PACIFIC CHILD PROJECT
GEF ID: 10267

GEF-7 REQUEST FOR CEO ENDORSEMENT / APPROVAL
CHILD PROJECT – MSP ONE-STEP

PROJECT TYPE: Full-sized Child Project
TYPE OF TRUST FUND:GEF Trust Fund

PART I: PROJECT INFORMATION

Project Title: Pacific Child Project (ISLANDS)			
Country(ies):	Cook Islands, Fiji, Federated States of Micronesia, Marshall Islands, Kiribati, Palau, Papua New Guinea, Nauru, Niue, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu	GEF Project ID:	10267
GEF Agency(ies):	UNEP (select) (select)	GEF Agency Project ID:	01728
Project Executing Entity(s):	SPREP	Submission Date:	2 December 2020
GEF Focal Area (s):	Chemicals and Wastes	Expected Implementation Start	February 2021
		Expected Completion Date	February 2026
Name of Parent Program	GEF ISLANDS	Parent Program ID:	GEF ID 10185

A. Focal/Non-Focal Area Elements

Programming Directions	Focal Area Outcomes	Trust Fund	(in $)	
			GEF Project Financing	Confirmed Co-financing
(select) CW-2-3	Sound management of chemicals and wastes addressed through strengthening the capacity of sub-national, national and regional institutions and strengthening the enabling policy and regulatory framework in these countries	GEFTF	20,000,000	94,178,245.81
	Total project costs		20,000,000	94,178,245.81

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To prevent the build-up of POPs and mercury materials and to manage and dispose of existing harmful chemicals and wastes across Pacific SIDS.						
Project Components/ Programs	**Component Type**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(in $)**	
					GEF Project Financing	**Confirmed Co-financing**
1. Preventing the Future Build-Up of Chemicals Entering SIDS	TA**Error! Bookmark not defined.**	Pacific SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation	2.1 Legislative frameworks for sustainable finance in place in Pacific SIDS 2.2 Strategies to improve waste	**Error! Bookmark not defined.**	2,784,000	6,150,000

		of hazardous waste	management in Pacific SIDS 2.3 Model legislation to control mercury containing products for use by Pacific SIDS drafted and made available for adoption (regional)			
2. Safe Management and Disposal of Existing Chemicals, products and materials	TA	Harmful chemicals and materials present and/or generated in SIDS are being disposed of in an environmentally sound manner	2.1 Pacific SIDS supported in sound repackaging, shipping, collection, and disposal of POPs and mercury waste 2.2 Technical assistance and support for shipping and disposal of end of life vehicles (ELVs) from Pacific SIDS to Asian recycling markets (regional) 2.3 Studies, technical assistance and training provided to improve residual (municipal) waste management in selected Pacific SIDS 2.4 Feasibility analysis and design of waste management systems for atolls completed and made	GEFTF	5,700,000	55,006,134.81
3. Safe Management of Products entering SIDs/Closing Material and	TA	Build-up of harmful materials and chemicals is prevented through establishment of effective circular	3.1 Tools, TA and training for the Establishment of e-waste dismantling and recycling system	GEFTF	8,616,000	13,477,111

Product loops for Products		and life-cycle management systems in partnership with the private sector	(national and regional), results documented and made available to all Pacific SIDS 3.2. Operationalisation of waste transfer and sorting stations for bulky waste and recycling results documented and made available to all Pacific SIDS 3.3 Establishment of used oil management of used oil management systems in SIDS results documented and made available to all Pacific SIDS 3.4 Technical backstopping provided to manage healthcare waste to Pacific SIDS			
4. Knowledge Management and Communication	TA	Knowledge generated by the programme is disseminated to, and applied by, SIDS in all regions	4.1. Communication of national systems on sustainable financing 4.2. Community education activities and programmes on waste management behaviour designed and conducted 4.3. Widespread engagement of youth through Tide Turners program (regional)	GEFTF	1,700,000	13,380,000

			4.4. Best practices in Pacific SIDS on hazardous waste management documented and made available reporting through the global component			
Monitoring and Evaluation				GEF TF	292,500	0
Subtotal					18,800,000	88,013,245.81
Project Management Cost (PMC)				GEF TF	907,500	6,165,000
Total project costs					20,000,000	94,178,245.81

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ( )

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Investment Mobilized	Amount ($)
Other	SPREP	GrantGrant	Investment mobilized	36,128,000
Government	Government of Cook Islands	Grant	Recurrent expenditure	688,612.81
Government	Government of Fiji	Grant	Investment mobilized	3,136,111
Government	Government of FSM	Grant	Recurrent expenditure	100,000
Government	Government of Kiribati	Grant	Investment mobilized	$375,000
Government	Government of Marshall Islands	Grant	Investment mobilized	90,000
Government	Government of Nauru	Grant	Recurrent expenditure	46,042
Government	Government of Nauru	Grant	Investment mobilized	310,000
Government	Government of Niue	Grant	Investment mobilized	4,000,000
Government	Government of Palau	Grant	Recurrent expenditure	503,000
Government	Government of Palau	Grant	Investment mobilized	375,000
Government	Government of PNG	Grant	Recurrent expenditure	1,609,000

Government	Government of Samoa	Grant	Recurrent expenditure	300,000
Government	Government of Samoa	Grant	Investment mobilized	600,000
Government	Government of the Solomon Islands	Grant	Recurrent expenditure	60,000
Government	Government of Tonga	Grant	Recurrent expenditure	1,000,000
Government	Government of Tuvalu	Grant	Recurrent expenditure	500,000
Government	Government of Tuvalu	Grant	Investment mobilized	7,800,000
Government	Government of Vanuatu	Grant	Investment mobilized	600,000
Government	Government of Vanuatu	Grant	Recurrent expenditure	500,000
Other	UNEP Youth	Grant	Recurrent expenditure	180,000
Private sector	Swire Shipping	Grant	Investment mobilized	35,277,480
Total Co-financing				**94,178,245.81**

Describe how any "Investment Mobilized" was identified:
Investment mobilized are confirmed grants/or financial commitments which have been secured and will be operating during the lifetime of the project.

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
UNEP	ERROR! BOOKMARK NOT DEFINED.	Pacific Regional Child Project	Chemicals and Waste	POPs	17,250,000	1,552,500	18,802,500
UNEP	GEFTF	Pacific Regional Child Project	Chemicals and Waste	Mercury	1,000,000	90,000	1,090,000
UNEP	GEFTF	Pacific Regional Child Project	Chemicals and Waste	SAICM	1,750,000	157,500	1,970,500
Total GEF Resources					20,000,000	1,800,000	21,800,000

E.1. PROJECT PREPARATION GRANT (PPG) *[Skip this section if PPG has previously been requested (as child project)]*

Is Project Preparation Grant requested? Yes ☐ **No** ☒ If no, skip item E.1.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	AgencyFee (b)	Totalc = a + b
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Total PPG Amount							

E.2. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? (Select)

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund).

F. PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Select the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet provided in Annex F and aggregating them in the table below. Progress in programming against these targets is updated at mid-term evaluation and at terminal evaluation. Achieved targets will be be aggregated and reported any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCCF.

Project Core Indicators		Expected at CEO Endorsement
1	**Terrestrial protected areas** created or under improved management for conservation and sustainable use (Hectares)	
2	**Marine protected areas** created or under improved management for conservation and sustainable use (Hectares)	
3	Area of **land restored (**Hectares)	
4	Area of **landscapes under improved practices** (excluding protected areas)(Hectares)	
5	Area of **marine habitat under improved practices** (excluding protected areas) (Hectares)	28,000 tons of marine litter avoided
	Total area under improved management (Hectares)	
6	**Greenhouse Gas Emissions Mitigated** (metric tons of CO2e)	
7	**Number of shared water ecosystems** (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited **marine fisheries** moved to more sustainable levels (metric tons)	
9	**Reduction**, disposal/destruction, phase out, **elimination** and avoidance of **chemicals of global concern** and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)	9.1: 544.58t 9.2: 3.5t 9.4: 10 9.6: 4,338t

10	Reduction, avoidance of emissions of **POPs to air** from point and non-point sources (grams of toxic equivalent gTEQ)	8
11	Number of **direct beneficiaries disaggregated by gender** as co-benefit of GEF investment	200,000 (50% men, 50% women)

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided:

Global environmental benefits (GEBs) for core indicator 9.1 were calculated based on the responsible disposal of PCBs and polybrominated diphenyl ethers (PBDE).
The total amount of PCB was taken from the Papua New Guinea scoping report conducted as part of the PPG and attached as Appendix 11 which identified 611,720 litres of waste oil containing PCBs. This value was conservatively converted to metric tons using the relatively light mass density of mineral oil (870 kg/ m3). Thus, the total amount of PCB waste oil to be disposed of is approximately 532 tons.

In addition to PCB, the project will facilitate the disposal of POPs pesticides. Twelve tons of DDT stockpiles were identified and safeguarded during the PPG. These will be repackaged and destroyed in an environmentally sound manner as part of the project.

The total PBDE to be disposed of was calculated using the Stockholm Convention POPs inventory guidance.97 The guidance provides a simple equation for the calculation of total penta-, tetra-, hexa- and hepta-BDE contained in automobiles built between 1974–2004. Specifically, the calculation assumes that affected cars and trucks each contain 160 grams of commercial PentaBDE (c-PentaBDE), which was used as a flame retardant in polyurethane foam seat cushions. For busses a value of 1,000 grams c-PentaBDE is used. The calculation further assumes that 50 % of cars manufactured in the United States during this time period were affected while only 5 % of cars manufactured in Asia were affected. Data were not available for other regions. The total c-PentaBDE in each car is then used to approximate the total grams of the homologues above (penta-, tetra, and so on) which are the values reported to the Stockholm Convention. The current project has a target of safely disposing 5 % of the stockpile of End of Life Vehicles (ELVs) in each country beginning in year 2. Waste audit data from Palau (Appendix 11), vehicle registrations statistics and population data were used to approximate the total stockpile of ELVs in each country. In total a stockpile of 35,000 ELVs was conservatively estimated in the 14 countries Bus data was more difficult to calculate and was arbitrarily set at the safe disposal of 10 buses in each of the 14 countries over the life of the project. For the purpose of calculating GEBs a conservative estimate of 80 % was used as the proportion having been manufactured in Asia, while 20 % was uses as the proportion having been manufactured in the United State. GEB calculations assume the safe disposal of 5 % of the baseline (n=~1,745) of ELVs beginning in year 2 and extending for a total of 10 years. These assumptions result in a total c-PBDE estimate of 587 kg over 10 years and the following estimate for is homologues: hepta- (2.93 kg); hexa- (47 kg); penta- (340 kg); and tetra- (193 kg).

With regard to mercury use in ASGM, relatively little is known about the situation in much of the region. The project will focus the majority of its efforts on Papua New Guinea, which is the 15th largest producer of gold in the world exporting 72.9 tonnes annually. The number of small-scale miners in Papua New Guinea is estimated to exceed 108,000, with most using mercury in gold concentration. The project will limit the importation of Hg in the region through legislative updates reducing inputs by a conservatively estimated 2.5 tonnes. Similar efforts will target mercury-added products reducing mercury imports by 1 tonne. Thus the project's total contribution to indicator 9.2 will be 3.5 tonnes. Related legilsation on chemicals including mercury will be adopted in 10 countries, reported against indicator 9.4.

For the purpose of estimating GEBs against core indicator 9.6, the total mass of equipment containing > 50 mg/kg PCB oil during the Papua New Guinea scoping mission (Appendix 11) was used. The scoping report identifies 11 discrete pieces of equipment (including transformers and storage tanks) totalling approximately 145 tons. In addition the total weight of the polyurethane foam in car, truck and bus seats was calculated following Stockholm Convention guidance. In the case of cars and trucks, a value of 160 kg of contaminated materials was used. In the case of buses, 1,000 kg was used. Assuming the same disposal targets outlined for

PBDEs under indictor 9.1, this equation results in the responsible disposal of 4,193 tonnes of PBDE contaminated material. Thus the total contribution of the project to indicator 9.6 is 4,338 tonnes.

For indicator 10, the project seeks to reduce and avoid the emissions of 8 g TEQ of POPs to air from point and non-point sources. The quantity of 8 g TEQ identified at PFD stage for reduction and avoidance remains valid. As for indicator 11, it is expected that the project will positively impact 20% of the population (¬ 200,000 direct beneficeries) of the participating countries through direct demonstration sites, improved control mechanism and dissemination activities in component 4.

Marine Litter:
In addition to avoidance and elimination of POPs and mercury, the project will prevent an estimated 28,000 tonnes of plastic pollution throughout the five-year execution phase, which is equivalent to the quantity predicted at the initiation of the PPG Phase. The baseline information for this reduction was initially linked to the efforts by the participating countries to ban and phase out the use of plastic bags and polystyrene products, which form a large part of the marine litter that is generated in the Pacific Ocean.

G. PROJECT TAXONOMY

Fill up the table below for the taxonomic information provided at PIF stage. Use the GEF Taxonomy Worksheet provided in Annex G to find the most relevant keywords/topics/themes that best describe the project.

Level 1	Level 2	Level 3	Level 4
Influencing Models	Transform policy and regulatory environment		(multiple selection)
Stakeholders	Private Sector, Civil Society	Academia Civil Society Organisations, Private Sector	(multiple selection)
Capacity, Knowledge and Research	Capacity Development	Knowledge Management	(multiple selection)
Gender Equality	Gender Mainstreaming	Womens Groups, Indigenous Groups	(multiple selection)
Focal Area/Theme	Chemicals and Waste	Mercury and Persistent Organic Pollutants	(multiple selection)
Rio Markers	(multiple selection)		

PART II: PROJECT JUSTIFICATION

DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF

The Request for GEF CEO Endorsement below is in-line with the original child concept submitted as part of the ISLANDS programme framework document (GEF ID 10185), approved by GEF Council in June 2019. The project is being submitted in the context of the ongoing COVID-19 pandemic. As such, the proposal has been adapted to reflect the potential impacts the COVID-19.

The COVID-19 pandemic has affected every economic sector in Pacific SIDS and all segments of society, however with differential impacts depending on age group, gender, disabilities, socioeconomic status and geographic location.

COVID-19 related impacts in SIDS include (but are not limited to): impact on human health; reduced economic growth; significant decline in tourism and remittances, that have led to reduced FOREX earnings; reduced income from major income contributing sectors (e.g. tourism, fishery, agriculture, services, etc.); job losses, especially in the informal sector; reduced access to basic services; household food insecurity (often worsening as a result of a decline in the economy and a breakdown in supply

chains); fragile healthcare systems that will be stretched further in the short run but could emerge stronger in the medium- to long- term; and women and girls more adversely affected.

Pacific SIDS' governments have responded to the crisis by near completed movement restrictions and the enforcement of basic hygiene practices such as regular hand washing and social distancing.

The impact of COVID-19 has been considered and included as part of the risk analysis for this project. The most significant COVID-19 related risks to the implementation of the project include the following (risks and their mitigation measures have been described in more detail in the risk table completed under Section 5):

- Travel restrictions between countries, between islands and atolls or on islands themselves might hamper the execution of project activities;
- Project implementing partners/national partners might be working at a low(er) capacity;
- A likely reduction in the availability of (co-)financing for waste/chemicals related investments due to competing priorities at country level;
- Reduced markets for recyclables, at national, regional and international level making recycling systems less viable and sustainable; and,
- Social inequalities might worsen – impacting vulnerable communities, collectors of recyclables and women.

The following interventions and approaches are planned to alleviate to mitigate COVID-19 impact on Pacific SIDS:

- Introduce digital solutions for (remote) project implementation (including trainings/meetings/workshops), monitoring, reporting, audits, as well as the exchange of experiences and lessons learned. Lessons-learned captured by each and every SIDS in GEF ISLANDS tailored publications will be made available through a global Knowledge Management platform. Combined these interventions will contribute to building the capacity of institutions and stakeholders in digital record keeping/monitoring/reporting, training, awareness raising, etc. which would simplify and facilitate future work and help entities in certain countries to build their technological capacity to reduce the digital divide.
- Ensure each country has in place a dedicated national technical assistant to coordinate and failitate country level activities. This will serve to both strengthen national capacity and also to facilitate the uptake of remote technical guidance.
- Support livelihoods/job creation in the waste management/chemicals sector through the design and introduction of financial instruments/mechanisms, building capacity of the private sector, establishing private sector partnerships in country as well as in the region to increase the collection, recycling, export and treatment of wastes. This will thus promote circular solutions to reduce unsustainable resource extraction and environmental degradation.
- Build the capacity of NGOs, CBOs, private sector companies, municipalities, government departments, etc. on the safe management of various types of (hazardous) waste, including the use of Personal Protection Equipment, safeguarding waste management workers from health impacts, including COVID-19.
- Contribute to avoiding marine and freshwater pollution from single use plastics, which has risen dramatically during COVID-19, due to a rise in the use of disposables, particularly those used in the medical and food sectors.
- Through the institution of a regional technical backstopping facility, Improve practices and treatment solutions for infectious Healthcare Waste (HCW), including COVID-19 waste, through the introduction of environmentally sound practices for waste management and treatment, and improving the capacity of healthcare facilities to soundly manage their waste streams to keep staff, patients, visitors and surrounding communities safer. This will help SIDS manage risks attached to potential future similar crises.

1a. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario

and any associated baseline projects, 3) the proposed alternative scenario with a description of outcomes and components of the project; 4) alignment with GEF focal area and/or impact program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovativeness, sustainability and potential for scaling up.

1) **Global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)**
    a. **Global environmental problems:**

The sound management of chemicals throughout their lifecycle and waste is crucial for the protection of human health and the environment. Globally, in 2016, municipal solid waste (MSW) generation was estimated to be 2.01 billion tonnes, and this figure is expected to rise to 3.4 billion tonnes by 2050[1]. In terms of global waste composition, 44% of all waste is food and green waste, 17% paper, 12% plastics, 5% glass, 4% metal, and 18% other types of waste. In developing countries, organic waste accounts for the largest fraction of all waste. With increasing wealth, the shares of paper, plastic, glass and metal rise; solid waste in OECD states consists mainly of recyclables, followed by organics[2].

Due to their small size and narrow resource bases, SIDS are import-dependent economies. Limited landmasses mean SIDS also often have very high population densities, for example the Maldives ranks 11th globally with 1,102 individuals per square kilometre[3] but with a landmass placing it at the 187th position. On a per capita basis, waste generation in SIDS is rising. In 2014 it was slightly lower than in OECD countries (1.29 kg/capita/day, compared to 1.35 kg/capita/day), but as of 2019 it is 2.3 kg/capita/day, 48% higher than that of OECD countries[4]. However, the large number of tourists often skews the per capita waste generation of the permanent population.

In common with the Pacific and Indian Ocean SIDS, the Caribbean SIDS lack the infrastructure to manage the wide variety of wastes generated by imported products. The disposal of non-biodegradable materials and industrial and agricultural chemicals pose an increasing challenge[3].

As SIDS progress so do their import-dependent development pathways. As a direct result, the quantities and variety of products that are being imported (ranging from mercury containing thermometers to plastic packaging, from second hand electronic products to motor vehicles, from agricultural chemicals to industrial chemicals) is rapidly increasing. This is leading to the generation of a large variety of different types of hazardous and toxic wastes which SIDS, including those in the Pacific, do not have the installed capacity or required treatment facilities to address alone[5]. Waste volumes are also increasing due to changing consumption patterns, and the disposal of growing levels of imports of non-biodegradable materials.

    b. **Pacific environmental problems:**

The Pacific is a geographically unique, isolated region with over seven thousand islands covering almost a sixth of the surface of the globe[1]. Traditionally, Pacific communities lived subsistence lifestyles consuming locally sourced food and other supplies. This self-contained lifestyle resulted in minimal impact on the island environment or public health.

[1] https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf

Over time, lifestyles have changed, and Pacific populations now rely increasingly on imported goods and products. In some Pacific countries, 80-90% of food consumed is now imported[2] triggering the associated changes in waste production and need for infrastructure / management systems. Regionally, the average waste generation rate is 1.3Kg per person, per day[3]. This generation rate is far higher than the average East Asian and Pacific generation rate, which is 0.56Kg per person / per day[4]. Poor waste management has been recognised as a major threat to sustainable development in Pacific island countries[5].

In many Pacific SIDS waste collection services are inadequate, or non-existent, and open burning of accumulated waste is widely practiced at the household level and at open dumpsites. A significant proportion of waste ends up reaching precious water sources, ultimately resulting in increased pollution of the inner coastal marine environment. These practices lead to human health problems, as well as adverse impacts on the marine ecosystems, and other sensitive land areas and watercourses with potential to impact on biodiversity.

SIDS globally are susceptible to natural disasters such as tropical cyclones/hurricanes, and tsunamis. Pacific SIDS are characterized by their small physical scale, geographic isolation, unique biodiversity, exposure, limited resource base, remoteness from global markets and small economies of scale[6].

There are multiple drivers and pressures affecting SIDS globally and hampering development. These include vulnerability to climate change, local access to potable water, nutrition and food security, energy and transport demand, exploitation of natural resources, local sectoral development, poor management of waste and pollution, including from chemicals, coastal squeeze and loss of ecological resilience[7].

c. **Root causes:**

As stated in the approved Program Framework Document (PFD), the root cause of chemicals and wastes problems in SIDS are due to countries being largely import-dependent economies, located remotely from global markets and with outer islands spread across vast distances. This situation is exacerbated by limited available landmass to manage wastes; high economic vulnerability to economic and natural exogenous shocks; lack of critical mass of people, infrastructure and investments; economic migration of qualified individuals (brain drain); and increased susceptibility to natural hazards driven by climate change.

