the mine deign and ore reserve estimate.

23.2.3 Mineral Processing

- The waste salt (halite), predominantly dewatered flotation tails, is conveyed to the salt dump. However, space is rapidly running out and discussions are underway on finding a new storage site until such time that the new Collector pipe is ready in about 2023. Ultimately, with the vacuum salt plant and new rock salt plant being constructed, any excess salt will be disposed of as brine solution through the Collector and no salt will be required to be dumped in future.

- Metallurgical performance can vary significantly with varying feed grades, ranging typically from 20% to 40% KCl. In addition, if the carnallite content varies much over 4 - 5%, this adversely affects flotation performance. There is no facility for blending the ROM ore therefore an on-line analyser is planned to be installed, as current assay methods have a typical four-hour turnaround, hence plant operation is largely dependent on operator experience. However, a Spectraflow analyser has been installed on the crushed product that provides real-time analysis of the feed grade of KCl, carnallite and moisture content.
- For 2021, the mine should process approximately 2.5 Mt of ore and produce ≈600,000t of potash product in total. The October YTD head grade was 26.34% KCl and recovery was 85.5% with the concentrate grading 95.6% KCl. Plant availability was 87.1%. The expansion plan is required to effectively double production by 2025. In addition, the vacuum salt plant produces on average approximately 450,000 tpa of Industrial Salt (UVS), 120,000 tpa of Specialties Salt (SP Salt) and 20,000 tpa of White Potash (WP). The forecast process operating cost for 2021 was $50/t, but will decrease to $35.5/t by 2025 due to the higher production.
- The schedule, mechanical equipment list and capital costs for the expansion of the plant to 1.0Mtpa and then to 1.3Mtpa of potash product have not been reviewed. In particular, the current flowsheet and mass balance information developed by INDUS is only for the 1.0Mtpa project and the details for achieving 1.3Mtpa have not been provided.
- Drill core samples from new areas to be mined should be submitted for confirmatory metallurgical test work, to ensure that the expanded plant, with the planned changes in flowsheet, will deliver the required metallurgical performance and product quality is achieved.

23.2.4 Environmental Studies, Permitting and Social or Community Impact

- Continue using and improving the environmental management system and maintain its ISO accredited standard.
- Continue active engagement with local communities and stakeholders through formal and informal projects and outreach.
- Continue to monitor and address brine runoff from the salt dump.

23.3 Rotem

23.3.1 Geology and Mineral Resources

- Implement a structured exploration drilling programme to increase geological understanding, add to the Mineral Resource inventory and increase confidence in currently Inferred Mineral Resources.
- Implement and monitor a robust QA/QC system which incorporates standards, duplicates and blank samples to document sampling and laboratory performance. Establish further geological standard samples of varying grades and send to external laboratories for comparison.
- Where possible digitize data entry and remove unnecessary manual transcribing of data.
- Establish a robust and georeferenced grade control database.
- Improve the data storage and availability of reconciliation data for mined and processed tonnages and grades as well as verify their accuracy and validity.

23.3.2 Mining and Ore Reserve

- Ore Reserves are being depleted and attention should be given to a review of the medium and long-term mine plans relative to the different ore types. There is sufficient mineral resource for conversion but this requires application of appropriate Modifying Factors.

23.3.3 Mineral Processing

- Dust management could be improved at some of the Rotem plants, the Oron beneficiation plant has been fitted with extensive dust extraction facilities and these should be considered for other similarly dusty environments.

23.3.4 Environmental Studies, Permitting and Social or Community Impact

- Continue using and improving the environmental management system and maintain its ISO accredited standard.
- Continue active engagement with local communities and stakeholders through formal and informal projects and outreach.
- Continue to meet monthly with representatives from the Ministry of Energy, the Parks Authority and the Dead sea drainage authority to review the active programmes, how they are progressing and they address any issues and look for areas for improvements.
- Continue to work closely with Be'er Sheva University (Professor Yaron Ziv, Ecology) and the Parks Authority looking at the long term impact of the reclamation after 5 years' time and areas for improvement.
- Data and information pertaining to current plans to address environmental compliance and local individuals or groups should become more transparent and ICL Rotem should consider the requirement to disclose this information more clearly and separately from the overall corporate responsibility report and information disclosed on the ICL corporate website.
- Whilst Rotem is in a constant state of progressive development and reclamation of depleted open pits, it is recommended that a Mine and Facility Closure Plan is developed in order to align with accepted international best practice.

23.4 DSW

23.4.1 Geology and Mineral Resources

- Implement and monitor a suitable QA/QC system to document sampling and laboratory performance.
- Where possible digitize data entry.
- Establish a robust and georeferenced grade control database.
- Improve the data storage and availability of reconciliation data for recovered tonnages and grades as well as verify their accuracy and validity.