During the project preparatory period these root causes have been further analysed in the Pacific context.

- Import-dependent economies: Total trade in goods (imports and exports), between Asian and Pacific countries increased from $1.6billion in 2000 to over $14 billion in 2012[8]. Growth in

[2] https://www.encyclopedia.com/food/news-wires-white-papers-and-books/pacific-islanders-diet
[3] Cleaner Pacific 2025 https://www.sprep.org/attachments/Publications/WMPC/cleaner-pacific-strategy-2025.pdf
[4] https://datatopics.worldbank.org/what-a-waste/trends_in_solid_waste_management.html
[5] https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf
[6] Ibid
[7] Ibid
[8] ADB (2015), Pacific Opportunities, Leveraging Asia's Growth

imports increased most dramatically. With the exception of Pacific countries exporting primary commodities, the value of most Pacific country exports, are less than 10% of their imports[9]. Since 2005, Pacific exports (of high-quality products such as coffee, vanilla, and bottled water) have increased slowly[10].

- Remotely located from global markets: Pacific growth has been considerably slower than its Asian neighbours, with geographical isolation (and associated high transaction costs) and small market size cited as long run structural constraints.
- Limited available landmass to manage wastes: Available landmass in Pacific countries varies greatly. Nauru has a total land area of only 21Km^2, to PNG with 452,860Km^2 [11]. The Cook Islands, Kiribati, Marshall Islands, Nauru, Palau, Tonga and Tuvalu are the most land constrained Pacific countries, each with less than 1,000Km^2 of available landmass.
- Lack of critical mass of people, infrastructure and investments: Population size varies in the Pacific from <1,000 permanent residents in Niue to 7 million in Papua New Guinea (PNG). Investment in waste management infrastructure is low with few Pacific countries having sanitary landfills. Open dumping and burning is common.
- Economic migration of qualified individuals: Pacific countries have strong links to Australia and New Zealand with many Pacific communities residing in these countries. Remittances to Pacific countries from family members residing abroad are an important contributor to the household budget. In Samoa for example remittances equated to 23.5% of GDP in 2013[12]. From the Cook Islands for example, the population of Cook Islanders living outside the Cooks is 160% of that living within[13]. From Samoa, 70% of the population lives abroad; and 68% of the Tongan population[14]. This migration of educated individuals results in fewer educated individuals pursuing economic activity, such as establishing businesses, in Pacific countries. It also results in a very small pool of qualified professionals to fill roles in key services such as waste management.
- Susceptibility to natural hazards driven by climate change: Environmental risks are considered a structural constraint to growth in the Pacific region. Cyclones, earthquakes, tsunamis and floods often lead to loss of life, as well as damaging infrastructure. Disaster recovery diverts public funds from planned public investments into emergency response[15].

d. **Global barriers:**

The following barriers to improved chemicals and waste management faced by SIDS globally are outlined below:

- Limited adequate landfills and poor solid waste management systems: Many SIDS lack engineered landfills and, in these instances, rely on “dumps” where uncontrolled burning, resulting in releases of unintentionally produced Persistent Organic Pollutants (POPs), is common. In atolls particularly, space available for landfills is extremely limited. This is often due to lack of financial resources for the fuel to run waste collection vehicles, and is exacerbated by limited accessibility to more remote settlements.

[9] Ibid
[10] Ibid
[11] Ibid
[12] Ibid
[13] Ibid
[14] Ibid
[15] Ibid

- Limited recycling opportunities in SIDS: Due to small population sizes, geographical isolation and associated high shipping costs, economies of scale cannot be reached. Segregation of waste streams in is still uncommon, meaning that a high percentage of potentially recyclable waste (e.g. compostable material, plastics, paper, glass, etc.) is dumped, or ends up in a landfill. Limited human capacity and lack of incentives to encourage recycling, including the absence of legal and regulatory provisions for recycling, economic instruments for citizens and businesses or voluntary agreements with the private sector, are additional constraints to recycling.
- Lack of awareness: of the broader community of the need to manage wastes, in order to prevent adverse health and environmental impacts. SIDS populations are often unaware of the potentially hazardous nature of many consumer products, and what "proper" disposal constitutes. There is very little public information available in SIDS aimed at educating communities on improved waste management practices.
- Additional burden of waste generated by the tourism industry: For many SIDS, tourism in an important contributor to national employment and overall GDP. However, the waste generated by both land-based and sea-based tourism places a significant burden on SIDS' waste management infrastructure.
- Additional burden of waste generated by natural disasters: these include disasters such as cyclones, hurricanes, tsunamis, volcanoes and earthquakes. These events add additional waste burden to already fragile waste management infrastructure. In a matter of seconds, a disaster can generate the equivalent of decades of waste[16]. Recovery from disasters also diverts public funds from planned investments to emergency response.
- Climate Change and rising sea levels: In low lying atoll SIDS climate change is considered one of the greatest threats to the livelihoods, security and wellbeing of their people. Areas of the Cook Islands, Federated States of Micronesia, Maldives, Kiribati, Marshall Islands, Tonga, and Tuvalu are only a few metres above present sea level and may face serious threat of permanent inundation from sea-level rise. SIDS lack the resources to adequately address vulnerability to climate change. This presents a significant barrier to the sound management of chemicals and wastes as landfills and dumpsites also risk inundation. In addition, poor waste management leads to greenhouse gas emissions, with between 8-10% of annual greenhouse gas emissions in SIDS attributed to poor waste management[17].

e. **Pacific barriers:**

The following barriers to improved chemicals and waste management faced by Pacific SIDS specifically are outlined below:

- Incomplete/piecemeal environmental legislation and limited capacity to enforce and monitor imports of chemicals contained in products: Most Pacific countries lack comprehensive regulatory frameworks and standards to adequately curb and control the influx of products that are challenging to dispose of when they become wastes. As well as improved regulations, capacity is lacking to effectively implement and enforce these policy and regulatory frameworks effectively. Additionally, robust mechnisms for coordination between regulatory agencies for monitoring and enforcement are lacking, or weak.

[16] SIDS Waste Management Outlook – UNEP IETC 2019
[17] SIDS Waste Management Outlook – UNEP IETC 2019

- Lack of technical capacity and infrastructure to manage, safely store and dispose of hazardous substances: Generally, the only environmentally sound disposal option for hazardous substances available for Pacific countries is export, which is expensive and often unfeasible. Neither strategies to minimize the import of products that cannot be treated with the local constraints, nor best practices and technologies fit for Pacific SIDS settings to improve the systems, capacity and physical infrastructure to properly manage wastes exist. Improved disposal of hazardous waste, including chemical, medical and electronic waste as well as lead-acid batteries, asbestos and used oil is critical for Pacific SIDS [18].

The aforementioned root causes, and barriers, together with the resulting problems are analysed diagrammatically in the following problem tree.

[18] SIDS Waste Management Outlook, UNEP IETC 2019

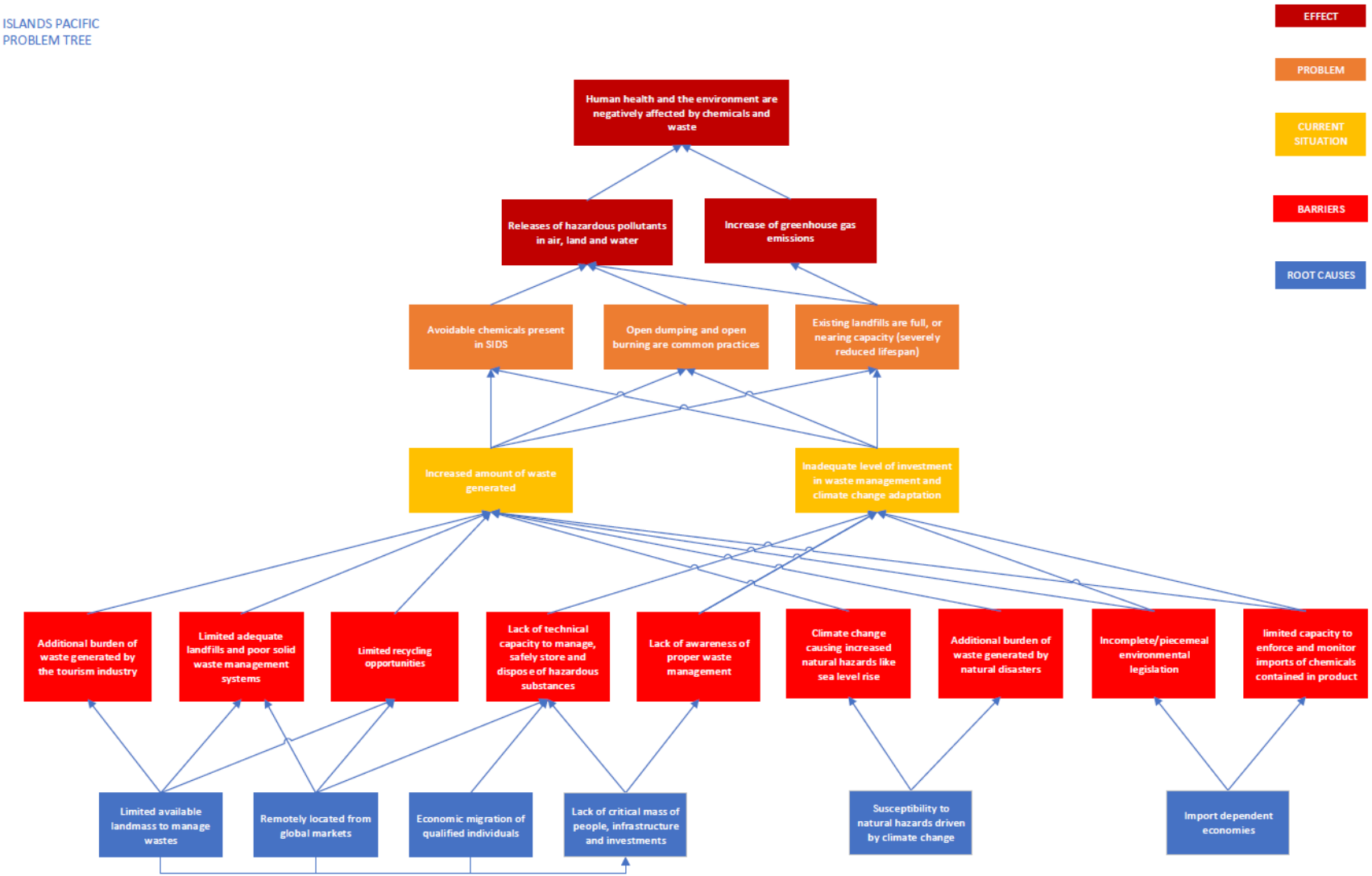

Figure 1: Pacific Child Project, Problem tree

2) Baseline scenario and any associated baseline projects

a. **Global baseline scenario:**

SIDS are a distinct group of 38 countries across the: Atlantic Caribbean, Indian Ocean, Pacific, and South China Sea. Globally, development in SIDS is guided by the 2014 SIDS Accelerated Modalities of Action (SAMOA) Pathway, which recognizes the adverse impacts of climate change and sea-level rise on SIDS' efforts to achieve sustainable development as well as to their survival and viability, and addresses economic development, food security, disaster risk reduction and ocean management, and chemicals and wastes management. The SAMOA Pathway is being implemented over the 2014-2024 timeframe. On chemicals and wastes management, the SAMOA Pathway recognises the need to reduce, reuse, recycle, recover and return approaches according to national capacities and priorities *inter alia* through capacity-building and environmentally appropriate technologies[19]. A SIDS Partnership Framework was also established, designed to monitor progress of existing partnerships and stimulate the launch of new, genuine and durable partnerships for the sustainable development of SIDS[20].

In March 2019, several resolutions were agreed at the fourth meeting of the UN Environment Assembly (UNEA) further committing governments to act to improve the management of chemicals and wastes, in line with the SAMOA pathway. These include the resolutions related to marine plastics and marine litter; sustainable consumption and production, including green procurement; addressing single use plastic pollution; the environmentally sound management of chemicals and wastes; and, sound management of chemicals and wastes[21].

Since the PFD was submitted in April 2019, a midterm review of the SAMOA Pathway has been completed. On 27 September 2019, a high-level meeting convened at UN Headquarters in New York and reviewed midterm progress in addressing the SIDS' priorities through the implementation of the SAMOA Pathway[22]. The political declaration from the meeting calls upon relevant institutions, funds and facilities to review their financing instruments to maximize accessibility, effectiveness, transparency, quality and impact. It also underscored the need to foster enabling environments to attract foreign direct investment and strengthen capacity of SIDS to effectively participate in the multilateral trading system[23].

A midterm review of progress the SIDS Partnership Framework was also undertaken[24] addressing the impact of partnerships on beneficiaries and sustainable development of SIDS, as well as challenges and lessons learned. The report concluded further attention is needed to address: the multi dimensions of poverty; inclusion of marginalized groups; issues of market development; issues related to health and noncommunicable diseases; gender considerations, particularly in regard to income inequality; and, addressing sustainable consumption and production holistically in the context of small island environments.

[19] http://www.sids2014.org/content/documents/336SAMOA%20Pathway.pdf
[20] https://sustainabledevelopment.un.org/sids/partnershipframework
[21] UNEA resolutions: UNEP/EA.4/L..8,9,10), http://enb.iisd.org/vol16/enb16153e.html
[22] Earth Negotiations Bulletin, meeting coverage: https://enb.iisd.org/vol08/enb0858e.html
[23] Ibid
[24] https://sustainabledevelopment.un.org/content/documents/24591SIDS_Partnerships_May_2019_web.pdf

b. **Pacific regional baseline scenario:**

Regional efforts to improve chemicals and wastes management in the Pacific are guided by the *Cleaner Pacific 2025: Pacific Regional Pollution and Waste Management Strategy (CP2025)*. In addition to the CP2025, the Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (the Waigani Convention), is key to both controlling movement and managing hazardous wastes in the region.

The following paragraphs assess the status of implementation of the CP2025 and the Waigani Convention.

i. CP2025:

The CP2025 centers on four strategic goals: prevention of generation of wastes and pollution; recovery of resources from wastes and pollutants; improved management of residuals; and improved monitoring of the receiving environment.

As 2020 represents the midterm of the Cleaner Pacific 2025, a midterm review was undertaken as part of the project preparatory phase for this submission. The review was designed to inform the Secretariat of the Pacific Regional Environment Programme (SPREP), in prioritizing activities to improve waste management / pollution control and to provide an accurate, up to date baseline for the project. The review included:

- Desktop review of: regional strategies and plans; national legislation, policies, strategies, plans and websites; technical, project, meeting and workshop reports; and, international frameworks relevant to waste management and pollution control.
- Assessment of CP2025 implementation progress at regional and national levels and, assessment of progress towards the Sustainable Development Goals (SDGs) (further details below).
- Distribution of the regional assessments to SPREP, UNEP and Japan International Cooperation Agency (JICA) and, distribution of the national assessments to Pacific island countries and territories for review, validation and/or input of additional information.
- Skype meetings with government officials from Pacific island countries and territories to support data collection and validation.
- Identification of implementation successes, challenges, gaps and opportunities and, strategic recommendations to enhance the delivery and regional relevance of CP2025 and, to inform a revised Implementation Plan for 2021–2025.

All consultation was conducted remotely due to the mid-term review being completed during the COVID-19 pandemic.

According to the review, the Cleaner Pacific 2025 performance indicator assessment showed some progress was made towards achieving all four strategic goals in CP2025, however, considerable work remains to be done given only 6 of 20 performance indicators exceeded or met their 2020 targets.

The review concluded that Pacific countries that lack a national solid waste management strategy or plan aligned with CP2025, typically made limited progress with CP2025 implementation. While these countries may have pursued some relevant activities, these were not necessarily linked to the strategic actions/activities of CP2025, and hence, they were difficult to identify and evaluate. The review also identified another implementation barrier as the absence of a national steering/coordinating committee for waste control and pollution management, to provide effective oversight, planning and monitoring of activities.

As well as lack of strategic oversight in the form of national strategies and committees, another key barrier identified was limited national resources to fund waste and hazardous waste management activities. Resourcing shortfalls for some countries were partly addressed through the technical support provided by SPREP and JICA/J-PRISM, and through financial support from donors such as the European Union, Australia, New Zealand, Japan and France. Without support from key regional partners SPREP and JICA/J-PRISM, countries typically lagged in implementation.

According to the review, effective monitoring and reporting was poor from 2016-2019. The review notes that regionally, SPREP staff were juggling country assistance requests and project-related activities (including project-specific monitoring and reporting), and CP2025 monitoring and reporting was not prioritized. Without regional guidance from SPREP, there was no routine CP2025 monitoring and reporting at a national level of progress, or aggregation of this information regionally. In the absence of a formal monitoring and reporting mechanism for CP2025, neither SPREP nor the countries and territories were really held accountable for implementation from 2016-2019. The lack of a monitoring and oversight resulted in significant data gaps at the time of the CP2025 mid-term review.

ii. Waigani Convention:

The Waigani Convention is modelled on the Basel Convention and constitutes the Pacific regional implementation of the international hazardous waste control regime. The key difference between the provisions of the Waigani Convention and the Basel Convention is that:

- Waigani also covers radioactive wastes.
- Its territorial coverage includes each Party's Exclusive Economic Zone (200 nautical miles) (rather than extending only to outer boundary of each Party's territorial sea (12 nautical miles) as under Basel).

The objective of the Convention is to reduce and eliminate transboundary movements of hazardous and radioactive waste, to minimize the production of hazardous and toxic wastes in the Pacific region and to ensure that disposal of wastes in the Convention area is completed in an environmentally sound manner.

Article 4 (4) (e) of the Waigani convention, requires all parties to have in place national hazardous waste management strategies that are aligned to a SPREP regional strategy (CP2025). Currently no Pacific countries has a specific national hazardous waste management strategy in place, but several countries cover hazardous waste management in their National Solid Waste Management Strategy.

iii. Status of ratification of relevant conventions

The following table presents the status of ratifications of Pacific countries to chemicals and waste conventions:

Table 1: Status of Pacific ratification

Target Country	Basel	Waigani	Rotterdam[25]	Stockholm	Minamata[26]
Cook Islands	2004	2000	2004	2004	
Fiji		1996		2001	-
FSM		1996			-
Kiribati	2000	2001	2003	2004	2017
Marshall Islands				2003	2019
Nauru		1995		2002	
Niue		2003			
Palau	2011	1995		2011	2017
PNG	1995	1995		2003	
Samoa	2002	2001	2002	2002	2015
Solomon Islands		1998		2004	
Tonga	2010	2003		2009	
Tuvalu	2020	2001	2020	2004	2019
Vanuatu	2018		2018	2005	2018

iv. Summary of Pacific baseline

The extensive review and baselining of national situations and regional activities undertaken during the project preparatory phase highlights the need for further strategic and coordinated work on several aspects of chemical and waste management in the Pacific. The key findings of the baseline review included that:

- **Regional coordinated approach required for chemicals and waste management:** Although the Pacific region has an agreed regional guidance document in the form of the Cleaner Pacific 2025 to guide activities on chemicals and waste management it is not being used to its full potential. That is in the first five years of implementation, the Cleaner Pacific 2025, was not used strategically, as a tool to inform, guide and measure activities undertaken by SPREP and in the region. The result is incremental progress, and lost opportunities for ongoing monitoring and communication on progress.
- **Regional assistance required for legacy issues:** Regional and national consultations indicated that Pacific countries are dealing with numerous legacy issues that cannot be dealt with by governments alone. These include: obsolete pesticides (DDT) and PCB contaminated transformer oil in PNG; end of life vehicles; and stockpiles of used oil. External assistance is needed to address these legacy issues, and to put in place sustainable financing mechanisms to prevent future legacy stockpiles of used oil and vehicles.
- **Regional assistance required to open up access to recycling markets:** Current import and disposal practices are unsustainable and posing a threat to the global environment, through inadequate disposal facilities (dumpsites close to the sea) and open burning, causing the generation of uPOPs. Pacific countries require assistance to address waste streams such as recyclable plastics, bulky

[25] http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx
[26] https://sdg.iisd.org/news/minamata-convention-reaches-105-ratifications/

wastes, and e-waste, and develop systems to introduce circularity and prevent build-up of hazardous substances.

- **Regional assistance required to improve healthcarewaste management:** A recent EU funded project funded heathcare waste incinerators across the region. Current EU funded regional project is assessing these incinerators and has reported many are not functioning, as well as chellenges with servicing. A regional, multi-donor approach is therefore proposed to provide long-term, systematic support to PICs go manage healthcare waste, and prevent additional dioxin and furan release, particularly in the context of a global pandemic.
- **Pacific countries lack hazardous waste management strategies:** Although most Pacific countries have in place national solid waste management strategies, no Pacific country has in place a hazardous waste management strategy, despite this being a requirement of the Waigani Convention.
- **All Pacific countries require legislative support:** A thorough review of the state of chemicals and waste legislation in each Pacific country was undertaken through co-financing activities being undertaken by PWP. The review showed that each Pacific country has varying degrees of legislation required to manage chemicals and waste. The review provides clear guidance on the legislative improvements and upgrades recommended for each country to bring countries up to a level of regional equivalence. Whilst it is that clear one individual project cannot assist with the full suite of improvements required in each country, this report provides an important benchmarking tool, and clearly elaborates the supporting legislation required to facilitate specific activities.

v. **National baseline detail of Pacific countries**:

As discussed in the previous section, Pacific countries share a common development trajectory as other SIDS, as import dependent economies. Each of the fourteen countries sits at differing spots on that trajectory, and face differing challenges and national priorities.

During the project preparatory phase, a comprehensive national review was undertaken to assess each Pacific country's: progress on chemicals and waste management, and key priorities. The national tables aim to provide a snapshot of basic country data, waste statistics, progress towards achieving the Cleaner Pacific 2025 goals, legislative environment, and other relevant activities currently being undertaken in each project country.

Table 2a: Cook Islands

Cook Islands	
Country Data (2018) Population: 17,000 Geography: 15 scattered islands (atolls and volcanic islands) GDP: $0.3B USD	**Waste Statistics (2010 estimations**) Waste generation: 25,121 kg/day Waste generation rate: 1.2 kg/person/day Plastic waste generation: 3,002 kg/day Mismanaged plastic waste: 1,139 kg/day
Waste management overview: Capacity for waste management in Cook Islands is advanced compared to other Pacific nations[27]. Whilst solid waste infrastructure and service delivery is somewhat developed, the large volumes	

[27] https://www.adb.org/sites/default/files/publication/42674/solid-waste-management-cook-islands.pdf

of waste per capita, in part due to the tourism sector poses challenges[28]. For example, the existing landfill site on Rarotonga is predicted to reach capacity by 2020 (when commissioned it was intended to service the island until 2040). Continued landfilling in the Cook Islands is not feasible due to limited availability of suitable land. Recycling services, including for plastics, are in place in Rarotonga with recyclable materials exported to New Zealand[29]. Cook Islands' Solid Waste Management Policy 2016-2026 outlines an overarching vision of transitioning to a zero-waste economy, achieved largely through minimising waste generation[30].

Mid-term review of progress again CP2025 targets

- Cook Islands' overall CP2025 progress is rated as 'fair':
- National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): Solid Waste Management Policy 2016-2026 remains current; Sanitation (Wastewater Management) Policy 2016 endorsed by Cabinet; NATPLAN (National Marine Spill Contingency Plan) updated; and a new Single-use Plastic Ban Policy 2018-2023 prepared and endorsed.
- Twenty CP2025 performance indicators: with reference to 2014 baseline information, 2 indicators have improved (asbestos removed, water quality monitoring operational), 7 indicators remain unchanged/stable, progress for 8 is undetermined due to data being available for 1 year only, and 4 indicators have no data for assessing progress.
- Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 3 (development of WCP policies, strategies, plans; water quality monitoring; Cleaner Pacific Roundtable participation); limited progress achieved for 5; and no progress for 6 strategic actions.

Based on the progress assessment results, five activity areas that require further work are:

- Development of public-private partnerships, especially for container deposit, Extended Producer Responsibility (EPR) and recycling programmes.
- Implementation of WCP prevention and reduction programmes.
- Management of hazardous waste, including development of inventories.
- Expansion of monitoring and reporting, especially for WCP management activities.
- Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

National priorities articulated

National Solid Waste Management strategy[31] Date: 2013-2016	Priorities:	Minimize the volume of solid waste to landfill by using the "Waste Hierarchy" (Refuse, Reduce, Reuse, Recycle); develop clear and robust institutional and legislative framework; develop appropriate infrastructure including separation and storage facilities; make solid waste management self-sustaining and capitalise on potential economic opportunities; create a culture of responsible solid waste management where waste management is everyone's responsibility; and develop a strong monitoring and evaluation system.
NIP Update: Date: April 2020	Priorities:	Appropriate legal and institutional frameworks to manage POPs. Improve data collection and management of POPs. Develop national human capacity for POPs management.

[28] http://www.cookislandsnews.com/item/74064-waste-crisis-as-landfill-hits-capacity/74064-waste-crisis-as-landfill-hits-capacity
[29] https://www.adb.org/sites/default/files/publication/42674/solid-waste-management-cook-islands.pdf
[30] http://ici.gov.ck/sites/default/files/downloads/Cook%20Islands%20Solid%20Waste%20Management%20Policy%202016-2026%20FINAL%20160621.pdf
[31] https://cookislands-data.sprep.org/dataset/solid-waste-management-cook-islands/resource/a5496d3a-068f-4109-8144-9a75ebb3a9ee

		Raise stakeholder awareness levels for POPs management.
Minamata Initial Assessment: Date: In progress	Priorities:	No specific priorities available – project in progress (GEF ID 9187).

Legislative snapshot[32]

Legislation assessment summary: The Cook Islands is in the midst of a significant reform of its laws governing waste with the development of a new Solid and Hazardous Wastes (SHW) Bill 2020. This new legislation is expected to include an Advance Disposal Fee to support extended producer/importer responsibility for items that otherwise give rise to wastes, and also to implement the Cook Islands' policy commitments to ban single-use plastics and phase-out their domestic use. (In January 2018, the Government of Cook Islands proposed a ban on the importation of polystyrene food containers. The Single use Polystyrene Ban Policy 2017-2018 was endorsed by Cabinet, but is yet to be legislated).

Recommended legislative actions:

- Legislative arrangements applying specifically to the segregation and storage of hazardous wastes, such as e-wastes.
- Training in investigative techniques, evidence-gathering, alternative dispute resolution methods and methods for ensuring compliance to support effective enforcement of legislative requirements.
- Legislative arrangements for review, audit and reporting against waste management targets as the new legislation is implemented, including reporting on compliance and enforcement outcomes.
- Legislative support and administrative arrangements to strengthen community consultation protocols, e.g. workshops and awareness-building activities to promote behavioural change and to allow community-based dispute resolution in waste management. These initiatives have particular relevance for rural areas and outer islands.

Ongoing chemicals and wastes activities

PWP:	**Other**
Establishing Sustainable Financing - Advanced Disposal Fee	-

[32] Regional legislative review by University of Melbourne, funded by PWP (currently not publicly available)

Table 2b: Fiji

<table>
<tr><th colspan="3">Fiji</th></tr>
<tr><td colspan="2">Country Data:
Population: 890,000
Geography: Two main volcanic islands and 322 smaller islands
GDP: $5.3B USD</td><td>Waste Statistics (2010 estimations)
Waste generation: 1,881,905 kg/day
Waste generation rate: 2.1 kg/person/day
Plastic waste generation: 168,430 kg/day
Mismanaged plastic waste: 134,951 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: Fiji, as an upper-middle-income economy, has comparatively higher waste management capacity relative to other Pacific island nations. Solid waste management is aided by a strong tourism economy and a functioning user-pays system[33]. Fiji's population is concentrated on two main islands where there is adequate land and logistical infrastructure for solid waste management. A large population and higher consumerism are drivers for increased waste generation. Some plastics are recycled in Fiji, though there is no information on how effective recycling schemes are[34].</td></tr>
<tr><td colspan="3">Mid-term review of progress again CP2025 targets</td></tr>
<tr><td colspan="3">• Based on available data/information, Fiji's overall CP2025 progress is rated as 'fair':
• National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): new law passed banning the manufacture, sale, supply and distribution of thin plastic bags; Solid Waste Management Master Plan 2018–2027 published by Suva City Council.
• Twenty CP2025 performance indicators: with reference to 2014 baseline information, 1 indicator has improved (asbestos removed); 5 indicators remain unchanged/stable, progress is undetermined for 10 indicators due to data being available for 1 year only, and 4 indicators have no data for assessing progress (Table 2). Note, 3 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
• Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 2 (resource recovery, Clean Pacific Roundtable participation), limited progress achieved for 6, and no progress for 6 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
• Finalisation of a national WCP strategy and action plan that is aligned with CP2025, and includes a monitoring and reporting framework.
• Development of public-private partnerships, especially for container deposit and EPR programmes.
• Implementation of WCP prevention and reduction programmes.
• Management of hazardous waste, including development of inventories.
• Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.</td></tr>
<tr><td colspan="3">National priorities articulated</td></tr>
<tr><td>National Solid Waste Management strategy
Date: 2018-2028</td><td>Priorities:</td><td>Not available.</td></tr>
<tr><td>NIP Update:
Date: March 2020</td><td>Priorities:</td><td>Includes uPOPs management, reduction, and community education and awareness.</td></tr>
<tr><td>Minamata Initial Assessment:
Date: N/A</td><td>Priorities:</td><td>Fiji is not a Party to the Convention.</td></tr>
<tr><td colspan="3">Legislative snapshot</td></tr>
</table>

[33] https://www.adb.org/sites/default/files/publication/42672/solid-waste-management-fiji.pdf
[34] https://www.sprep.org/att/IRC/eCOPIES/countries/fiji/2.pdf

Fiji does not have dedicated waste management legislation. Rather, at present, the Environment Management Act 2005 (and supporting regulations) is one of the main legislative instruments for waste management in Fiji. Other pieces of relevant legislation include public health legislation and local government by-laws. In this sense, the principal legislative model adopted for waste management in Fiji is the environmental/developmental control model, although there is also provision for the adoption of regulations governing specific waste streams (e.g. Environment Management (Waste Disposal and Recycling) Regulations).

Recommended improvements[35]:

- Expertise to assist in drafting of consolidated waste management legislation, drawing on models across the region and best practice legislative approaches.
- Training or other resources to support improved inter-agency coordination on waste management, particularly between the Department of Environment (DoE) and the Ministry of Health, including potential integration of DoE staff and health inspector functions.
- Support for the implementation and enforcement of waste minimisation measures, such as the recently enacted prohibition on plastic bags, and expansion to other single-use plastic items, together with economic instruments such as advance disposal fees/levies to support waste management and disposal (the previous legislated levy on plastic bags might provide a model in this regard).
- Adoption of updated measures under the public health legislation providing for specific regulation of healthcare wastes, including segregation of wastes, safe handling, storage and disposal.

Ongoing chemicals and wastes activities

PWP	**Other activities**
Yet to be determined	Agreement in progress with World Bank for incinerator replacement for healthcare waste in Suva. IUCN – Plastics Free Islands Project.

[35] University of Melbourne assessment, funded under PacwastePlus, not publicly available.

Table 2c: Federated States of Micronesia

Federated States of Micronesia (FSM)	
Country Data (2018) Population: 102,000 Geography: 607 islands (some large islands and many atolls) GDP: $0.4B USD	**Waste Statistics (2010 estimations)** Waste generation: 122,367 kg/day Waste generation rate: 0.79 kg/person/day Plastic waste generation: 15,847 kg/day Mismanaged plastic waste: 13,135 kg/day

Waste management overview: Solid waste management in the Federated States of Micronesia (FSM) is facilitated by development funding from the United States through the Compact of Free Association. FSM also has less land restrictions than their Pacific counterparts[36]. There are however significant disparities between major urban centres and other areas[37]. Various recycling initiatives in place in FSM. Container deposit schemes are in place in most major urban centres, with recyclables exported to Asia[38]. Outside of the container deposit schemes, some areas also run wider recycling initiatives that cover plastics[39].

Mid-term review of progress again CP2025 targets

- FSM's overall CP2025 progress is rated as 'good':
- *National legislation, policies, strategies and plans for waste, chemicals and pollution (WCP)*: Solid Waste Management Strategies aligned with CP2025 have been developed and endorsed for Chuuk, Kosrae, Pohnpei and Yap, to support the National Solid waste Management Strategy; and new laws banning single-use plastics have been enacted at a national level and also for Chuuk and Kosrae (**Tables 1a, 1b**).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 5 indicators have improved (increased number of state container deposit programmes, increased national waste collection coverage, asbestos removed, used oil stockpile decreased, water quality monitoring operational); 6 indicators remain unchanged/stable; progress for 7 is undetermined due to data being available for 1 year only; and 2 have no data for assessing progress. Note, 2 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (WCP data collection and management; development of WCP policies, strategies, plans; water quality monitoring; human capacity development; Cleaner Pacific Roundtable participation); limited progress achieved for 5; and no progress for 4 strategic actions.

Based on the progress assessment results, five activity areas that require further work are:

- Development of public-private partnerships, especially for EPR and recycling programmes.
- Implementation of WCP prevention and reduction programmes.
- Management of hazardous waste, including development of inventories.
- Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.
- Implementation of WCP education and behavioural-change programmes.

National priorities articulated		
National Solid Waste Management strategy Chuuk: 2019-2028 Kosrae: 2018-2027 Kosrae: 2018-2027 Yap:	Priorities:	Chuuk: CDL, proper management of landfill sites, enhancement of human capacities. (Waste oil is not addressed) Kosrae: Improvement of the waste collection system, enhanced CDL, landfill waste management, management of used oil. Pohnpei:

[36] https://www.theprif.org/documents/federated-states-micronesia-fsm/waste-management/federated-states-micronesia-fsm-profile
[37] https://www.adb.org/sites/default/files/publication/42668/solid-waste-management-fsm.pdf
[38] https://www.adb.org/sites/default/files/publication/42668/solid-waste-management-fsm.pdf
[39] https://www.theprif.org/documents/federated-states-micronesia-fsm/waste-management/federated-states-micronesia-fsm-profile

		Yap: improved CDL, waste oil management, and waste collection
NIP Update: Date: in progress	Priorities:	Not yet available. Impacted by travel restrictions due to COVID-19. (GEF ID 9634)
Minamata Initial Assessment: Date: in progress	Priorities:	FSM is not yet a Party to the Minamata Convention, but is completing an MIA (GEF ID 9932).

Legislative snapshot

Legislation assessment summary: In FSM waste management, including solid waste collection and disposal, is the responsibility of each of the four states, with the national government overseeing waste matters relevant to international conventions. The development and implementation of legislation on waste management in each of the states is guided by state solid waste management strategies, which are combined in a national mandate. Greatest needs arising in respect of support for drafting, implementation, compliance and enforcement of laws.

Recommended legislative actions to improve legislative effectiveness:

- Expertise to support negotiations of a formal agreement (or 'memorandum of understanding'), between national and all state governments, for cooperation on environmental matters that addresses waste management and waste laws in particular, e.g. inter-island transport of waste for recovery or export, issues of coordination of state-based waste-related laws with national implications such as container deposit schemes and prohibitions on plastics.
- Training and equipment for EPA staff and/or government staff responsible for sanitation on monitoring, compliance and demonstrating non-compliance with laws for environmental protection that relate to solid waste and wastewater management.
- Support for the implementation of existing CDL schemes, including proper handling and processing by operators of waste returned for refund of deposit, and review and possible reforms to financial administration to ensure proper and efficient recovery of costs on collection, processing, storing and, where relevant, exporting waste from levied products.

Ongoing chemicals and wastes activities

PWP:	**Other**
Construction of Recyclable processing facility in Chuuk	Special Programme (2019-2022): develop a national chemicals profile and a National Chemicals Management Policy and Action Plan; strengthen national and state legislative frameworks to provide comprehensive coverage of all chemicals and hazardous waste management matters; establish a centralised national database to hold chemicals and waste data leading to improve reporting to the Conventions; and strengthen national capacity to effectively implement and enforce the Conventions, and to undertake environmentally sound management of chemicals.

Table 2d: Kiribati

<table>
<tr><th colspan="3">Kiribati</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 115,000
Geography: 32 atolls and one island
GDP: $0.2B USD</td><td>Waste Statistics (2010 estimations)
Waste generation: 74,645 kg/day
Waste generation rate: 0.37 kg/person/day
Plastic waste generation: 9,666 kg/day
Mismanaged plastic waste: 8,341 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: The existing legislation of Kiribati for waste governance was assessed as performing at a medium to high level. The Government of Kiribati made a commitment to ban the importation of plastic products[40]. This commitment has been effective though the Customs Act 2019 and the banning of certain plastic products was effective on 1st October 2020. The Government of Kiribati has formed a plastics ban committee[41]. The initial focus of this committee is to investigate banning single-use plastic shopping bags, disposable plastic nappies and ice-block bags with this to expand to other waste items at a later stage</td></tr>
<tr><th colspan="3">Mid-term review of progress again CP2025 targets</th></tr>
<tr><td colspan="3">Based on available data/information, Kiribati's overall CP2025 progress is rated as 'limited':
National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): National Implementation Plan submitted to the Stockholm Convention Secretariat.
Twenty CP2025 performance indicators: with reference to 2014 baseline information, 1 indicator has improved (asbestos removed); 6 indicators remain unchanged/stable, progress is undetermined for 12 indicators.
Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 1, limited progress achieved for 5, and no progress for 8 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
Finalisation of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework.
Implementation of WCP prevention and reduction programmes.
Management of hazardous waste, including development of inventories.
Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.
Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.</td></tr>
<tr><th colspan="3">National priorities articulated</th></tr>
<tr><td>Kiribati Waste Management and Resource Recovery Strategy 2020-2030 (endorse by Cabinet on 20/10/2020)</td><td>Priorities:</td><td>Plastic waste; bulky waste healthcare waste; asbestos; used oil; e-waste; recyclable waste; disaster waste; organic waste; wastewater; laboratory chemical waste; used tyres.</td></tr>
<tr><td>NIP Update:
Date: May 2019</td><td>Priorities:</td><td>Include: waste management and hazardous substances management; as well as composting, used oil, renewable energy, recycling including e-waste, laboratory chemicals, hazardous waste, incineration.</td></tr>
<tr><td>MIA:
Date: Under preparation.</td><td>Priorities:</td><td>Working under the regional project (GEF ID 9187), priorities not yet available.</td></tr>
<tr><th colspan="3">Legislative snapshot</th></tr>
</table>

[40] http://web.unep.org/environmentassembly/kiribati

[41] https://www.mfat.govt.nz/assets/Aid-Prog-docs/Evaluations/2019/MidTerm-Evaluation-of-the-Kiribati-Waste-Mngmnt/Mid-Term-Evaluation-of-the-Kirbiti-Waste-Mngmnt.pdf

Kiribati has adopted a range of laws to regulate waste management in the country. The Environment Act (amended in 2007) and supporting regulations are key pieces of legislation in this regard. This legislation principally adopts an environmental/development control model for waste management.

Recommended improvements: Key actions recommended for Kiribati to increase its national legislative and institutional capacity to manage wastes and improve related socio-environmental outcomes include the following (which may also form part of present efforts to review the Environment Act):

- Expertise to assist in the drafting of consolidated waste management legislation, drawing on models across the region and best practice legislative approaches.
- Review of the roles and responsibilities for administration of waste-related laws to reduce overlaps, including consideration of the need for a lead agency/dedicated waste management authority role.
- Review of enforcement options to broaden the range of available measures, together with an evaluation of penalty levels under relevant laws to determine their appropriateness and to better incentivise compliance. These initiatives might be implemented in conjunction with reforms to augment enforcement capacity e.g. through delegations to police or local councils, and appointment of an environmental prosecutions officer within Environment and Conservation Department (ECD).
- Introduction at the customs point of restrictions on products that give rise to e-wastes (perhaps modelled on the recent plastic shopping bags ban but with involvement of ECD to contribute necessary technical expertise), together with levies, such as an advance disposal fee, in order to promote opportunities and provide funds for recycling and recovery operations.

Ongoing chemicals and wastes activities

Special Programme (2018-2022)	**PWP**	**Other activities:**
The project is focused on: strengthening the legal and non-regulatory framework and enforcement; practical training and participation; and establishing updated centralized information sharing on chemicals and waste (chemical import, use, waste generation, and export)	Asbestos removal at Banaba Island	New Zealand is funding a solid waste management project 92017-2020) in Kiribati [42]. The Phase II project builds on the initial infrastructure investment in phase I and focuses on increasing financial sustainability and strengthening the enabling environment. The project is also addressing the issue of end-of-life vehicles.