23.4.2 Environmental Studies, Permitting and Social or Community Impact

- Continue using and improving the environmental management system and maintain its ISO accredited standard.
- Continue active engagement with local communities and stakeholders through formal and informal projects and outreach.
- Actively monitor water levels and mitigate any flooding events of hotels and other infrastructure on the west shoreline.
- Data and information pertaining to current plans to address environmental compliance and local individuals or groups should become more transparent and DSW should consider the requirement to disclose this information more clearly and separately from the overall corporate responsibility report and information disclosed on the ICL corporate website.
- Whilst the DSW in not mining in the conventional sense, closure of the DSW will require a decommissioning and abandonment plan for the chemical works, which may require an ESIA, and long term environmental management and monitoring plan both for the processing area as well as for residual impacts to the Dead Sea. As such, and in order to align with accepted international best practice, it is recommended that the company prepares an outline Mine and Facility Closure Plan for the DSW.

23.5 YPH

23.5.1 Geology and Mineral Resources

- Update the geological model on regular basis to incorporate detailed geological mapping as greater proportion of deposit is exposed.
- Conduct further evaluation of faulting identified in drill holes and surface mapping and update the geological model, as necessary. (note interim models should be utilised for short-term planning, with the Annual Mineral Resource / Mineral Reserves model remaining 'frozen' for the reporting period).
- Consider twinning drill hole pairs as part of any future pre-production or infill drilling programmes to allow for a more robust review of sample representativeness and increased confidence concerning data verification.
- Locate and store historical results of QA/QC checks and standard tests.
- Under the China DZ/T 130-2006 Specification, a large proportion of QA samples are managed (prepared, tested, assessed and stored) by the analytical laboratory. It is recommended that the future sample preparation and quality control to be executed and managed by YPH geological site personnel.
- Revise QA/QC protocol to include field duplicates.
- Continue to exclude outcrop and trench sample data from any future updates to the Mineral Resource estimates. Geological mapping data and outcrop/trench sample result should be used for phosphate layer interpretation purposes only.
- Further infill drilling at block 3 and at block 4 and where complex faulting is noted would be of a value to upgrade the Indicated material to Measured and to increase confidence on likely displacements caused by faulting.
- Consider three-dimensional block modelling approach for improved local geological definition within each phosphate layer profile, increased ease of visualisation and interrogation, improved local grade estimation, facilitation of regular reconciliations and reporting of depleted material.

23.5.2 *Mineral and Ore Reserve*

- For the mine planning and scheduling it is recommended that the mining schedule be tested for financial adequacy using an activity-based cost model as part of the Mineral Reserves planning process. The cost model used to validate the Mineral Reserves is typically at a high level and uses life of mine average estimates for major activity-based cost elements. The Financial test provides some confirmation that the scheduled Mineral Reserves produce a net positive cashflow over the remaining schedule. This is currently determined within the accounting section at the mine, however a high-level simplified financial model used for mine planning purposes provides a useful overall indication of the mining schedule and resulting cashflow forecast.
- A simple additional metric may be useful in identifying areas within the mine plan that can assist in improving cashflow on a short-term basis. Whilst it is fully appreciated that the general consideration of identifying areas by ore tonnes per cubic metre of waste removal (strip ratio) is a useful high-level metric, that single metric tends to hide the total recoverable value for the material being mined. Forecasting the estimated recoverable product (in kg) per Tonne mined, allows the entire value chain from mining to final recovery to be evaluated within the mining schedule, with improvements often being more readily identifiable.
- Continue maintaining a sign-off sheet along with the Mineral Reserves with individual departments signing acceptance of the inputs provided, this audit trail provides a ready backup to any internal or external audit.

24 REFERENCES

Argus Media (2021) 'Potash Analytics: Addednum' ICL citation

Cendón, D.I., Ayora, C., Pueyo, J.J., and Taberner, C., 2003, The geochemical evolution of the Catalan potash subbasin, South Pyrenean foreland basin (Spain), Journal of Chemical Geology 200, pp. 339-357

CLEVELAND POTASH LIMITED POLICY 37 V02 VISITOR AND SECURITY PROCEDURES prepared by ICL external Affairs Manager September 2021

Corrective Action Log (Legal Compliance, External, Corporate, Internal and Teesdock) [ICL Boulby]

DZ/T 0130-2006 (2006) The People's Republic of China Geological and Mineral Industry Standards, Geological and mineral laboratory test quality management specifications, The specification of testing quality management for geological laboratories

DZ/T 0209-2002 (2002) The People's Republic of China Geological and Mineral Industry Standards, Specifications for phosphorous mineral exploration

GB/T 17766-1999 (1999), National Standard Of The People's Republic Of China, Classification for Resources/Reserves of Solid Fuels and Mineral Commodities

Guimerá, J., 1984, Palaeogene evolution of deformation in the northeastern Iberian Peninsula, Geological Magazine, 121, pp. 413-420.