[42] https://www.mfat.govt.nz/assets/Aid-Prog-docs/Evaluations/2019/MidTerm-Evaluation-of-the-Kiribati-Waste-Mngmnt/Mid-Term-Evaluation-of-the-Kirbiti-Waste-Mngmnt.pdf

Table 2e: Marshall Islands

<table>
<tr><th colspan="3">Marshall Islands</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 56,000
Geography: 24 atolls and 1,156 small islands (mostly uninhabited)
GDP: $0.2B USD</td><td>Waste Statistics (2010 estimations)
Waste generation: 69,703 kg/day
Waste generation rate: 1.2 kg/person/day
Plastic waste generation: 11,118 kg/day
Mismanaged plastic waste: 8,732 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: The Republic of the Marshall Islands (RMI) has struggled to effectively manage solid waste despite considerable external support from the United States through the Compact of Free Association and other development partners[43]. This is largely due to the islands being low-lying atolls with limited available land. The existing landfill is full but continues to be used, with stored waste often entering the marine environment[44]. Whilst various technologically feasible solutions have been identified, these proposals are not financially feasible for solid waste management authorities[45]. Majuro, the capital of the Marshall Islands, is reported to have the highest per capita waste generation in the Pacific[46]. Recycling for plastics does not currently exist[47].</td></tr>
<tr><td colspan="3">Mid-term review of progress again CP2025 targets</td></tr>
<tr><td colspan="3">• Based on available data/information, RMI's overall CP2025 progress is rated as 'fair':
• National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): Solid Waste Management Plan aligned with CP2025 endorsed for Kwajalein Atoll, and a new law enacted establishing a container deposit system and banning single-use plastics (Styrofoam cups and plates, disposable plastic cups and plates, and plastic shopping bags).
• Twenty CP2025 performance indicators: with reference to 2014 baseline information, 4 indicators have improved (container deposit programme and user-pays waste collection system operational, urban waste collection coverage increased, asbestos removed); 2 have deteriorated (per capita generation of municipal solid waste (MSW) increased, and the used oil stockpile increased); 3 remain unchanged/stable; progress is undetermined for 7 indicators due to data being available for 1 year only; and 4 indicators have no data for assessing progress. Note, one of the unchanged/stable indicators actually reflects positive progress, given its good 2014 baseline.
• Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 5 (WCP data collection and management, resource recovery, environmental monitoring and reporting, human capacity development, Clean Pacific Roundtable participation); limited progress achieved for 6; and no progress for 3 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
• Finalisation of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework.
• Development of public-private partnerships, especially for EPR programmes.
• Implementation of WCP prevention and reduction programmes.
• Management of hazardous waste, including development of inventories; and
• Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.</td></tr>
<tr><td colspan="3">National priorities articulated</td></tr>
<tr><td>Kwajalein Atoll Solid Waste Management Plan [48]</td><td>Priorities:</td><td>Waste reduction and recycling through a container deposit legislation program;</td></tr>
</table>

[43] https://www.adb.org/sites/default/files/publication/42669/solid-waste-management-marshall-islands.pdf
[44] https://www.adb.org/sites/default/files/publication/42669/solid-waste-management-marshall-islands.pdf
[45] https://www.theprif.org/file/6732/download?token=RakVzuQZ
[46] https://www.theprif.org/file/6732/download?token=RakVzuQZ
[47] http://www.uncrd.or.jp/content/documents/6277Country%20Report_Marshall%20Islands.pdf
[48] https://www.sprep.org/attachments/VirLib/Palau/ebeye-solid-waste-management-strategy.pdf

Date: 2019-2028		improvement of current landfill/disposal site; maintenance of collection service; and financial sustainability within a sound institutional setting.
NIP Update: Date: not yet complete	Priorities:	NIP progress impacted by COVID-19 travel restrictions (GEF ID 5525).
MIA: Date: in progress.	Priorities:	Not a Party to the Minamata Convention, completing an MIA (GEF ID 9992). Progress has been impacted by COVID-19 travel restrictions.

Legislative snapshot

The Marshall Islands National Environment Protection Act 1984 establishes the National Environmental Protection Authority (EPA) and allows the Authority to make regulations regarding: '(c) pollutants; (d) pesticides; and (e) discharge of hazardous waste'. The scope of the National Environment Protection Act in relation to waste management is extended by a series of regulations dealing with solid wastes (including bulky wastes), sanitation and sewerage relevant to wastewater and organics, pesticides and POPs, as well as regulations covering environmental impact assessment (EIA) and sustainable development. The central legislation governing waste management in RMI is an environmental protection and regulatory control model

Recommended improvements:

- Expansion of the waste minimisation model in the legislation by adopting a wider range of prohibitions at the customs point, extending beyond plastic waste. These measures might be adopted in combination with enhanced extended producer responsibility models at the customs point, and in regulations under the Environment Protection Act to provide stronger incentives for the return of items such as e-waste and bulky wastes.
- Strengthening institutional models, administration and operation of waste management, for example in outer islands, with increased funding of waste collection at the local level. These measures might be supported by regulations for mandatory community consultation and participation.
- Increasing staff capacity and training in key implementation areas, such as inspection, monitoring and enforcement, as well as in conducting community awareness programs.
- Expansion of strategic planning, review and reporting requirements for the waste management sector, including planning for land fill rehabilitation and/or relocation.

Ongoing chemicals and wastes activities

PWP	**Other activities**
Improved management of organic waste fraction.	-

Table 2f: Nauru

<table>
<tr><th colspan="3">Nauru</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 13,000
Geography: Small phosphate rock island
GDP: $0.1B USD
HDI: No data (does not report)</td><td>Waste Statistics (2010 estimations)
Waste generation: 18,347 kg/day
Waste generation rate: 1.2 kg/person/day
Plastic waste generation: 2,192 kg/day
Mismanaged plastic waste: 1,517 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: Solid waste management in Nauru is challenging due to limited land and budget and limited institutional arrangements. Based on a report by the Asian Development Bank (ADB), Nauru did not have a functional strategic management plan for its solid waste in 2014, but it is unclear what developments have been made since then.</td></tr>
<tr><td colspan="3">Mid-term review of progress again CP2025 targets</td></tr>
<tr><td colspan="3">Based on available data/information, Nauru's overall CP2025 progress is rated as 'limited':
National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): National Solid Waste Management Strategy 2017-2026 finalised.
Twenty CP2025 performance indicators: with reference to 2014 baseline information, 3 indicators have improved (composting and user-pays waste collection operational; asbestos removed); 7 remain unchanged/stable; 1 has deteriorated; progress is undetermined for 3 indicators due to data being available for 1 year only; and 6 indicators have no data for assessing progress.
Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 1 (Cleaner Pacific Roundtable participation), limited progress achieved for 4, and no progress for 9 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
Development of practical and enforceable WCP legislation.
Development of public-private partnerships, especially for container deposit, EPR and recycling programmes.
Implementation of WCP prevention and reduction programmes.
Management of hazardous waste, including development of inventories.
Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.</td></tr>
<tr><td colspan="3">National priorities articulated</td></tr>
<tr><td>National Solid Waste Management Strategy
Date: 2017-2026</td><td>Priorities:</td><td>Legislation (practical and enforceable regulations for waste management enacted); awareness raising (including integrating waste management into the school curriculum); capacity building (training staff); waste disposal (improved management of dumpsite to reduce pollution, pests and fires); waste reduction, reuse, and recycling; and sustainable financing, through polluter pays).</td></tr>
<tr><td>NIP Update:
Date: November 2018</td><td>Priorities:</td><td>Improved landfill waste management</td></tr>
<tr><td>MIA: NA</td><td>Priorities:</td><td>Not a Party to the Minamata Convention, no MIA.</td></tr>
<tr><td colspan="3">Legislative snapshot</td></tr>
<tr><td colspan="3">Currently, there is no legislation covering environmental management in Nauru[49]. The Litter Prohibition Act 1983 is in place but it is unclear to what extent it is being enforced[50]. However, a draft Environment Management Bill 2020 (possibly to be changed to the Environment Management and Climate Change Bill) is expected to be finalised</td></tr>
</table>

[49] https://www.sprep.org/attachments/Legal/REVIEWS_ENV._LAW/NauruEnvironmentReviewofLaws_000_1.pdf
[50] https://www.sprep.org/attachments/Legal/REVIEWS_ENV._LAW/NauruEnvironmentReviewofLaws_000_1.pdf

and submitted to Parliament in 2020. New bills on public health, quarantine restrictions and a proposed container deposit scheme are also planned. Until the draft laws are in place, a number of older existing laws govern waste in specific circumstances.

Recommended improvements: Assuming enactment of the Environment Management Bill 2020, key further actions recommended for Nauru to increase its national legislative and institutional capacity to manage wastes and improve related socio-environmental outcomes are:

- Technical and legal drafting support for the development of regulations dedicated to waste management, including solid and liquid wastes that are hazardous and non-hazardous. This should address the suite of regulatory approaches contemplated under dedicated waste management legislation in other Pacific region countries but be tailored to the specific circumstances of waste management practices in Nauru, where operational functions are primarily conducted by public enterprises and the community. Emphasis should be placed on developing incentives for compliance by public enterprises and for building behavioural change toward waste management.
- Technical and legal drafting support for regulations dedicated to waste management under specific laws such as the Public Enterprises Act, National Disaster Risk Management Act, Derelict Sites Management Act and laws relevant to public health.
- Revenue generating schemes, such as a public fund for waste management, developed through a 'waste' fee charged to non-residents arriving in Nauru, or on any arrangements with international or foreign providers of services and products in Nauru.

Ongoing chemicals and wastes activities

PWP	**Other activities**
Repackaging and disposal of asbestos waste	Special Programme (2019 – 2020) activities in Nauru budgeted to include: holistic profile of waste through a comprehensive situational analysis; Integrated Chemicals and Waste Management Policy and costed implementation plan; review and update the national legislative framework for chemicals and waste management to reduce overlap, close legislative loopholes, and strengthen national; centralised data management system to enable updated data on chemicals and waste to be collected, stored, reported, and used for better decision- and policy-making; and strengthening the human technical capacity of relevant institutions through the provision of training to stakeholders involved in the implementation of the Conventions.

Table 2g: Niue

<table>
<tr><th colspan="3">Niue</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 1,600
Geography: Single small raised coral atoll
GDP: $0.02B USD</td><td>Waste Statistics (2010 estimations)
Waste generation: 3,778 kg/day
Waste generation rate: 2.1 kg/person/day
Plastic waste generation: 451 kg/day
Mismanaged plastic waste: 10 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: Niue benefits from a small population and a strong tourism industry. Sustainable financing remains the key concern, with waste management largely reliant on economic support from New Zealand and, to a lesser degree, Australia[51]. There is currently no recycling for plastics in Niue[52]. In July 2018, Niue Tourism announced their intentions drive a ban on single-use plastic bags, with the ban being phased in over the following 12 months[53]. The ban would prohibit the importation of single-use plastic bags.</td></tr>
<tr><td colspan="3">Mid-term review of progress again CP2025 targets</td></tr>
<tr><td colspan="3">• Niue's overall CP2025 progress is rated as 'limited':
• National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): NATPLAN (National Marine Spill Contingency Plan) updated; Customs Import Prohibition (Plastic Shopping Bags) Order approved by Cabinet under the authority of the Niue Customs Act 1966.
• Twenty CP2025 performance indicators: with reference to 2014 baseline information, 1 indicator has improved (asbestos removed), 1 has deteriorated (volumes of used oil stockpiles have increased), 8 remain unchanged/stable, progress is undetermined for 10 indicators due to lack of data.
• Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 1 (Clean Pacific Roundtable participation), limited progress achieved for 5, and no progress for 9 strategic actions.
Based on the progress assessment results, five key activity areas that require further work are:
• Development of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework.
• Development of public-private partnerships, especially for container deposit, EPR and recycling programmes.
• Management of hazardous waste, including development of inventories.
• Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.
• Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.</td></tr>
<tr><td colspan="3">National priorities articulated</td></tr>
<tr><td>National Solid Waste Management strategy
Date: Not applicable</td><td>Priorities:</td><td>Niue does not have a waste management strategy.</td></tr>
<tr><td>NIP Update:
Date: In progress</td><td>Priorities:</td><td>NIP in initial stages, travel restricted due to COVID-19 (GEF ID 10512).</td></tr>
<tr><td>MIA:
Date: not yet complete</td><td>Priorities:</td><td>Progress halted due to COVID-19 travel restrictions (GEF ID 9930).</td></tr>
<tr><td colspan="3">Legislative snapshot</td></tr>
</table>

[51] http://www.uncrd.or.jp/content/documents/4070Country%20Report_Niue.pdf
[52] http://www.uncrd.or.jp/content/documents/4070Country%20Report_Niue.pdf
[53] https://www.rnz.co.nz/international/programmes/datelinepacific/audio/2018653167/niue-joins-growing-pacific-ban-on-plastic-bags

Waste management is governed by the *Environment Act 2015* (and supporting regulations)[54]. This act does not prescribe specific regulations on managing different waste streams, however grants Cabinet the ability to prescribe levies on waste products. The Environment Act controls activities generating wastes and it incorporates discharge and pollution controls. The central legislation governing waste management in Niue is a combination of an environmental protection and EIA/development control model. In 2018, the Director of Niue's Department of Environment noted that there is a lack of legislation and regulations in place to manage waste. The Director added that the national waste strategy is outdated and there are inadequate systems and processes to manage different recyclable waste streams.[55]

Recommended improvements: Key actions recommended for Niue to increase its national legislative and institutional capacity to manage wastes and improve related socio-environmental outcomes are:

- Amendment of the Environment Act 2015 to expand waste minimisation provisions (e.g. expansion of prohibitions at the customs point limiting plastics, and introduction of prohibitions on hazardous wastes, such as asbestos), and any necessary cross-referral to the customs legislation.
- Amendment of the Environment Act 2015 or adoption of a designated regulation to include specific economic instruments for funding waste collection, treatment and disposal. Such measures could include a container deposit scheme and producer/importer levies to support improved in-country re-use, recycling and recovery of recyclable wastes, e.g. beverage containers, plastics and e-waste. Niue legislation confers powers to impose levies.
- Introduction of legislative amendments to, or a designated regulation, under the Public Health Act on the management of healthcare wastes, dealing with safe handling, segregation of hazardous wastes and safe disposal, with development of associated protocols. Specialist expertise to assist in expanding the technical standards for waste management in regulations under the Environment Act 2015, including regulations for waste minimisation and recycling.

Ongoing chemicals and wastes activities	
PWP	**Other activities**
Yet to be confirmed, activities will be informed by Niue's new National Waste Strategy	Bilateral support on waste management from Australia to establish a recycling center site is located at the end of the Airport Runway. The activity also involved a significant education and awareness campaign. ISLANDS activities will liaise closely with the Australian bilateral support.

[54] http://www.gov.nu/wb/pages/legislation/niue-acts.php
[55] https://www.sprep.org/news/new-waste-initiatives-niue-horizon

Table 2h: Palau

<table>
<tr><th colspan="4">Palau</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 18,000
Geography: 8 inhabited mountainous islands, 300+ small islands
GDP: $0.3B USD</td><td colspan="2">Waste Statistics (2019 estimations)
Waste generation: 34,471 kg/day)
Waste generation rate: 1.9 kg/person/day
Plastic waste generation: 4,167 kg/day
Mismanaged plastic waste: 1,963 kg/day
(2010 estimate)</td></tr>
<tr><td colspan="4">Waste management overview: Palau is branding itself as “Pristine Paradise, Palau”. In 2017, Palau implemented a requirement for tourists to sign an environmental pledge in their passport on entry[56], with littering emphasised as a prohibited activity. Palau’s small population is concentrated in one area, resulting in relatively good infrastructure and access to services. According to the ADB waste collection and segregation is effective and there are appropriate systems in place for the different waste streams[57]. Over 70% of PET are currently exported for recycling[58]. Palau passed the Plastic Bag Use Reduction Act (10-37-2 2017)[59], and the importation of non-biodegradable or -compostable bags was banned in November 2018. From November 2019, retailers were prohibited from providing these bags. This act has also legislated a plastics education program into the school curriculum and a public awareness campaign[60].</td></tr>
<tr><th colspan="4">Mid-term review of progress again CP2025 targets</th></tr>
<tr><td colspan="4">Based on available data/information, Palau’s overall CP2025 progress is rated as ‘fair’:
National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): a new National Solid Waste Management Strategy developed and aligned with CP2025, and a Plastic Bag Use Reduction law enacted.
Twenty CP2025 performance indicators: with reference to 2014 baseline information, 3 indicators have improved (EPR programme for used oil, user-pays system for waste collection, and water quality monitoring operational); 4 remain unchanged/stable; progress is undetermined for 14 indicators.
Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 5 (WCP data collection and management, resource recovery, water quality monitoring, human capacity development, Cleaner Pacific Roundtable participation); limited progress achieved for 6; and no progress for 3 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
Development of public-private partnerships, especially for EPR programmes (e.g. e-waste).
Implementation of WCP prevention and reduction programmes.
Management of hazardous waste, including development of inventories.
Expansion of routine monitoring and reporting, especially for WCP management activities and the receiving environment.
Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.</td></tr>
<tr><th colspan="4">National priorities articulated</th></tr>
<tr><td>National Solid Waste Management strategy
Date: 2017-2026</td><td>Priorities:</td><td colspan="2">Relevant waste data is generated and waste initiatives are properly documented for better informed decisions; strengthened institutional capacity on waste management based on economic and social benefits; improved stakeholder understanding of the merits (economic, environmental and health) of proper waste management and co-sharing of responsibilities; waste management follows best practice approaches with provisions for continuous improvement; waste practitioners are provided with training opportunities ;</td></tr>
</table>

[56] https://www.palaugov.pw/documents/presidential-directive-no-17-29-directing-immigration-officials-to-utilize-palau-pledge-entry-visa-stamp/
[57] https://www.adb.org/sites/default/files/publication/42665/solid-waste-management-palau.pdf
[58] http://www.uncrd.or.jp/content/documents/5795Palau_Country%20Report.pdf
[59] https://www.palaugov.pw/wp-content/uploads/2017/11/RPPL-No.-10-14-re.-Plastic-Bag-use-Reduction-...pdf
[60] https://palaupledge.com/resources/

		and waste activity outcomes are reported and disseminated to relevant stakeholders.
NIP Update: Date: currently being prepared	Priorities:	Priorities not yet available (GEF ID 5525).
Minamata Initial Assessment: Date: In progress	Priorities:	Delayed due to restrictions on travel due to COVID-19 (GEF ID 9187)

Legislative snapshot

Similar to the U.S. legal system, Palau has a National Code that is arranged by Title and Chapters. Three Titles of the Palau National Code have relevance to waste management: Title 24 Environmental Protection; Title 11 Business and Business Regulation; and Title 34 Public Health, Safety and Welfare. The national regulatory body is the Environmental Quality Protection Board (EQPB). There are also comprehensive secondary laws, including regulations on solid waste management and wastewater treatment and disposal. Recent legislative initiatives have included a ban on single-use plastic shopping bags, measures aimed at responsible tourism, and a review of environmental and waste regulations. Under the *To establish a Recycling Program in the Republic Act (7-24 2006)*[61] a $0.10 USD deposit is levied on the importation of beverage containers. The program covers PET, HDPE and aluminium beverage containers with a capacity less than 1L. Consumers can redeem $0.05 USD when returning beverage containers, with the remainder funding recycling activities. This program was operationalised in 2011 and the scheme has a reported 80% recovery rate[62].

Recommended improvements: Key actions recommended for Palau to increase its national legislative and institutional capacity to manage wastes and improve related socio-environmental outcomes are:

- Assistance with the pending review of regulations on solid waste management (to be completed in 2021), with attention to changes made in 2019 to regulations on wastewater treatment and disposal.
- Assistance necessary to support the implementation of the recycling/container deposit scheme, with a view to: (i) reviewing the Beverage Container Recycling Regulations to ensure they are appropriate for the ongoing implementation of the container deposit scheme; and (ii) planning for any future expansion of the scheme to cover a broader range of products.
- Assistance with the implementation of the responsible tourism measures under the Responsible Tourism Education Act.

Ongoing chemicals and wastes activities

PWP	**Special Programme[63]:**
Provision with assistance on the management of used tyres.	Planned activities include: Strengthen national and state legislative frameworks to provide comprehensive coverage of all chemicals and hazardous waste management matters; develop a centralised data management system for chemicals and waste data to ultimately improve reporting to the Conventions; strengthen human technical capacity to implement sound management of chemicals and waste by establishing vocational training programs at the Education and Outreach Programs Division of EQPB and by providing training to Convention Focal Points, Customs, and other key stakeholders; and establish a certification system for preparers of Environmental Assessments (EAs) under Palau's environmental impact statement (EIS) process to improve the standard of EAs and strengthen capacity of EA assessors.

[61] http://www.paclii.org/pw/legis/num_act/tearpitrr7242006474/
[62] https://www.theprif.org/documents/palau/waste-management/palau-profile-solid-waste-and-recycling-sector
[63] https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/special-programme/special-programme-projects-database-35

Table 2i: Papua New Guinea

<table>
<tr><th colspan="3">Papua New Guinea</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 8,400,000
Geography: Large mountainous island, with 600 smaller islands
GDP: $21.5B USD</td><td>Waste Statistics (2010 estimations)
Waste generation: 2,170,536 kg/day
Waste generation rate: 0.79 kg/person/day
Plastic waste generation: 281,084 kg/day
Mismanaged plastic waste: 246,124 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: In major urban areas, existing solid waste management systems are inadequate for serving the country's needs and are financially unsustainable[64]. Many rural areas are not served by municipal solid waste management services, leading to waste being dumped in open pits or into creeks, rivers or the ocean[65]. Papua New Guinea's (PNG) growing population and increasing waste generation adds further strain on solid waste management services. Previous public awareness initiatives on waste management have shown poor results[66]. Plastics are currently not recycled in PNG[67]. PNG manufactures plastics products, including plastic bags[68]. PNG also has stockpiles of DDT from vector borne disease control activities, and transformer oils contaminated with PCBs.</td></tr>
<tr><th colspan="3">Mid-term review of progress again CP2025 targets</th></tr>
<tr><td colspan="3">Based on available data/information, PNG's overall CP2025 progress is rated as 'fair':
National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): National Capital District Waste Management Plan 2016–2025 completed; Kokopo Waste Management Strategy and Action Plan 2019–2024 completed; NATPLAN (National Marine Spill Contingency Plan) updated.
Twenty CP2025 performance indicators: with reference to 2014 baseline information, 1 indicator has improved (chemical inventories in place), 8 indicators remain unchanged/stable, progress is undetermined for 11 indicators.
Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 8 (WCP data collection and management; development of WCP policies, plans; WCP stockpiles managed; environmental monitoring and reporting; human capacity development; WCP education; Cleaner Pacific Roundtable participation; national and regional cooperation); limited progress achieved for 2; and no progress for 5 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
Finalisation of an integrated national WCP policy and action plan that is aligned with CP2025, and includes a reporting framework.
Development of practical and enforceable WCP legislation.
Development of public-private partnerships, especially for container deposit, EPR and recycling programmes.
Implementation of WCP prevention and reduction programmes.
Development and expansion of routine monitoring and reporting, especially for the receiving environment.</td></tr>
<tr><th colspan="3">National priorities articulated</th></tr>
<tr><td>National Solid Waste Management strategy
Date: NA</td><td>Priorities:</td><td>PNG does not have a consolidated National solid waste management strategy (NSWMS).</td></tr>
<tr><td>NIP Update:
Date: In draft form</td><td>Priorities:</td><td>2018 draft NIP update prioritizes POPs stockpiles.</td></tr>
<tr><td>Minamata Initial Assessment:
Date: In final stages</td><td>Priorities:</td><td>MIA Inventory complete, but MIA priorities not yet available.</td></tr>
</table>

[64] https://www.adb.org/sites/default/files/publication/42664/solid-waste-management-png.pdf
[65] https://crawford.anu.edu.au/sites/default/files/events/attachments/2013-10/png_update_session_2_-_thomas_wangi_-_solid_waste_management_in_png.pdf
[66] https://devpolicy.org/solid-waste-management-in-papua-new-guinea-20130812/
[67] https://www.adb.org/sites/default/files/publication/42664/solid-waste-management-png.pdf
[68] https://www.theprif.org/documents/papua-new-guinea-png/waste-management/papua-new-guinea-png-profile-solid-waste-and

Legislative snapshot	
Responsibilities for waste and environmental management exist within a range of PNG legislation and regulations, but no single point of control exists to regulate waste management, planning and operation. The Environment Act 2000 and later amendments confer wide powers to manage the environment sustainably, in line with Constitutional protections for the environment instituted by development control and pollution control provisions. Waste is identified as an area governed under the legislation. The central legislation governing waste management adopts an environmental protection and EIA/development regulatory model.	
Recommended improvements: • Introduction of consolidated waste management legislation or a set of designated waste regulations under the Environment Act 2000, coupled with review and audit provisions, and indicators to measure improvements in outcomes over time. • Legislative amendment to incorporate healthcare waste management in the Public Health Act or development of a stand-alone regulation for streaming of healthcare wastes, protocols for their handling, storage and disposal, and controls on healthcare wastes being taken to landfill (to manage associated pollution and health risks). In tandem, 'mirror' reforms could be made to the National Capital District Commission Act and Organic Law on Provincial Governments and Local-level Governments. • Development of a more targeted compliance and enforcement model (and incentives) for waste management related to areas where economic recovery might be feasible, e.g. recyclables, bulky wastes and e-waste, supported by increased staffing and capacity development programs. • Expansion of waste minimisation measures, such as prohibitions at the customs point, combined with greater use of extended producer responsibility measures, such as advance disposal fees or levies.	
Ongoing chemicals and wastes activities	
PWP	**Special Programme[69]:**
Provision with assistance in healthcare waste management.	Planned activities include (2018-2021): Establishment of a National chemicals and waste Steering Committee as well as a waste management Division within the Conservation and Environment Protection Authority; Establishment of a coordination mechanism to coordinate chemicals and waste management issues effectively with stakeholders; stakeholder consultation on policy, legal, chemicals and waste management; identification of follow up actions necessary for policy and legal framework implementation; public awareness and capacity building workshops on chemicals and waste with industry and key stakeholders; development of waste management plan for the Alotau municipality.

Table 2j: Samoa

Samoa	
Country Data (2018) Population: 199,000 Geography: Two large main islands and eight smaller islands GDP: $0.9B USD	**Waste Statistics (2010 estimations)** Waste generation: 132,740 kg/day Waste generation rate: 0.79 kg/person/day Plastic waste generation: 17,190 kg/day Mismanaged plastic waste: 14,032 kg/da
Waste management overview: Samoa has relatively well-established solid waste management systems[70]. Service delivery is reported to be regular, effective, cost-effective and with good coverage. Households practice segregating	

[69] https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/special-programme/special-programme-projects-database-35
[70] https://www.adb.org/sites/default/files/publication/42663/solid-waste-management-samoa.pdf

waste streams and studies suggest good environmental awareness amongst the community regarding waste. Less than 50%of plastics are currently recycled[71]. It also banned the use of single use plastics.

Mid-term review of progress again CP2025 targets

Samoa's overall CP2025 progress is rated as 'good':

- *National legislation, policies, strategies, plans for WCP*: NWMS (2019-2023) developed and aligned with CP2025; Water for Life: Water and Sanitation Sector Plan 2016-2020 developed; NATPLAN (National Marine Spill Contingency Plan) updated; and a new law passed banning plastic shopping and packing bags, and plastic straws.
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 4 indicators have improved (recycling rate increased, EPR programmes operational for used oil and e-waste, asbestos removed, used oil stockpile reduced to zero); 2 have deteriorated; 3 remain unchanged/stable; progress is undetermined for 11 indicators.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 7 (development of WCP strategies, plans and legislation; public-private partnerships; resource recovery; user-pays waste collection; human capacity development; Clean Pacific Roundtable participation; national and regional cooperation); limited progress achieved for 4; and no progress for 4 strategic actions.

National priorities articulated

National Solid Waste Management strategy Date: 2019-2023[72]	Priorities:	Promotion of 3R; implement clean school program and 3R for primary level; landfill survey (Capacity, daily report, water quality test for both in Tafaigata, Savaii); landfill operation plan for Tafaigata and Vaiaata; feasibility study on financial option (User Pay System / CDL); establish rubbish collection monitoring system; and enforcement of plastic ban regulation
NIP Update: Date:	Priorities:	Includes e-waste, end of life vehicles and addressing the residual waste component from recycling activities.
Minamata Initial Assessment: Date:	Priorities:	Completed, but not yet available.

Waste legislation

Samoa has a dedicated waste management legislative model centred on its Waste Management Act enacted in 2010. Supporting regulations have been drafted under the legislation for a single-use plastics ban and to regulate the import of waste for electricity generation. Other laws relevant to waste management include the Land, Surveys and Environment Act and the Planning and Urban Management Act 2004. Further legislative steps, such as the introduction of a container deposit scheme and littering regulations, are in the pipeline.

Recommendations: To increase its national legislative and institutional capacity to manage wastes and improve related socio-environmental outcomes include the following activities are recommended:

- Development of container deposit legislation, drawing on models from the Pacific region and including consideration of how this might build in best practice approaches of extended producer responsibility. Any such scheme might be developed through regulations under the Waste Management Act.
- Training and support to develop resources and a user database for identifying problem areas with waste collection to use in developing and refining a licensing system for waste and recycling operators.
- Review of penalties and compliance orders under relevant laws to consider options for on-the-spot fines (with appropriate cross-referral to litter regulations under development) and other alternatives to prosecutions and court actions. Legislative measures will need to be supported by increased staff capacity and resourcing, including a specific unit in the waste management section to deal with enforcement.
- Introduction of legislative provisions for review and audit of the Waste Management Act to assess experience with implementation, gaps and opportunities for enhancement, with reporting on outcomes against identified criteria.

Ongoing chemical and waste activities

PWP	**Other activities**

[71] http://www.uncrd.or.jp/content/documents/4032Country%20Report-Samoa.pdf

[72] https://www.sprep.org/attachments/VirLib/Samoa/national-waste-management-strategy-2019-2023.pdf

Provision with assistance on the management of e-waste	Developing a proposal for work under the Special Programme.

Table 2k: Solomon Islands

Solomon Islands	
Country Data (2018) Population: 670,000 Geography: Six main rocky islands and 900+ smaller islands GDP: $1.5B USD	**Waste Statistics (2010 estimations)** Waste generation: 488,756 kg/day Waste generation rate: 0.79 kg/person/day Plastic waste generation: 63,294 kg/day Mismanaged plastic waste: 55,874 kg/day
Waste management overview: Only a small proportion of solid waste is collected, resulting in widespread open dumping and burning. Waste streams are not well segregated and the recycling industry is not well-established and there are no facilities for managing recyclable plastic waste[73]. A large proportion of residents in urban centres live in informal settlements and are not serviced by municipal services. Most rural areas also have no or limited access to municipal services. An expanding economy heavily dependent on importation and increased consumption adds further stress for solid waste management authorities. A lack of land for landfills, limited finances and other resources, and poor coordination are cited as the major challenges facing solid waste managers[74]. Recycling does not currently exist for plastic[75].	
Mid-term review of progress again CP2025 targets	
Based on available data/information, the Solomon Islands' overall CP2025 progress is rated as 'fair': • *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: National Waste Management and Pollution Control Strategy 2016–2024 developed and aligned with CP2025. • *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 3 indicators have improved (user-pays waste collection and water quality monitoring operational; asbestos removed); 5 remain unchanged/stable; 2 indicators have deteriorated (checking with consultant); progress is undetermined for 10 indicators due to data being available. • *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (WCP data collection and management; public-private partnerships; environmental monitoring and reporting; human capacity development; Clean Pacific Roundtable participation); limited progress achieved for 6; and no progress for 4 strategic actions. Based on the progress assessment results, five activity areas that require further work are: 1. Implementation of WCP prevention and reduction programmes; 2. Management of hazardous waste, including development of inventories; 3. Development and implementation of routine monitoring and reporting, especially for WCP management activities; 4. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance; and	

National priorities articulated		
National Solid Waste Management strategy[76] Date: 2017-2026	Priorities:	Creating an enabling environment; an integrated approach to waste management and pollution control; training and research; awareness, communication and education; public private partnerships; infrastructure, equipment and cleaner technology; stakeholder engagement; and financial instruments.
NIP Update:	Priorities:	E-waste management.

[73] http://www.uncrd.or.jp/content/documents/5841Solomon%20Islands_Country%20Report.pdf
[74] https://solomonislands-data.sprep.org/system/files/Solomon%20Islands%20National%20Waste%20Management%20and%20Pollution%20Control%20Strategy%202017-2026%20-%20.pdf
[75] http://www.uncrd.or.jp/content/documents/5841Solomon%20Islands_Country%20Report.pdf
[76] https://www.sprep.org/sites/default/files/documents/publications/solomon-islands-national-waste-management-pollution-control-strategy-2017-2026.pdf

Date		
MIA: NA	Priorities:	Solomon Islands is not a Party to Minamata Convention.
Legislative snapshot		
In the Solomon Islands, the Environment Act 1998 has broad provisions relating to environmental impact assessment and development controls, as well as controls over pollution and noxious discharges that cover waste management. The Environmental Health Act 1980 (apparently amended to the Environmental Health Ordinance and provisions on nuisances) governs waste management in a public health context. The central legislation governing waste management in the Solomon Islands is an environmental protection and regulatory control model.		
Recommended improvements: • Introduction of a comprehensive waste management framework under the Environment Act 1998, including amendment of the waste definition to include priority wastes, with a priority for coverage of healthcare wastes or adoption of stand-alone waste management legislation. It is noted that there was a 2016 Bill seeking to amend Environment Act. 'Mirror' reforms introduced in Honiara City Council and provincial government legislation in relation to local waste management. • Introduction of regulations under the Environment Act (or any new Waste Management Act) to promote waste segregation (sorting) and to support diversion from landfill of emerging waste areas that have economic recovery potential, such as recyclables and e-waste. Cross referrals of the reforms to the Honiara City Council Act and Provincial Government Act may be necessary. • Adoption of waste minimisation measures at the customs point, such as prohibitions on single-use plastics and levies directed to supporting waste collection, treatment and disposal, e.g. advance disposal fees. • Review of waste offences and penalties structure in relevant legislation with a view to adopting more targeted powers for authorised officers to encourage compliance rather than 'punishment of offences', and to introduce measures, including incentives for industry compliance, and for building behavioural change toward waste management. This has a particular urgency in provincial areas.		
Ongoing chemicals and wastes activities		
PWP		
Assistance with e-waste collection and recovery		

Table 2l: Tonga

<table>
<tr><th colspan="3">Tonga</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 101,000
Geography: 169 islands, around 40 of which are inhabited
GDP: 0.5B USD</td><td>Waste Statistics (2010 estimations)
Waste generation: 381,655 kg/day
Waste generation rate: 3.71 kg/person/day
Plastic waste generation: 22,708 kg/day
Mismanaged plastic waste: 18,148 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: Capacity for waste management and the enactment of the Waste Management Act 2005 has advanced significantly in recent years, in part supported by a number of development projects[77]. Service delivery for solid waste has improved with relatively robust user-pay mechanisms, segregation of some waste streams and improved public awareness. Recycling does not currently exist for plastic[78].</td></tr>
<tr><td colspan="3">Mid-term review of progress again CP2025 targets</td></tr>
<tr><td colspan="3">Based on available data/information, Tonga's overall CP2025 progress is rated as 'fair':
National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): Tonga does not have a national waste management strategy aligned with CP2025, however, the Combined Utilities Business Plan 2018-2022 was developed with a detailed business plan for Tonga's Waste Authority Ltd; NATPLAN (National Marine Spill Contingency Plan) updated.
Twenty CP2025 performance indicators: with reference to 2014 baseline information, 1 indicator has improved (asbestos removed), 4 remain unchanged/stable, progress is undetermined for 15 indicators.
Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 5 (development of national policies, strategies, plans; user-pays waste collection; water quality monitoring; human capacity development; Clean Pacific Roundtable participation); limited progress achieved for 3; and no progress for 7 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
Development of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework.
Development of public-private partnerships, especially for container deposit, EPR and recycling programmes.
Implementation of WCP prevention and reduction programmes.
Management of hazardous waste, including development of inventories.
Development and implementation of routine monitoring and reporting, especially for WCP management activities.</td></tr>
<tr><td colspan="3">National priorities articulated</td></tr>
<tr><td>Combined Utilities Business Plan 2018-2022</td><td>Priorities:</td><td>Priorities for waste management include: continued expansion of education and awareness; investment in collection and technology infrastructure; expansion of waste operations on outer islands; and further development of cruise ship passenger environmental levy.</td></tr>
<tr><td>NIP Update:
Under preparation</td><td>Priorities:</td><td>Currently under development, no priorities available.</td></tr>
<tr><td>MIA:
Date: Under preparation</td><td>Priorities:</td><td>Currently under development, no priorities available.</td></tr>
<tr><td colspan="3">Legislative snapshot</td></tr>
</table>

[77] https://www.theprif.org/documents/tonga/waste-management/tonga-profile-solid-waste-and-recycling-sector
[78] http://www.uncrd.or.jp/content/documents/6445Tonga_Country%20Report+Front%20page.pdf

Tonga has dedicated legislation for the management of waste, the Waste Management Act, which commenced in 2006. A levy on plastic bags was introduced through supporting regulations made under the Act. Tonga also has the Hazardous Wastes and Chemicals Act which is focussed on implementing international waste conventions. In addition to legislation dedicated to waste management, Tonga has various other pieces of legislation that are relevant to waste management, including environmental management and public health legislation.

Recommended improvements:

- Extension of the import levy system for plastic bags to cover beverages in recyclable containers and consider, in consultation with the community, the option of establishing container deposit legislation.
- Review of how the regulatory and operational functions of the Waste Authority Limited are organised and funded under the Waste Management Act.
- Support for the implementation of provisions in the Waste Management Act relevant to public awareness of waste minimisation and public information about instances of enforcement through, for example, reporting by responsible authorities.
- Review of enforcement powers in the absence of a complaint from the community, and of mechanisms for complaints made by community members, and follow-up of those complaints, particularly in the outer islands.

Ongoing chemicals and wastes activities

PWP	**Other activities[79]:**
Provision with assistance on asbestos related issues, including legislation.	ADB, with funding from Australia, investing in urban infrastructure in Nuku'alofa [80] . Project activities include the extension of the landfill, procurement of equipment to manage the landfill, and expansion of waste collection services. Tonga also introducing a cruise ship passenger environmental levy.

[79] https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/special-programme/special-programme-projects-database-35
[80] https://www.adb.org/projects/42394-022/main#project-pds

Table 2m: Tuvalu

<table>
<tr><th colspan="3">Tuvalu</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 11,000
Geography: Six low-lying atolls and three reef islands
GDP: 0.043B USD</td><td>Waste Statistics (2019 estimations)
Waste generation: 4,499 kg/day
Waste generation rate: 0.4 kg/person/day
Plastic waste generation: 564 kg/day
Mismanaged plastic waste: 1,252 kg/day (2010 estimate)</td></tr>
<tr><td colspan="3">Waste management overview: Achieving an adequate level of solid waste management in Tuvalu has presented challenges to authorities due to the fragile surrounding environment and limited land availability. Tuvalu's geographic isolation and population distribution also increases costs associated with solid waste management. Various donors have invested in developing infrastructure, but service delivery remains intermittent due to maintenance and resourcing challenges[81]. Illegal dumping and open burning of waste is common with the one official dumpsite operating beyond capacity[82]. A lack of topsoil to compact and bury waste at the landfill leaves plastic waste vulnerable to being blown into the ocean[83]. Plastic recyclables are not currently segregated, collected or exported[84], although a levy has been introduced to facilitate this.</td></tr>
<tr><td colspan="3">Mid-term review of progress again CP2025 targets</td></tr>
<tr><td colspan="3">Based on available data/information, Tuvalu's overall CP2025 progress is rated as 'good':
National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): Tuvalu Integrated Waste Policy and Action Plan developed and aligned with CP2025; uPOPs National Action Plan developed; and the Waste Management Act 2017, Waste Management (Litter and Waste Control) Regulation 2018, Waste Management (Prohibition on the Importation of Single-Use Plastic) Regulation 2019 and Waste Management (Levy Deposit) Regulation 2019 enacted.
Twenty CP2025 performance indicators: with reference to 2014 baseline information, 7 indicators have improved (composting, container deposit programme, EPR for used oil, water quality monitoring operational; national waste collection coverage increased; number of open dumps and used oil stockpile decreased); 5 indicators remain unchanged/stable; progress is undetermined for 8.
Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 11 (data collection and management; development of WCP legislation, strategies, plans; best practice occupational health and safety; resource recovery; improvement of WCP infrastructure; water quality monitoring; human capacity development; WCP education and behavioural change; Cleaner Pacific Roundtable participation; monitoring of CP2025 activities); limited progress achieved for 3; and no progress for 1 strategic action.
Based on the progress assessment results, five activity areas that require further work are:
Implementation of WCP prevention and reduction programmes.
Management of hazardous waste, including development of inventories.
Expansion of routine monitoring and reporting, especially for the receiving environment.
Improvement of WCP management infrastructure, working towards sustainable operation and maintenance; and
Further development and expansion of WCP education and behavioural-change programmes.</td></tr>
<tr><td colspan="3">National priorities articulated</td></tr>
<tr><td>Tuvalu Integrated Waste Policy and Action Plan[85]
Date: 2017-2026</td><td>Priorities:</td><td>Strengthen institutional systems to address gaps in waste management; ensure stakeholders fully understand the merits of proper waste management and co-share the responsibility of managing wastes; establish strong partnerships between the public and the private sector in</td></tr>
</table>

[81] https://www.theprif.org/documents/tuvalu/waste-management/tuvalu-profile-solid-waste-and-recycling-sector
[82] https://www.adb.org/sites/default/files/publication/42659/solid-waste-management-tuvalu.pdf
[83] https://www.loc.gov/law/foreign-news/article/tuvalu-ban-on-single-use-plastics-commences/
[84] https://www.adb.org/sites/default/files/publication/42659/solid-waste-management-tuvalu.pdf
[85] https://pacific-data.sprep.org/dataset/tuvalu-integrated-waste-policy-and-action-plan-2017-2026/resource/de09db2a-fd44-4c45-946e

		the delivery of waste services; delivered waste services follow best practice and cost effective approach tailored to local conditions with continuous improvement; enhanced capacity of waste practitioners; and waste activity outcomes are reported and disseminated to relevant stakeholders
NIP Update: Date Being prepared	Priorities:	Currently under preparation
MIA: Date: Being prepared	Priorities:	Currently under preparation

Legislative snapshot

Tuvalu has a dedicated waste management legal model. Its current Waste Management Act 2017 repealed the former Waste Operations and Services Act 2009. Under the Waste Management Act, the Kaupules (local governance bodies) manage waste dumps and waste disposal as designated waste management operators for their respective areas. A number of regulations have been adopted under the Act including relating to a levy deposit system, prohibition on single-use plastics and littering regulations. Tuvalu also has other legislation relevant to waste management including environmental management and public health legislation. Tuvalu's levy deposit system covers an exceptionally wide range of products: certain beverages and cooking oil in PET bottles or glass bottles and beverages in aluminium cans; lubricating oil; nappies; white goods; construction equipment; vehicles; motorbikes; and batteries (for vehicles, motorbikes, equipment and solar panels).

Recommended improvements: Key actions recommended for

- Support for the implementation of the levy deposit system, including equipment and training to support safe handling of levied waste, as well as assistance with the negotiation and preparation of agreements with shipping companies and export markets, with a view to promoting best practice that might then be adopted in other PacWastePlus participating countries wanting to develop expanded recycling laws.
- Development of specific regulations or standards for specific waste streams e.g. healthcare wastes, asbestos waste, disaster waste and, subject to any necessary designation or other clarification, wastewater.
- Support for enforcement of the Waste Management Act, and associated regulations, including expert assistance, training and equipment to enforcement officers in the Department of Waste Management and to the Office of the Attorney General to update and maintain Tuvalu's online legal database to include current laws and regulations relevant to waste.