Hydrogeological Conceptual Model prepared by Richard Metcalfe Quintessa

ICL Aspects and Evaluation spreadsheet [ICL Boulby]

ICL Boulby - Appendix B - Boulby Mine application ref: NYM/2019/0764/MEIA – CIL compliance summary table

ICL Boulby - Mine Planning Application: NYM/2019/0764/MEIA Boulby Mine 9 April 2021

ICL Boulby - General Company Induction LMS item ID: 659001 prepared by ICL 2019

ICL Boulby - Induction Schedule

ICL Boulby - Mine Environmental Statement, Volume 1: Non-Technical Summary prepared by Wood Environmental & Infrastructure Solutions UK Ltd 31 October 2019

ICL Boulby - Mine Environmental Statement, Volume 2: Non-Technical Summary prepared by Wood Environmental & Infrastructure Solutions UK Ltd 31 October 2019

ICL Boulby - Technical note: Boulby Mine: additional mitigation relating to operational impacts prepared by Wood Group UK Ltd June 2021

ICL Boulby - Technical Study to Produce 1.3Mtpy of Polyhalite at the ICL Boulby Mine, Redcar and Cleveland, UK, 31st July 2020

ICL Boulby - Technical Study to Produce 1.3Mtpy of Polyhalite at the ICL Boulby Mine, Redcar and Cleveland, UK - Technical Report. 26th January 2021

ICL Internal Report (2018). High level Technical Review On the Haikou Phosphates Mine & Baitacun Phosphate Project, Xishan District China Updated Report for 2018

Lecai Xing, Mingzhong Zhou, Liang Qi, Zhilong Huang (2015). Discussion on the PGE anomalies and source materials of K-bentonite (Bed 5) in the Lower Cambrian Meishucun section, Yunnan. Science Press, Institute of Geochemistry, CAS and Springer-Verlag Berlin Heidelberg 2015

Nanping Wang, Guoxin Zhu (2019). Radionuclide activity concentration and radon concentration in Soil in the Surrounding Areas of the Phosphate Mine in Yunnan Province, China. The ninth international Symposium on Naturally Occurring Radioactive Material (Denvor, Colorado)

PERC REPORTING STANDARD (2021), The Pan European Reserves and Resources Reporting Committee (PERC) Standard for Reporting of Exploration Results, Mineral Resources and Mineral Reserves

Petr Ptáček (2016) Phosphate Rocks. ntech Open Book Series, DOI: 10.5772/62214 (https://www.intechopen.com/chapters/49984)

Qing-gao YAN1, Chao LI, Xiao-jun JIANG, Zhong-qiang WANG, Yun-ju LI, Wei LI (2018) The Age and Sedimentary Environment of the Kunyang Phosphate Deposit, Central Yunnan: Constraints from Re-Os Isotopes

Roscoe Postle Associates UK Ltd. Independent Technical Engineer Phase 2 Due Diligence Report on the North Yorkshire Polyhalite Project, UK. 2 July 2019

Sans, M., and Vergés, J., 1995, Fold development related to contractional salt tectonics: southeastern Pyrenean thrust front, Spain, in M.P.A Jackson, D.G Roberts, and S. Snelson, eds., Salt tectonics: a global perspective: AAPG Memoir 65, pp.369-378

Sans, M., 2003, From thrust tectonics to diapirism. The role of evaporites in the kinematic evolution of the eastern South Pyrenean front, Geologica Acta, Vol. 1 N^{o} 3, pp. 239-259

SRK Consulting (UK) Limited. Competent Persons Report on the Mineral Resource sand Ore Reserves of Sirius Minerals in the UK. 11 October 2017

Stanka ŠEBELA, Janja KOGOVŠEK (2006) Hydrochemic Characteristics and Tectonic Situation of Selected Springs in Central and NW Yunnan Province, China. ACTA CARSOLOGICA 35/1, 23–33, LJUBLJANA 2006, DOI:10.3986/ac.v35i1.240

THE ECONOMIC IMPACT OF BOULBY MINE, prepared by Oxford Economics, May 2020

Vergés, J., Fernandez, M., Martinez, A., 2002, The Pyrenean orogen: pre-, syn-, and post-collisional evolution, Journal of the Virtual Explorer 8, pp. 55-74

World Bank Group. 2021. *Commodity Markets Outlook: Urbanization and Commodity Demand, October 2021.* World Bank, Washington, DC. License: Creative Commons Attribution CC BY 3.0 IGO

Wu Zhu, Wen-Liang Li, Qin Zhang, Yi Yang, Yan Zhang, Wei Qu, and Chi-Sheng Wang (2019) A Decade of Ground Deformation in Kunming (China) Revealed by Multi-Temporal Synthetic Aperture Radar Interferometry (InSAR) Technique. Online publication (https://www.ncbi.nlm.nih.gov.pmc/articles/PMC6832)