Ongoing chemicals and wastes activities

PWP	**Other activities:**
Outer Island project to assess asbestos and plan for short- and long-term management, also establishing small-scale recyclable facility at each island to partake in Waste Levy	EDF10 – waste management project (included in co-finance letter). This project will liaise closely with the EU funded activity.

Table 2n: Vanuatu

<table>
<tr><th colspan="3">Vanuatu</th></tr>
<tr><td colspan="2">Country Data (2018)
Population: 285,000
Geography: 13 main islands and approximately 70 smaller islands
GDP: $0.9B USD</td><td>Waste Statistics (2010 estimations)
Waste generation: 826,071 kg/day
Waste generation rate: 3.28 kg/person/day
Plastic waste generation: 73,933 kg/day
Mismanaged plastic waste: 61,583 kg/day</td></tr>
<tr><td colspan="3">Waste management overview: A strong tourism economy (around two-thirds of the GDP) has spurred economic development and increased consumerism, leading to increased waste generation. The tourism sector has spearheaded campaigns for more ambitious solid waste management strategies[86]. This has resulted in significant investments in solid waste management, particularly around ports and tourist areas[87]. The focus on the tourism sector has contributed to significant disparities in solid waste service delivery and management – whilst Port Vila has regular collection and a sanitary landfill, other major urban areas have sporadic waste collection and often dump waste in open pits, whilst most rural areas are not serviced[88]. Insufficient financial and human resources are cited as the main challenges for improving waste management[89]. Recycling does not currently exist for plastic waste streams[90].</td></tr>
<tr><th colspan="3">Mid-term review of progress again CP2025 targets</th></tr>
<tr><td colspan="3">Based on available data/information, Vanuatu's overall CP2025 progress is rated as 'fair':
National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP): National Waste Management and Pollution Control Strategy and Implementation Plan 2016-2020 revised and aligned with CP2025; uPOPs National Action Plan developed; NIP submitted to the Stockholm Convention Secretariat and three orders made under the Waste Management Act No. 24 of 2014 addressing single use plastics, littering and licensing of private waste operators.
Twenty CP2025 performance indicators: with reference to 2014 baseline information, 2 indicators have improved (waste collection coverage increased, asbestos removed); 1 has deteriorated; 8 remain unchanged/stable. Progress is undetermined for 9 indicators.
Implementation Plan 2016-2019, fifteen strategic actions: good progress achieved for 5 (development of national strategies, plans, legislation; resource recovery; human capacity development; Clean Pacific Roundtable participation; monitoring of CP2025 activities); limited progress achieved for 5; and no progress for 4 strategic actions.
Based on the progress assessment results, five activity areas that require further work are:
Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.
Implementation of WCP prevention and reduction programmes.
Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.
Management of hazardous waste, including development of inventories.
Further development and expansion of WCP education and behavioural-change programmes.</td></tr>
<tr><th colspan="3">National priorities articulated</th></tr>
<tr><td>National Solid Waste Management and Pollution Control strategy[91]
Date: 2016-2020</td><td>Priorities:</td><td>To support waste management and pollution control activities with practical, effective, enforceable legislation; financially self-sustaining schemed (establish incentive schemes that implement the polluter pays principle by encouraging cleaner production and</td></tr>
</table>

[86] https://www.adb.org/sites/default/files/publication/42658/solid-waste-management-vanuatu.pdf
[87] https://www.adb.org/sites/default/files/publication/42658/solid-waste-management-vanuatu.pdf
[88] https://www.theprif.org/documents/vanuatu/waste-management/vanuatu-profile-solid-waste-and-recycling-sector
[89] https://www.theprif.org/documents/vanuatu/waste-management/vanuatu-profile-solid-waste-and-recycling-sector
[90] http://www.uncrd.or.jp/content/documents/4116Country%20Report-Vanuatu.pdf
[91] https://environment.gov.vu/images/Waste.Management/NWMS-IP%202016-2020.pdf

		waste recovery); develop skilled and trained people in Vanuatu to effectively manage waste management and pollution control systems; reduce the amount of waste generated at source and land filled. implement effective waste collection and disposal throughout Vanuatu; improve waste and pollution control management, infrastructure and support sustainable operation and maintenance; increase public awareness; and enhance community participation on waste management.
NIP Update: Date: Under preparation	Priorities:	Priorities not yet determined.
MIA: Date: Under preparation	Priorities:	Priorities not yet determined.

Legislative snapshot

The central legislation governing waste management in Vanuatu is a stand-alone waste management regulatory model. Vanuatu has a dedicated Waste Management Act 2014. Under this Act, Vanuatu has adopted regulations and orders relating to the control of single-use plastics, littering and licensing of waste operators. Vanuatu also has other legislation in place that relates to waste management, including pollution control legislation, environmental protection legislation that incorporates EIA and development controls, and public health legislation. It has additional legislation relating to management of disasters.

Recommended improvements:

- Adoption of legislative measures to further support waste minimisation and management at the customs point, such as an advance disposal fee that implement polluter pays and extended producer responsibility principles.
- Adoption of designated regulations under the Waste Management Act to manage hazardous wastes specifically, such as asbestos and e-waste, as well as regulations further targeted to plastics and recyclables and that specify segregation of waste by households and businesses, and at the various landfills.
- Introduction of regulations, with a graded penalty structure and wider range of compliance measures, to foster a 'compliance community' in respect of waste management. Compliance could be led by designated officers in the Department of Environment, working in association with other agencies e.g. customs, police, as well as the community and private sector. These regulatory measures need to be supported by administrative and operational staff training, as well as reforms to increase access to courts and administrative tribunals (e.g. tribunal with jurisdiction to decide waste offences with penalty below specified monetary limit).
- Introduction of regulations or guidelines to support community partnerships and the involvement of traditional authority structures in managing wastes, as well as the adoption of consultative mechanisms. These measures might operate in conjunction with enhanced access to waste facilities in regional areas and outer islands, including development of income generation e.g. levy on tourism activities to expand the waste collection services.

Ongoing chemicals and wastes activities

PWP	**Other activities:**
Not yet agreed.	E-waste

c. Pacific national priorities

In addition to the desk top baselining activities outlined above, two consultations were convened with Pacific countries> These convened in December 2019 and February 2020 to discuss and elaborate national priorities. These priorities were discussed in detail during virtual country consultations from September – October 2020, and then confirmed at regional virtual validations workshops convened in October 2020. The following table outlines each country national priority for work under this project, and country priorities for work under PWP, which will be executed concurrently.

Table 3: National priority for activities under the project

Pacific country	Priority for work under the GEF Project	Priority for work under PWP
Cook Islands	E-waste	Recyclables
Federated States of Micronesia	Used oil	Recyclables
Fiji	Improved waste management in settlements	To be confirmed
Marshall Islands	Advance Deposit Fee on Bulky Wastes (EOLV, vessels, tyres, whitewares, furniture)	To be confirmed
Kiribati	Landfill assessment and design	Asbestos
Palau	Improved recycling, chemicals and pharmaceutical waste	Bulky waste
PNG	POPs waste (DDT and PCBs)	Hazardous waste (healthcare and asbestos)
Nauru	Improved waste management (recycling)	Asbestos
Niue	Improved bulky waste management	To be confirmed
Tonga	Climate proofing of landfills	Asbestos
Tuvalu	Improved recycling on outer islands	Asbestos and recyclables
Samoa	Improved recycling and waste oil	E-waste
Solomon Islands	E-waste (dismantling facility)	Organics and plastics
Vanuatu	E-waste	Recycling and organics

During the project preparatory phase, each country developed a country priority framework detailing national activities. These are included as Appendix 12.

d. Ongoing regional projects:

Regionally, the Pacific is currently benefitting from several largescale regional initiatives funded by the European Union, the Government of Australia, France, and the UK. As part of the project preparatory phase a full review and analysis of chemicals and wastes activities currently ongoing, and planned in the region. This included extensive consultation with donors, development partners, and Pacific SIDS focal

points on 12 December 2019, in Brisbane, Australia, and on 19 February 2020 in Nadi, Fiji, and 21-33 February 2020 in Sydney, Australia.

Table 3, presents an outline of the key current and planned regional activities, as well the consultations undertaken as part of project preparation. The table also outlines which Pacific countries are included in each initiative, as this differs for each activity.

Table 4: Key current and planned Pacific regional activities

PROJECT, BUDGET	DONOR/ DEVELOPMENT PARTNER	TIMEFRAME	ACTIVITIES	EXECUTION	PROJECT PREPARATION CONSULTATIONS, DETAILS OF POTENTIAL COLLABORATION, AND INCREMENTALITY
JPRISM II US$15,000,000 **Countries:** Fiji, FSM, Marshall Islands, Palau, PNG, Samoa, Solomon Islands, Tonga, Vanuatu.	Japanese Government	February 2017-2022 (Current project)	- Updating National Solid Waste Management Plan (NSWMP) with countries. - Promotion of national level recycling. - Container deposit legislation in Northern Pacific. - Development of regional training/trainee database.	Execution unit, based at SPREP	Extensive consultations convened with JICA colleagues. This activity will finish in 2022, and it is not yet if a third phase will be funded. As such, some activities, such as the ongoing maintenance of regional trainee database, may need to be handed to other projects.
Pacific Ocean Litter Project (POLP) AUD$16,000,000 **Countries:** Overall assessment of all Pacific countries, with focused work in 2-3 countries (TBD)	Australian Government	Jan 2019 – Jan 2023 (Current project)	- Development of detailed country 'plastic' profiles for each of the 14 PICs. - POLP will undertake extensive work in 2-3 countries (exact countries yet to be determined).	SPREP	This position is being mainstreamed into the SPREP Waste team, the planned EA for the Pacific CP. The skillset of this marine litter expert will be factored into the Pacific CP design at PPG stage, to ensure the design leverages all available resource to achieve GEBs.
PacwastePlus US$17,000,000 **Countries:** Cook Islands, Fiji, FSM, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Samoa, Solomon Islands,	EU (EDF11)	Mid-2019-2024 (Current project)	- Data collection and waste management (including waste audits). - Policy and legislative framework assistance. - Private sector engagement. - Infrastructure development. - Capacity building (national level).	SPREP	Project preparation team have consulted consistently with PWP project team, to synergistically design activities and collect data required to inform the design of robust activities. This includes funding of waste audits in all Pacific countries.

Tonga, Tuvalu, Timor Leste, Vanuatu.			- Funding national level waste audits (in conjunction with PRIF). - National level activities (approximately $300K per country).		
IUCN Plastic-Waste Free Islands[92] **Countries:** Fiji, Samoa, Vanuatu	Norwegian Government	February 2020 – mid-2025 (Current project)	- Provide national partners with data and analysis to reduce the amount of plastic waste leaking into the environment. - Enhance adoption of plastic leakage. reduction measures by tourism, fisheries and waste management sectors. - Co-generate sector-specific action plans for alternative value chains. - Develop a blueprint for islands in collaboration with regional bodies.	IUCN (Fiji office)	The project preparatory team met the IUCN team in Fiji and initiated discussions on potential areas for collaboration. Consultation will continue at the national level, to ensure national level activities are designed synergistically.
INFORM US$4,300,000 **Countries:** Covers all SPREP countries	Global Environment Facility	2016 – 2021 (Current project)	- Developing Data Portals to monitor Pacific's environment and facilitate data sharing. - Data Analysis for national planning and sustainable development. - Develop a Reporting Tool to assist Pacific islands in meeting national and international reporting requirements,	SPREP	The project preparatory team convened discussions with the INFORM team and agreed that data produced from the child project will be fully integrated with INFORM to ensure duplication of efforts are avoided and that activities are executed synergistically.

[92] https://www.iucn.org/sites/dev/files/pwfi_factsheet_final_0.pdf

			through indicator-based reporting.		
L'AFD EUR3,000,000 **Countries:** Solomon Islands, Samoa, Vanuatu, Fiji	French Government	2020-2023 (Planned project)	- Conduct training programmes on used oil, disaster waste and marine debris, and sustainable financing. - Implement pilot project activities on the targeted waste streams are implemented. - Establish collaborative platforms are set up to facilitate data and knowledge sharing.	SPREP	This project builds off the work of GEF ID 4066, co-financed by the Agence Française de Développement (AFD), and has strong linkages with GEF ISLANDS. SPREP are responsible for executing this project, and the project preparatory team has maintained close contact with SPREP over activity planning. It is noted that SPREP plans to fully outline the activities once a project officer is in place, and collaboration will continue.
Pacific Regional Infrastructure Facility (PRIF) Urban Working Group **Countries:** Cook Islands, Tuvalu and Fiji	To be determined	November 2019 – December 2020	- National waste audits of Pacific countries (in collaboration with PWP).	TBC	The project preparation team has maintained close contact with PRIF on the development of the methodology for waste audits and the process of reviewing audits.

3) Proposed alternative scenario with a brief description of expected outcomes and components of the project

a. Context:

The overarching objective of the ISLANDS Programme is to support SIDS to enter into a safe chemical development pathway. Thirty (30) SIDS in the Indian Ocean, Pacific and Caribbean regions will benefit from six (6) child projects expected to be conducted under this Programme during a five (5) year period. The Programme aims to strengthen each SIDS' ability to control the flow of chemicals, products and materials into their territories and to unlock resources for the long-term management, including integrated management, of chemicals and waste in SIDS. As a global programme, the ISLANDS project will also promote exchange of knowledge and experience across regions which would not be possible with regional interventions. In this regard, this programmatic approach is desirable to bring much needed resources to SIDS to remove the stress on the environment caused by the unsustainable use of chemicals, materials and products. The Programme looks to build on the principle of "think globally, act locally" through a combination of interventions and initiatives which address specific needs by overcoming barriers at country level but at the same time, reinforce regional and global cooperation as well as address the challenges facing SIDS. The exchange of information and knowledge amassed at the national level will also be shared between regions to achieve impacts at the global level. Working with SIDS at a global level also ensures that the introduction of legislation and standards through the projects reduces loopholes created in the regions in relation to countries which would not be covered in a traditional approach. The Programme also seeks to access regionally appropriate technologies and best practices for the management of chemicals and wastes in SIDS and incubate and accelerate these through catalyzing entrepreneurship in the small and medium enterprises (SMEs) across all regions. This will ensure solutions to challenges from chemicals and wastes are appropriate to the needs of specific SIDS but fall within a larger framework built around knowledge exchange and transfer.

The Programme also focuses on assisting SIDS in transforming the management of chemicals and wastes in support of multiple chemicals related multi-lateral environmental agreements (including the Basel, Rotterdam, Minamata, and Stockholm Conventions, the Montreal Protocol and SAICM). ISLANDS will use the Conventions as an entry point to improve capacity for import monitoring and customs, policies and legislation pertaining to chemicals and wastes; introduction of best practices and approaches for SIDS in chemicals and wastes management (e.g. building capacity for export, creating sustainable opportunities for circular local waste management and treatment systems and supporting infrastructure; phasing-out products that results in hazardous wastes, etc.).

The alternative scenario is proposed in response to the barrier analysis and comprehensive regional and national baseline reviews undertaken during the project preparatory phase. The proposed project interventions are designed to address the barriers outlined above (as presented in Figure 1, and described in Section 1), and are organized around the four key ISLANDS programmatic pillars of:

- Preventing the future build-up of chemicals (in Component 1);
- Managing and disposing of existing hazardous chemicals, products and materials (in Component 2);

- Preventing the future build-up of chemicals entering SIDS through the development of end-of-life systems (in Component 3); and
- Generating, communicating and sharing knowledge among SIDS (in Component 4).

The project objective tree is presented below.

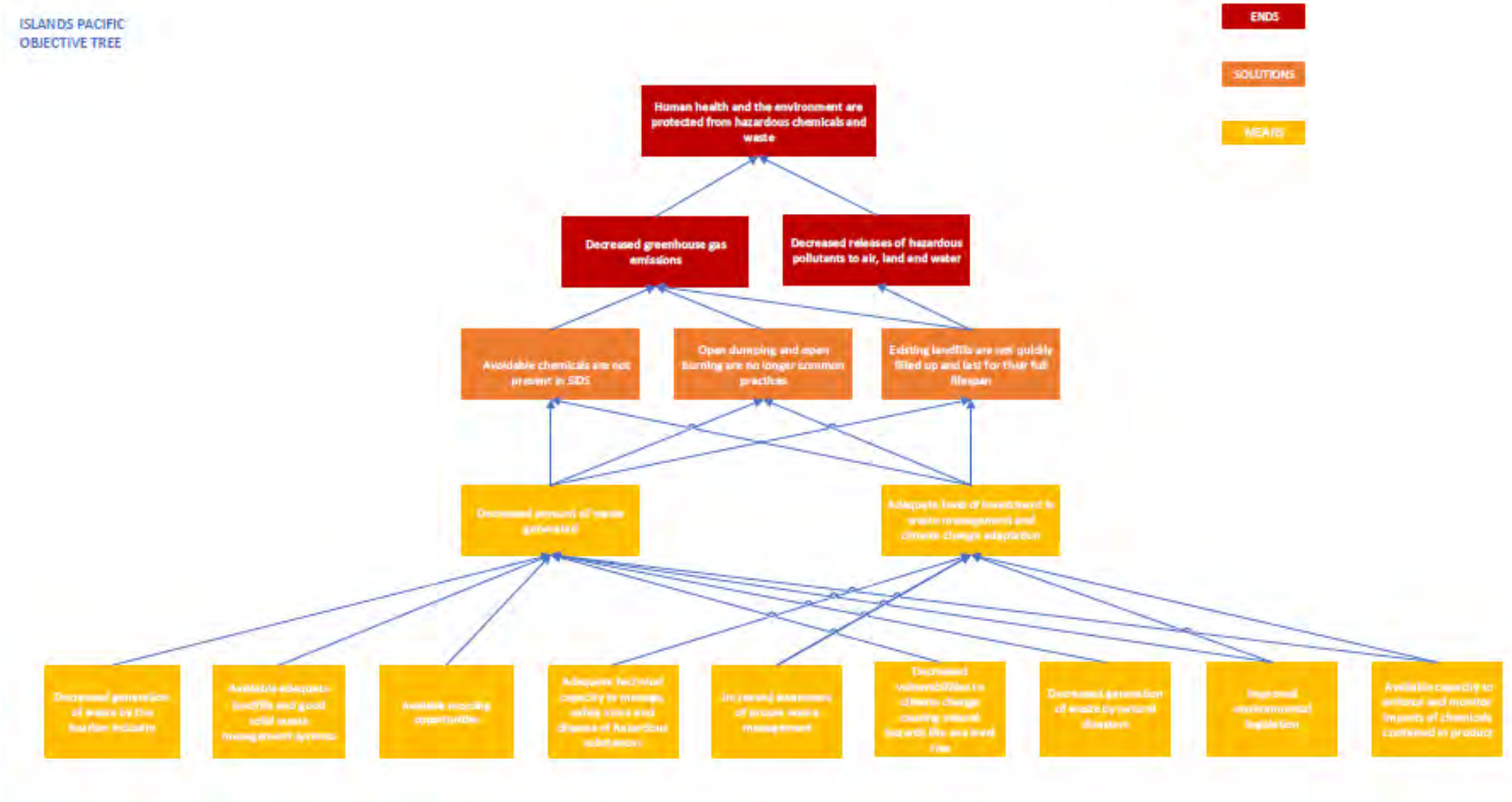

Figure 2: Pacific Child Project, Objective Tree

The proposed alternative scenario is fully in line with the overall ISLANDS Programmatic Objective set out in the approved PFD of "*preventing the build-up of POPs and mercury materials and to managing and disposing of existing harmful chemicals and wastes across SIDS*."

The proposed scenario has four intended outcomes. These are that:

- SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste.
- Harmful chemicals and materials present and/or generated in SIDS are being disposed of in an environmentally sound manner.
- Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector.
- Knowledge generated by the programme is disseminated to, and applied by, SIDS in all regions.

All proposed interventions have been developed in line with the GEF-7 principles of cost-effectiveness; sustainability; innovative approaches; private sector engagement; promotion of resource efficiency (including circular economy approaches); and, building on the use of existing networks. The need for gender responsiveness and women's empowered is mainstreamed into the project approach.

b. Approach and Theory of Change:

The proposed project approach is outlined in the following theory of change.

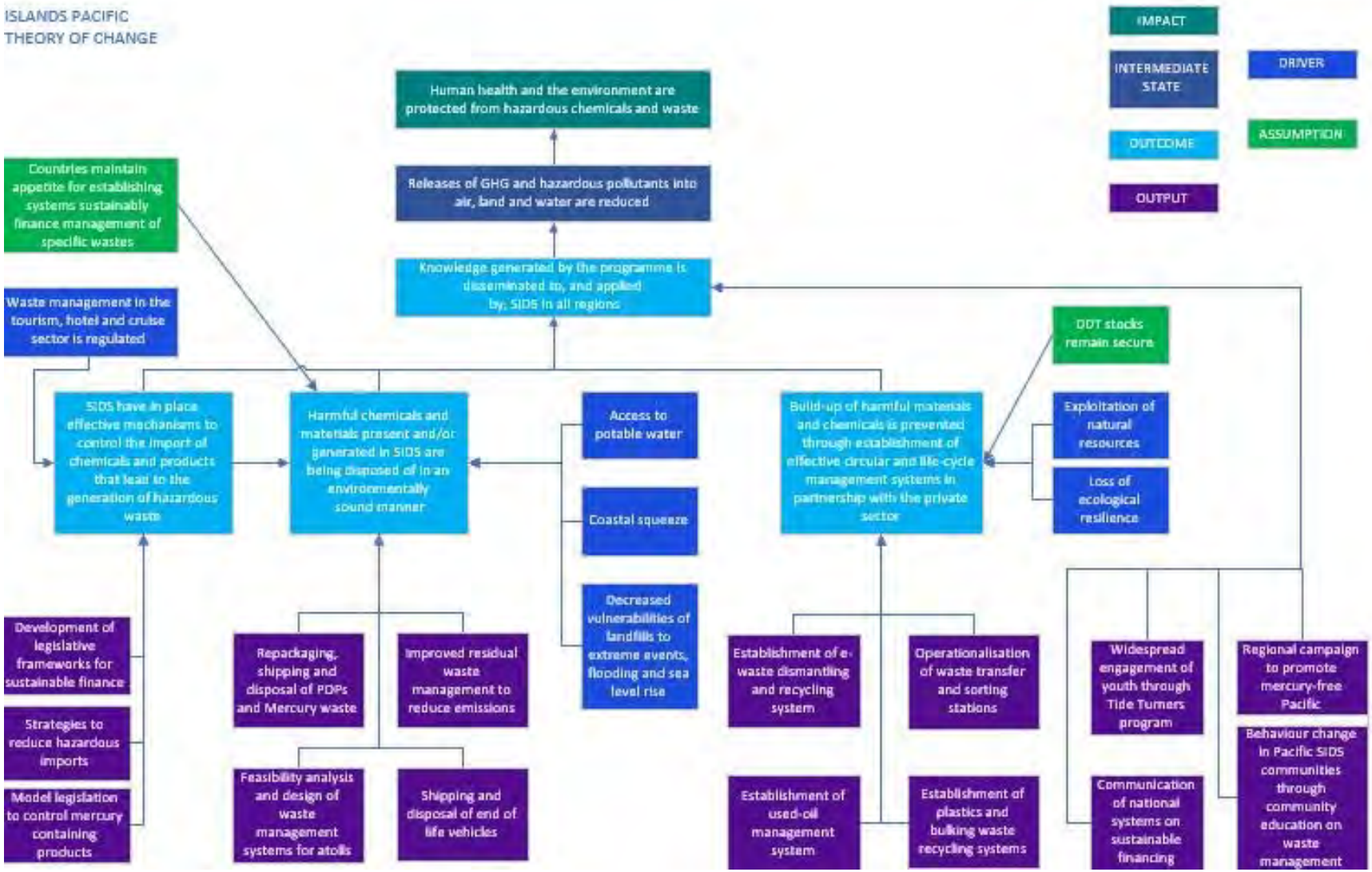

Figure 3: Pacific Child Project, Theory of Change

c. Pacific regional context

Interventions are planned at both the regional and national levels. Regional activities are planned to address issues that due to the small size of Pacific countries, cannot be executed sustainably at the national level. Regional approaches are also proposed where for common priority issues. Issues common to all Pacific countries include: the need for assistance in the safe disposal of legacy end of life vehicles; technical assistance and backstopping for healthcare waste management; access to recycling markets, to assist in closing product loops and reduce pressure on Pacific SIDS' landfills; and the need to improve broad community practices around chemicals and waste management to achieve widespread behavioral change. Establishing and operationalizing regional activities, with the potential to benefit all Pacific SIDS, will be the primary focus of project year 1.

National activities proposed are based on extensive consultation with Pacific countries. All national activities are planned to be executed in a similar manner, with each Pacific country having a national technical officer to oversee and coordinate technical activities, and report to the Project Coordinator. As noted above, full details of country priorities and frameworks for proposed national interventions are included in Appendix 12. Year 1 of the project will focus on establishing detailed national workplans to guide the execution of national activities, with intensive execution envisaged for years 2-5 of the project.

The following sections outline the planned outputs and activities under each project component. All outputs and subsequent activities have been designed to address the barriers within the context of the root causes discussed above.

d. Proposed components and activities

COMPONENT 1: ***Preventing the future build-up of chemicals entering SIDS***

Lack of comprehensive policy frameworks and regulations to assist in preventing the import of products and chemicals that contain POPs/Hg or can lead to hazardous wastes and releases and limited capacity of customs offices and chemicals registries, are key barriers to the sound management of chemicals and wastes.

Component 1 will include both regional and national activities to assist countries in putting in place robust legislative frameworks, by providing assistance in areas where legislative gaps have been identified, and in the institution of economic instruments, to sustainably finance waste management. It will also provide assistance in the articulation of national strategies to reduce hazardous imports, as well as model legislation to the control of mercury containing products. The outcome of this component is that Pacific SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste.

Output 1.1: Legislative frameworks for sustainable finance in place in Pacific SIDS

According to the Midterm review of the Cleaner Pacific 2025, the Pacific aims to have 8 e-waste collection systems and 10 used oil collection systems in place by 2025. As of 2020 however there are only 2 e-waste recycling systems and 4 used oil systems. The Cook Islands and Vanuatu do not yet have in place economic instruments to sustainably finance e-waste, but have prioritized these

activities. FSM and Niue used oil and bulky waste do not have measures to finance collection of used oil and bulky waste respectively, but have prioritized these waste streams in their national waste management strategies and in consultations on the preparations for ISLANDS. Fiji has noted it requires support to complete the update of the Litter Management Act, to assist in reducing the impact of litter on the Fijian environment.

Activities and interventions under this output are focused at the national level. All national level activities will include consultation on proposed legislation. Consultations will be inclusive and gender sensitive.

Regionally, lessons, experiences and project will be shared between SIDS and through the communities of practice established under the Coordination Communication and Knowledge Management (CCKM) project (ID 10266) through Output 4.4. The CCKM project will then also allow for cross fertilisation of lessons and experience across all three SIDS regions covered under the programme.

National activities planned under this Output are national and include:

- Activity 1.1.1: Development of legislation for a sustainable financing system for e-waste disposal/recycling in the Cook Islands and Vanuatu. This will include levying (deposit) the import of electronic products to encourage people to participate in recycling by collecting and bringing to an assigned collection point to collect a refund. This intervention is intended to address the barrier of piecemeal environmental legislative frameworks.
- Activity 1.1.2: Development of additional legislation for a sustainable financing system for used oil disposal/recycling in the four states of FSM. This will include an oil levy, to fund offshore disposal of used hydraulic oil, and cover each state (Chuuk, Kosrae, Pohnpei and Yap). In Kosrae, Pohnpei and Yap the legislation will be added to existing container deposit legislation. In Chuuk, it will be added to the Clean Act. This intervention is intended to address the barrier of piecemeal environmental legislative frameworks, and assist in overcoming the barrier of lack of recycling due to large geographical distances.
- Activity 1.1.3: Development of legislation for sustainable financing bulky waste/white goods disposal/recycling system in Niue. This intervention is intended to address the barrier of piecemeal environmental legislative frameworks, and assist in overcoming the barrier of lack of recycling due to large geographical distances.
- Activity 1.1.4: Legal drafting support to update the Litter Management Act in Fiji. This intervention is intended to address the barrier of piecemeal environmental legislative frameworks.

Output 1.2: Strategies to improve waste management in Pacific SIDS

As noted in the baseline section above, the Waigani convention, requires all parties to have in place national hazardous waste management strategies that are aligned to a SPREP regional strategy (CP2025). Currently no Pacific countries has a national hazardous waste management strategy in place. Consultations with countries indicated they are motivated to develop these strategies, and see a need for them, but require technical support to develop them. All consultations will be gender senstivie and ensure space and opportunities for the meaningful participation of women. Samoa has completed its MIA and identified priorities for phasing-out mercury-containing products. It is working to reduce the amount of imports entering the country that finish their life as hazardous waste, but is yet to undertake a complete and systematic assessment for non-mercury containing hazardous waste

The regional interventions under this output include:

- Activity 1.2.3: Development of a digital training guide on NHWMS development, so be used in light of ongoing regional travel restrictions.
- Activity 1.2.4: Development of a regional Code of Conduct on hazardous waste management.
- Activitiy 1.2.5: Development of regional road map to GHS implementation including regional. standards for classification and labelling of chemicals and products containing harmful chemicals.
- Activity 1.2.6: Regional, quarterly webinars on NHWMS development, to facilitate Pacific countries learning together remotely.

The national activities under this output include:

- Activity 1.2.1: Consultation, drafting and development of 14 national hazardous waste management strategies (NHWMS) (one for each Pacific country).
- Activity 1.2.2: Drafting and development of a national strategy and action plan to reduce hazardous imports in Samoa. This intervention is intended to address the barrier of piecemeal environmental legislative frameworks.

Output 1.3: Model legislation to control mercury containing products for use by Pacific SIDS drafted and made available for adoption (regional)

PWP funded a recent review by the University of Melbourne on the Pacific legislative environment. The review noted that Pacific countries party to the Minamata Mercury Convention require legislative reforms to address these mercury wastes streams identified in initial assessments.

Regional activities under this output are include:

- Activity 1.3.1: Development of model legislation and drafting instructions on elemental mercury, and mercury containing products to be used across the Pacific region (and shared with other SIDS). This is intended to address the barrier of piecemeal environmental legislative frameworks. The provision of a standard piece of model legislation and associated drafting instructions, will assist in Pacific countries harmonizing approaches to mercury.
- Activity 1.3.2: Regional, quarterly webinars on approaches to mercury legislation, including case studies from other SIDS.

National activities under this output include:

- Activity 1.3.3 Support to Pacific countries to intergrate model legislation into national legislative framework.

COMPONENT 2: *Safe management and disposal of existing chemicals, products and materials*

Limited adequate storage, disposal and treatment capacity for hazardous waste streams represent key barriers to the sound management of chemicals and wastes. Under Component 2 the project will undertake both regional and national interventions.

Regionally, the project will also establish a long-term partnership with private sector partners to export and dispose of end of life vehicles in an environmentally sound manner.

Nationally the project will collect, repackage, ship and dispose of 12 tonnes of DDT and 532 metric tons of PCBs and mercury waste from the Pacific region. The outcome of Component 2 is that harmful chemicals and materials present and/or generated in SIDS are disposed of in an environmentally sound

manner. Under this component support will also be provided to Pacific countries in reducing emissions through improved waste management practices.

Output 2.1: Pacific SIDS supported in sound repackaging, shipping, collection, and disposal of POPs and mercury waste

PNG historically used DDT for vector borne disease control. Since PNG stopped using DDT stocks have been stored in various location around the country. Said stocks have often been looted, and DDT has been used by local communities used for gardening and fishing. During the project preparation phase the project team inventoried and secured remaining 15 tonnes of stocks. PNG also has significant stockpiles of PCB contaminated oil. During the preparatory phase 532 mentric tons field tested as positive using PCB field test kits. Additional samples have been collected to confirm PCB concentrations in a laboratory, but this process have been delayed due to COVID-19. As such, estimated volumes should be considered conservative, as they include all field positive samples. PNG Power, owner of the oil is providing cash co-finance to the project and will put in place a system to manage any further PCB contaminated oil identified in the future.

The project will repackage, collect, ship and dispose of these wastes. PNG Power will co-finance the disposal of the PCB contaminated oil, and training will be undertaken with PNG Power staff to identify any further PCB contaminated oil.

Activities and interventions under this output are focused at the national level. Regionally, lessons, experiences and project will be shared between SIDS and through the CCKM under through Output 4.4. Regional benefits will include the strengthening of regional capacity in the transboundry movement of waste under the Waigani Convention. Lessons from this work will be shared at the meeting of the Conference of the Parties for the Waigani Convention.

National activities and associated barriers include:

- Activity 2.1.1: Repackaging of PCB contaminated oil, together with DDT waste, ready for export. (It should be noted that the DDT waste was secured and repackaged during project preparation. The repackaging will be checked to ensure it complies with international standards and requirement for shipping. The collection and disposal activity will be undertaken in the first year of the project.
- Activity 2.1.2: Export and environmentally sound treatment and disposal of 15 tonnes of DDT and 532 metric tons of PCB contaminated oil that cannot be treated in PNG. The waste will be shipped by Swire Shipping to Australia, as part of the company's co-finance contribution. This intervention is designed to address the regional barrier of lack of infrastructure to dispose of or treat hazardous waste.
- Activity 2.1.3: Export and phased-out mercury containing products or wastes (including healthcare waste). This intervention is designed to address the regional barrier of lack of infrastructure to dispose of hazardous waste. It is envisaged that work will be undertaken here with the PNG in relation to phasing out the use of mercury in the artisanal small scale mining sector. Specific needs will be determined once the MIA is complete.

Output 2.2: Technical assistance and support for shipping and disposal of end of life vehicles (ELVs) from Pacific SIDS to Asian recycling markets (regional)

ELVs are a common form of bulky waste in all Pacific island countries. ELVs contain POPs (tetraBDE, PentaBDE and DecaBDE) in the plastic components of the car (including dashboard and steering wheel) and in the seats, which are treated with flame retardants. Currently no Pacific country has in place a scrapping scheme, or any other modalities to dispose of ELVs in a systematic way. Some *ad hoc* recycling is occurring in some countries, including Samoa and Vanuatu, where private companies

are dismantling vehicles, extracting the steel for the scrap market, and stockpiling, or landfilling the other, POPs-containing parts. These POPs containing articles require management.

To begin addressing this problem, some Pacific countries (including Samoa), have put in place age restrictions on second-hand vehicles being imported into the country. Additional work is required to assess the feasibility of exporting ELVs on a commercial basis, and on environmentally sound management of the POPs component. The POPs guidance stipulates that disposal of the POPs containing portion of ELVs should be in a sanitary landfill. The only regional sanitary landfill is in Suva, Fiji, meaning ELVs cannot be disposed of any of the other Pacific countries.

Private sector partners, led by Swire Shipping, have approached UNEP with interest in establishing a joint venture partnership to develop vehicle recycling as a commercial, or at least cost neutral exercise. These partners have committed significant co-finance to the project. This activity can be viewed as a commercial extension to the current Moana Taka partnership operating in the region to provide free shipping of recyclables from Pacific SIDS to recycling markets. It is noted that Swire Shipping does not cover every Pacific country, nor every outer island of countries it does service. As such the feasibility study will also analyse ways of including Pacific countries and outer islands off Swire routes into the activity.

Regional activities to be undertaken under this Output include:

- Activity 2.2.1: A feasibility study looking at the process, procedures, viability and environmental issues related to collecting and transporting used vehicles for dismantling in Fiji, and then crushing of the steel parts and exporting to recycling markets, and disposing of the POPs containing parts in landfill. This study will include an assessment of opportunities for women in the recycling of ELVs.
- Activity 2.2.2: A recycling partnership will be established with members of the private sector to export end of life vehicles from Pacific countries, disposing of the POPs wastes from vehicles in an environmentally sound manner. This partnership will focus on clearing the extensive legacy issue of disused, abandoned vehicles in Pacific countries.

National activities to be undertaken under this output include:

- Activity 2.2.3: Training for local operators in vehicle dismantling to remove POPs contaminated components, and prepare vehicles for crushing and scrapping. Efforts will be made to encourage women to join this training.
- Activity 2.2.4: Disposal of POPs component of ELVs in line with Basel Guidance on PBDEs. This will likely involve disposal of car parts containing POPs in the sanitary landfill in Suva, Fiji.

This work is complimented by the work of PacwastePlus which is assisting countries in establishing legal frameworks to introduce levy systems charged when new cars are imported, and refunded when the car is turned in for scrapping. This, together with the mainstreaming safe vehicle dismantling into current automobile courses will help ensure that the long-term management of end-of-life vehicles in the region. This regional activity is designed to overcome the barrier of lack of access to markets due to geographical isolation, through a coordinated approach involving the private sector, and aimed toward reaching economies of scale.

Output 2.3: Technical assistance and support for shipping and disposal of end of life vehicles (ELVs) from Pacific SIDS to Asian recycling markets (regional)

In Tonga, the Government of Japan through the JICA/JPRISM Project funded the rehabilitation of Kalaka Landfill, into a semi-aerobic landfill to better manage waste in Vava'u. Rehabilitation of Ha'apai and 'Eua landfills using the same semi aerobic method is a priority of the Tongan government. This work is central to the implementation of the national 3R program to reduce waste and to climate proof the landfills, preventing pollution of the environment with waste. In addition, rehabilitation will reduce the prevelance of fires at the landfill, contributing to a reduction in emissions of uPOPs.

In Nauru over 50% of household waste is organic and currently going to landfill. Nauru has very little topsoil or growing medium due to widespread phosphate mining, as such composting is an essential resource to upscale the growing of food crops. The activity will also reduce the prevalence of open burning of waste, reducing the generation of dioxins and furans.

Activities and interventions under this output are focused at the national level. Regionally, lessons, experiences and project will be shared between SIDS and through the CCKM under through Output 4.1 .

National activities to be undertaken under this Output include:

- Activity 2.3.1: A feasibility and design study will be undertaken to detail a blueprint for the rehabilitation and climate proofing of Tongan landfills.
- Activity 2.3.2: Landfills in Tonga will be rehabilitated and climate proofed using methodology piloted by JICA. This activity is designed to mitigate the risk of a key root cause of poor chemical and waste management, through decreasing the vulnerability of landfills to climatic events, and reducing the burden of natural disasters on waste management infrastructure.
- Activity 2.3.3: A feasibility study and design of national composting system in Nauru. This will detail information on approximate feedstock, and following closely the design adopted by PWP for the Solomon Islands composting facility begin developed to process Honiara market waste.
- Activity 2.3.4: A national composting facility established in Nauru to process organic fraction of the countries' waste, and provide topsoil to communities to ensure food can be grown in Nauru. This activity is designed to overcome the barrier of limited technical capacity and investment in waste management infrastructure, lack of awareness of waste management issues.

Output 2.4: Feasibility analysis and design of waste management systems for atolls completed and made available to all Pacific SIDS

Kiribati is series of a low-lying coral atolls. Throughout the country there are only four operational waste disposal sites. Three are located on coastal areas on South Tarawa, the capital. These dumping sites are not well designed thus the walls often break down during king tides and heavy rains. The wastes dumped at these sites were mixed with high volume of organic wastes. The outer islands (with the exception of Kiritimati) have no disposal sites, nor waste collection systems and wastes are being openly burned, or dumped at sea or on land. Currently 32 outer islands of Kiribati lack any form of managed waste disposal. Support is urgently needed to improve waste management on the outer islands, to prevent waste entering the ocean.

Activities and interventions under this output are focused at the national level. All activities will be gender inclusive, ensuring the voices of women are heard, and opportunities for the meaningly participation of women are provided. Regionally, lessons, experiences and project will be shared between SIDS and through the CCKM under through Output 4.1.

National activities planned under this output include:

- Activity 2.4.1: Feasibility study for an improved national solid waste management system, and an atoll appropriate landfill designed in Kiribati. It is foreseen that the Programme will also play a catalytic role, supporting the development of preparatory work for larger investment activities. The Programme will work with non-GEF co-financing sources to ensure these investments are realised. This activity will contribute to overcoming the barrier of limited adequate landfills.
- Activity 2.4.2: Detailed design and costing for atoll appropriate landfill.
- Activity 2.4.3: Design of recycling management system for management of recyclable component of waste on atolls.

COMPONENT 3: ***Safe management of products entering SIDS/closing material and product loops for products***

Limited recycling opportunities, due to lack of critical mass, isolation of outer islands, and significant distances of from recycling markets, pose on ongoing challenge to SIDS. For products that are required in Pacific countries, there is a need to close product loops and establish effective circular and life-cycle management systems to ensure that these products are managed safely at the end of life.

Under Component 3 regional and national activities will be undertaken to overcome current barriers. The project will establish a regional system to provide ongoing regional support to countries on healthcare waste management. The project will also fund regional training opportunities in e-waste dismantling. Co-financing project partner PWP is convening e-waste dismantling for key Samoa stakeholders. The project will fund Cook Islands and Solomon Islands representatives to attend this training, which is highly relevant to both countries' national activities, focusing on e-waste.

It will also establish national systems to close product loops on key waste streams. These include e-waste, bulky wastes, plastics, and used engine oil. ISLANDS support for national activities hinges on PIC preparedness to take a long-term approach to management of these difficult wastes (through regulatory approaches addressed in Component 1), and the identification of private sector partners.

The outcome of Component 3 is the prevention of build-up of harmful materials and chemicals through establishment of effective circular and life-cycle management systems in partnership with the private sector.

Output 3.1: **Tools, TA and training for the Establishment of e-waste dismantling and recycling system (national and regional), results documented and made available to all Pacific SIDS**

The Cook Islands worked with Pacwaste (2016-2018) to complete an initial design for an e-waste dismantling system. Some export of e-waste has been completed, but assistance is required to scale up the system, and to include outer islands. The planned work in the Cook Islands will be in close coordination with PWP, which is working on imporving legislation related to recycling (as noted in Table 11). The Solomon Islands is receiving support from PWP to conceive and develop an e-waste management system, including supporting legislation. Incremental assistance is sought from ISLANDS to scale up and operationalize the system. Vanuatu has also prioritized the systematic management of e-waste as its national activity. Activities in the Solomon Islands and Vanuatu will be closely aligned to the work of AFD, which (as noted in Tavble 11) is focused on the sustainable financing of waste.