Xu Shiguang, Xin Yong (2000) STUDY ON KUNMING LOW-TEMPERATURE GEOTHERMAL FIELD. Proceedings World Geothermal Congress 2000 Kyushu – Tohoku, Japan, May 28 – June 10, 2000

YPH Internal Report (2014) Verification report on the reserves of Phosphate resources in Haikou, Xishan District, Kunming, Province

Yunnan Phosphate Group Co., Ltd. (2005) Feasibility Study Report, 2 million t/a Phosphate mining project. Lianyungang Design Research Institute, Ministry of Chemical Industry March 2005

Yunnan Phosphate Group Co., Ltd. (2015) YPH HAIKOU MINE 2020 RESERVE DYNAMIC SURVEY ANNUAL REPORT

Yunnan Phosphate Group Co., Ltd. (2016) YPH HAIKOU MINE 2020 RESERVE DYNAMIC SURVEY ANNUAL REPORT

Yunnan Phosphate Group Co., Ltd. (2017) YPH HAIKOU MINE 2020 RESERVE DYNAMIC SURVEY ANNUAL REPORT

Yunnan Phosphate Group Co., Ltd. (2020) YPH HAIKOU MINE 2020 RESERVE DYNAMIC SURVEY ANNUAL REPORT

25 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

This Technical Report Summary has been prepared by WAI and Golder on behalf of ICL. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to WAI and Golder at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by ICL and other third-party sources.

It is believed that the basic assumptions are factual and accurate, and that the interpretations are reasonable.

For the purpose of this report, WAI and Golder has relied on ownership information, mineral tenement and land tenure provided by ICL. WAI and Golder has not researched property title or mineral rights for the properties that are the subject of this Technical Report Summary and it is considered reasonable to rely on ICL's legal counsel who is responsible for maintaining this information. The Qualified Persons are not aware of any agreements or material issues with third parties such as partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings relating to the properties that are the subject of this Technical Report Summary.

The QP's for Mineral Resources and Mineral Reserves have relied upon the registrant to supply pricing and marketing information as necessary, along with information regarding infrastructure, tailings storage and process designs and estimates, geotechnical analysis and designs, hydrogeological analysis and designs, and environmental/permitting analysis and data in the development of the Mineral Resources and Mineral Reserves.

The Qualified Persons have taken all appropriate steps, in their professional opinion, to ensure that the above information from ICL is sound. The Qualified Persons do not disclaim any responsibility for the Technical Report Summary. Except for the purposes legislated under US securities laws, any use of this report by any third party is at that party's sole risk.

26 DATE AND SIGNATURE PAGE

This report titled "S-K 1300 Technical Report Summary | Boulby (UK), Cabanasses and Vilafruns (Spain), Rotem (Israel), Dead Sea Works (Israel), and Haikou (China) Properties" with an effective date of December 31, 2021, and dated as of February 22, 2022 was prepared and signed by:

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CONSENT OF QUALIFIED PERSON

Wardell Armstrong International Ltd. ("Wardell"), in connection with the Annual Report on Form 20-F (the "Form 20-F") by ICL Group Ltd.(the "Issuer"), does hereby consent to:

- the public filing and use of the Technical Summary Report entitled "S-K 1300 TECHNICAL REPORT SUMMARY - BOULBY (UK), CABANASSES AND VILAFRUNS (SPAIN), ROTEM (ISRAEL), DEAD SEA WORKS (ISRAEL), AND HAIKOU (CHINA) PROPERTIES" with an effective date of December 31, 2021 and dated February 22, 2022, (the "Technical Report Summary") by the Issuer as an exhibit to and referenced in the Form 20-F;
- the incorporation by reference of the Technical Report Summary into the Issuer's registration statement on Form S-8 (File No. 333-205518) (the "Registration Statement");
- the use and references to our name, including our status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission), in connection with the Form 20-F, the Registration Statement and the Technical Report Summary; and
- any extracts from or a summary of the Technical Summary Report in the Form 20-F and incorporated by reference into the Registration Statement and the use of any information derived, summarized, quoted, or referenced from the Technical Report Summary, or portions thereof, that was prepared by us, that we supervised the preparation of, and/or that was reviewed and approved by us, that is included or incorporated by reference in the Form 20-F and the Registration Statement.

Wardell confirms that it has read the February 22, 2022 Disclosure Document release that the Technical Summary Report supports being filed by the Issuer and that it fairly and accurately represents the information in the sections of the Technical Summary Report for which it is responsible.

Dated this 22nd day of February, 2022.

/s/ Phil Newall

Phil Newall, BSc (ARSM), PhD (ACSM), CEng, FIMMM
Managing Director
Wardell Armstrong International Ltd.