Consultations with the Government of Samoa resulted in the identification of residual waste generated by market-driven recycling activities as a significant new waste stream. Recyclers working in Samoa focus on recovering the most valuable parts of electronic goods such as fridges and washing machines, leaving significant residual waste (which is recyclable, but not economic enough to drive recycling) to be disposed of in landfill. Samoa has requested assistance to review this situation and develop a plan to improve efficiency of recycling operations in Samoa to achieve maximum environmental benefit.

In Samoa PWP is working to establish e-waste recycling, and ISLANDS activies will be executed synergistically with this. There is significant regional interest in piloting "remaking workshops" in an effort to divert waste from landfill, and provide a space for vocational learning. As the median age in the Pacific is 23 years old and unemployment is high, sustainably livelihoods are desperately required. The concept of "remaking" from waste materials is seen a potential contributor to both increased sustainable livelihoods and decreased waste.

Regional activities planned under this output include:

- Activity 3.1.5: Attendance of Cook Islands, Solomon Islands and Vanuatu representatives (and identified e-waste stakeholders) at the PWP training on e-waste dismantling in Samoa. The project aims for gender equality in training.
- Activity 3.1.6: Establishment of an electronic repair shed in Samoa. This facility will be an extension to an e-waste dismantling and recycling facility being established under PacwastePlus. Activities under the ISLANDS contribution will involve establishing community education and courses on electronic waste repair, to provide opportunities for community members to visit the repair shed and learn how to repair, as opposed to dispose of devices. It will also involve repair and resale of collected bulky waste, to divert waste from landfill and provide low cost goods to residents. Special attention will be placed on the participation of women, with specific activities to target women;s groups. This activity is designed to overcome the barrier of limiting recycling opportunities in SIDS, as well as improving technical capacity to store and manage hazardous substances. Although this pilot activity is planned for Samoa, it is considered a regional pilot, as if successful, it may be replicated within the project in another country (depending on activity outcomes and successes and available budget).

National activities planned under this output include:

- Activity 3.1.1: Establishing e-waste repair, dismantling facilities and recycling systems in the Cook Islands and Vanuatu, in cooperation with private sector partners and the national recycling associations. E-waste collection and reception facilities will also be established on outer islands. This activity is designed to overcome the barrier of limiting recycling opportunities in SIDS, by working with the Communication, Coordination and Knowledge Management Project to identify environmentally sound e-waste recyclers, as well as improving technical capacity to store and manage hazardous substances.
- Activity 3.1.2: Establishing e-waste repair, dismantling facilities and recycling systems in the Cook Islands and Vanuatu, in cooperation with private sector partners and the national recycling associations. E-waste collection and reception facilities will also be established on outer islands. This activity is designed to overcome the barrier of limiting recycling opportunities in SIDS, by working with the Communication, Coordination and Knowledge Management Project to identify environmentally sound e-waste recyclers, as well as improving technical capacity to store and manage hazardous substances.

- Activity 3.1.3: Establishing e-waste repair, dismantling facilities and recycling systems in the Solomon Islands, in cooperation with private sector partners and the national recycling associations. E-waste collection and reception facilities will also be established on outer islands. This activity is designed to overcome the barrier of limiting recycling opportunities in SIDS, by working with the Communication, Coordination and Knowledge Management Project to identify environmentally sound e-waste recyclers, as well as improving technical capacity to store and manage hazardous substances
- Activity 3.1.3: Export of e-waste from Cook Islands, Solomon Islands and Vanuatu for recycling.
- Activity 3.1.4: Review of recycling activities in Samoa and development of plan to reduce residual waste from recycling, improving the net environmental benefit of recycling activities.

Output 3.2: Operationalisation of waste transfer and sorting stations for bulky waste and recycling results documented and made available to all Pacific SIDS

Due to limited space in landfills and the need to prevent the generation of hazardous waste through burning of municipal waste, Kiribati, Nauru, Niue, Palau, the Marshall Islands, Tonga and Tuvalu are seeking to establish waste transfer facilities to sort, process and establish recycling systems for wastes. In Tuvalu and in Tonga these facilities will be established on outer islands, as these islands currently lack access to recycling infrastructure. Work in Kiribati and the Marshall Islands will be closely aligned with work planend under the AFD (and detailed in Table 11) on improving sustainable financing of waste.

Activities and interventions under this output are focused at the national level. Activities will include a focus on providing meaningful opportunities for the participation of women. Regionally, lessons, experiences and project will be shared between SIDS and through the CCKM under through Output 4.1.

National activities planned under this output include:

- Activity 3.2.1: Establishment of operationalisation of waste transfer and sorting stations in outer islands of Kiribati, Tonga and Tuvalu, to facilitate recycling in currently unserved communities including outer islands.
- Activity 3.2.2: Scale up of national recycling activities in Kiribati, Tonga and Tuvalu, in partnership with the private sector, to put in place ongoing systems of recycling of plastic waste. These activities are designed to address the barriers of limited recycling systems and lack of awareness.
- Activity 3.2.3: Establishment of operationalisation of waste transfer and sorting stations in Nauru. These activities are designed to overcome the barrier of limited recycling opportunities.
- Activity 3.2.4: Establish plastics and bulky waste recycling systems in Tonga and Niue. These activities are designed to overcome the barrier of limited recycling opportunities.

Output 3.3: Establishment of used oil management of used oil management systems in SIDS results documented and made available to all Pacific SIDS

FSM has a used oil stockpile of 900,000L. Assistance was provided under GEF ID 4066 to dispose of 70,000L (through export to New Zealand for recycling and the construction of a used oil storage facility). FSM recognizes the need to put in place a levy system on the import of oil, to ensure funds are available for disposal (assistance in this regard it proposed under Component 1). Assistance is also required to establish additional used oil storage facilities, as well as developing agreements with used oil recyclers, and organising the export of legacy used oil). Without assistance, used oil is being disposed of indiscrimently and often burned, resulting in uPOPs emissions.

Activities and interventions under this output are focused at the national level. Regionally, lessons, experiences and project will be shared between SIDS and through the CCKM under through Output 4.1.

National activities include:

- Activity 3.3.1: Establishing used oil management and used oil collection systems in four states of FSM. This will include the construction of temporary used oil storage facilities, replicating the successful model developed under GEF ID 4066, which funded and oversaw the construction of temporary used oil storage in Ponphei. Additional storage facilities are required on Chuuk, Kosrae and Yap.
- Activity 3.3.2: Technical assistance with the disposal of used oil from Chuuk, Kosrae, and Yap, including identifying and negotiating with buyer for used oil.
- Activity 3.3.3: Technical assistance with management of used oil into the future, including through the assessment and of the feasibility of using used oil as a diesel extender on Kosrae and potentially in other states.
- Activity 3.3.4: The development of a national used oil management to guide and communicate plans for long-term management of used oil in FSM, once the levy is in place.

Output 3.4: Technical backstopping provided to manage healthcare waste to Pacific SIDS

Current mismanagement of healthcare waste in the Pacific is resulting in emissions of dioxins, furans, as well as mercury. This mismanagement is due in part to the failure of countries to maintain and appropriately utilize the healthcare waste incinerators provided through a European Union healthcare waste project funded through the EDF10 from 2014-18.

SPREP, as the implementation partner of the PWP is currently undertaking activities to understand, and to improve, healthcare waste management in 14 Pacific Island Countries. Available funding under the PWP Programme is insufficient to undertake all necessary actions, and with the impact of the COVID-19 pandemic on healthcare waste, SPREP has called for a multi-donor response is required to ensure adequate management of healthcare waste throughout the region.

A regional response has therefore been proposed as part of the ISLANDS alternative scenario. The regional response proposes to provide support to Pacific countries in healthcare waste management, primarily in ensuring the proper functioning of incinerators, in order to reduce uPOPs emissions. It is noted that there are many more incinerators in the region than those included on the PWP inventory. The technical backstopping facility will be open to support all healthcare management incinerators.

It is noted that this work is in addition to a smallscale technology study currently being undertaken by PWP. Technologies, such as autoclaves are being assessed. The backstopping facility will also provide support on other technologies where appropriate, drawing in lessons from other GEF funded healthcare waste management initiatives.

Regional activities and associated barriers include:

- Activity 3.4.1: Establish technical backstopping facility for management for healthcare waste in the Pacific. This involves the convening of multiple donors (including the EU and GIZ) to establish a technical backstopping service for healthcare waste incinerators in the region. This is intended to overcome the regional barrier of lack of investment in infrastructure, and lack of technical personal.

National activities include:

- Activity 3.4.2: Provision of ongoing technical support to maintain healthcare waste incinerators in the Pacific region. This includes emissions monitoring, ensuring that POPs are not emitted. This will also include special attention to mercury-added products that may have entered the waste stream. Support will be provided in establishing processes to ensure segregation of mercury-containing medical devices.

COMPONENT 4: *Knowledge Management and Communication*

A key component of the project is overall coordination, knowledge management, communication and outreach, within the Pacific region, and to the Communication, Coordination and Knowledge Management Project. The Communication, Coordination and Knowledge Management Project is responsible for receiving and disseminating knowledge from all projects, and will provide templates for the development of knowledge assets. The Communication, Coordination and Knowledge Management Project is also responsible for executing the Programmatic communication strategy which sets out and monitors the overall coordination and communication of knowledge generated by child projects of the ISLANDS Programme.

Under this Component of the Pacific project activities will be undertaken to generate knowledge from project activities, and to disseminate knowledge from these activities, as well as from the wider Programme. Specifically, Component 4 the project will communicate national systems on sustainable financing, to assist in improving the uptake, and ultimate success of these initiatives. It will also include activities related to changing behaviours related to waste management, through extensive community education, and specific activities targeted at youth. The project will also support activities related to a regional campaign to work towards a Mercury Free Pacific. All of these activities will involve the generation of specific knowledge assets to be shared with the Communication, Coordination and Knowledge Management Project and disseminated to other SIDS regions, through other regional child projects. The outcome of Component 4 is that knowledge generated is disseminated to, and applied by SIDS.

Information will flow between the Communication, Coordination and Knowledge Management Project and the child project, through the project coordinators. Information will also flow between regional child projects through moderated communities of practice on issues of global relevance including end of life vehicles, e-waste and healthcare waste. The following diagram provides a visual representation of this proposed data flow. Interested stakeholders will be invited to join relevant communities of practice. These communities will be moderated and facilitate direct information exchange, peer-to-peer learning, and network building.

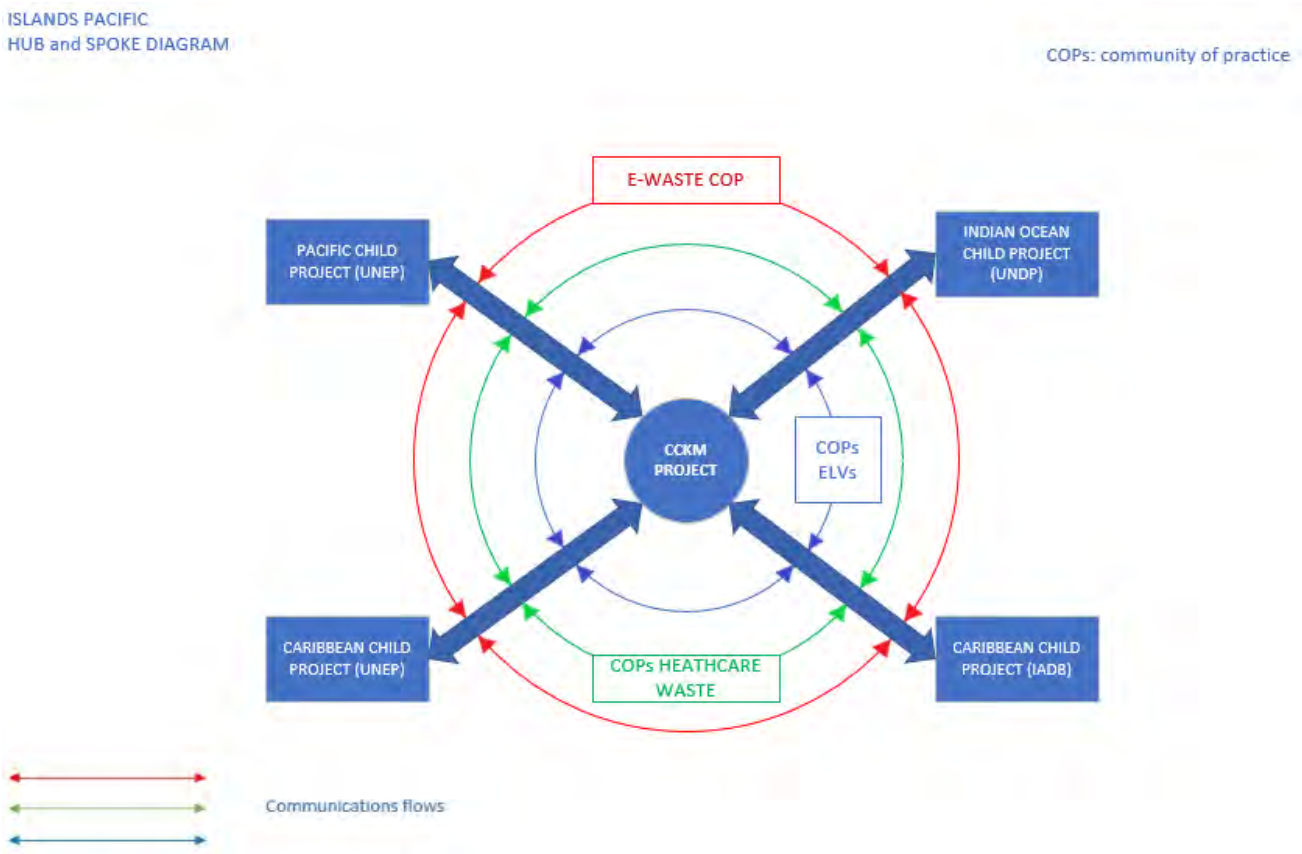

Figure 4: Pacific Child Project, Hub and Spoke diagram

Output 4.1 Communication of national systems on sustainable financing
The Cook Islands, FSM, Nauru and Niue have requested assistance in developing sustainable financing measures for various wastes (including e-waste, used oil, and bulky waste). Communities are yet to be fully informed or consulted on these plans, or eventual measures

Interventions planned include the following national level activities and seek to overcome the current barrier of lack of awareness of chemicals and waste issues:

- Activity 4.1.1: National communications of: new measures for e-waste recycling and management in the Cook Islands. This will include the main islands of Rarotonga and the outer islands in both the north and the south of the country. Currently there is no e-waste collection, or recycling on the outer islands, so extensive community consultation and awareness will be completed on each outer island, to ensure residents are aware of the opportunity to recycle e-waste.
- Activity 4.1.2: State-based communications on oil recycling levy and take back system in the four states of FSM. FSM has started some work on addressing the problem of used oil, but extensive communication activities are required in all states to ensure that the system is fully operationalized, and all used oil collected at centralized points for recycling.
- Activity 4.1.3: National communications of new composting and recycling system in Nauru. Nauru currently has very little recycling. Under the project a centralized recycling facility will be established at the landfill to reduce the waste going to landfill, and increase recycling. Special focus will be on composting, as Nauru requires fertile topsoil to grow crops. A national

communication campaign will be undertaken to educate the population about composting and recycling.

- Activity 4.1.4: National communication and outreach on the introduction of import levies to fund recycling of bulky wastes in Niue. This includes educating the Niuean population on new disposal and procedures, as well as consulting the population on the waste levy included in the departure tax (AUD20 per passenger).
- Activity 4.1.5: Detailed case studies and fact sheets on each of the national activities will also be developed as knowledge assets and shared with the Communication, Coordination and Knowledge Management Project, and among Pacific SIDS.

Output 4.2: Community education activities and programmes on waste management behaviour designed and conducted

In the context of the Minamata Convention MIA activities being undertaken in the region, SPREP is planning on promoting mercury free Pacific. Such a plan would involve including this on the agenda of the 2021 SPREP meeting, with the aim of getting Pacific countries to pledge commitment. From this a regional strategy will be developed to guide regional and national actions to eliminate mercury.

The Government of Tuvalu is undertaking a concerted national effort to reduce waste generation, increase recycling rates, and improve waste management. This requires changes in behavior across Tuvalu, at both the individual and community levels.

Activities under the component to change behaviours around certain wastes, are being undertaken both regionally and nationally. All activities under this output have been designed to address the barrier of lack of awareness of sound management of chemicals and wastes.

Regional activities include:

- Activity 4.2.1: Extensive regional campaign to promote a “Mercury Free Pacific” related to phasing out mercury medical devices and dental amalgam throughout the region. It is envisaged that Pacific leaders will lend high level support to this campaign at the SPREP meeting in 2021. In the lead up to this the project will develop a series of high level communications to engage Pacific leaders in the issues of mercury, to improve understanding of the aims of the Minamata Convention, and of leaders’ knowledge in products containing mercury, and their available alternatives. This improved understanding by leaders is expected to facilitate high level support to agree to phase out mercury containing products regionally at the 2021 SPREP meeting. It is noted that these devices are actually a subset of mercury, and careful communication will be required, as well as other measures put in place, to achieve a mercury free Pacific. Such measures are likely to include, but are not limited to, working on reducing open burning, and ensuring that no mercury containing waste enters the recycling stream.
- Activity 4.2.2: A regional action plan action plan will be developed to phase out products from 2022-2025. This regional action plan will provide regional guidance for countries to follow to meet the requirements of the Minamata Convention.
- Activity 4.2.3: A detailed case study and fact sheet will also be developed as knowledge assets and shared with the Communication, Coordination and Knowledge Management Project, and among Pacific SIDS.

National activities include:

- Activity 4.2.4: Behavioural change activities and community education in Tuvalu. Tuvalu is undertaking a concerted national effort to reduce overall waste generation, increase recycling rates, and improve waste management. This requires changed behavior at the individual and community level and the project will support Tuvalu in training communities and individuals, with the aim of achieving a "Litter Free Tuvalu."
- Activity 4.2.5: Detailed case studies and fact sheets will also be developed as knowledge assets and shared with the Communication, Coordination and Knowledge Management Project, and among Pacific SIDS.

Output 4.3 Widespread engagement of youth through Tide Turners program (regional)

Across the Pacific region half of the population is aged under 23 years of age. In Melanesia more than a third are aged 14 and under. PNG, Solomon Islands, and Vanuatu are recording population growth rates of 2%, or more, double the global average annual growth rate. The involvement of young people is central to changing behaviors related to waste management. UNEP Youth developed the Plastic Tide Turners badge, together with the Scouts, a leadership challenge to educate and empower young people to change their own behavior and that of their communities. UNEP has already established a successful programme to raise awareness on the impact of plastic pollution with youth movements including World Organization of Scout Movement, Junior Achievement and the World Association of Girl Guides and Girl Scouts in nearly 20 countries. This has so far reached over 100,000 young people, and aims through activities in this project to reach an additional 150,000 Pacific youth. Scouts has some presense in the Pacific, but the Tide Turners program is relevant to all youth groups. As such, the program will be rolled out in faith based youth groups, sports youth groups, other youth organizations and schools.

This regional activities under this output is designed to overcome the barrier of lack of awareness of sound management of chemicals and wastes, and wil target both boys and girls:

- Activity 4.3.1: Widespread rollout of the UNEP Youth Tide Turners programme (part of the global Earth Tribe https://earthtribe.scout.org/). First year activities will focus on Fiji, PNG, Samoa, Palau, Kiribati, Vanuatu, and in the second-year activities will focus on the Solomon Islands, Tonga, Marshall Islands and Nauru. The project will work through a series of locally based implementing partners which include Scouts groups, church groups and schools to engage, educate and empower youth to take action on addressing plastic waste and preventing pollution. Pacific youth will be networked through the Tide Turners app.
- Activity 4.3.2: Detailed case studies and fact sheets will also be developed as knowledge assets and shared with the Communication, Coordination and Knowledge Management Project, and among Pacific SIDS.

Output 4.4: Best practices in Pacific SIDS on hazardous waste management documented and made available reporting through the global component

For projects under the ISLANDS Programme to equate to something greater than the sum of their parts, effective coordination is required. This is the role of the Communication, Coordination and Knowledge Management Project child project. For the Communication, Coordination and Knowledge Management Project child project to be successful, it requires consistent, high quality inputs from the project.

Regional activities include:

- Activity 4.4.1: Regularly quarterly reporting to the Communication, Coordination and Knowledge Management Project on project activities. This will include the forwarding of project case studies and fact sheets to the Communication, Coordination and Knowledge Management Project for finalization and distribution to other SIDS.
- Activity 4.4.2: Regular receipt of information, knowledge assets and information from Communication, Coordination and Knowledge Management Project packaged and read for distribution to relevant stakeholders.

4) Alignment with GEF focal area and/or Impact Program strategies

The Chemicals and Wastes focal area is the only GEF focal area with a specific programme for Small Island Developing States (SIDS) and Least-Developed Countries (LDCs). The ISLANDS Programme is specifically mentioned in the GEF-7 Framework and is a flagship programme. The ISLANDS Programme is complimentary to, but not directly under any of the GEF-7 Impact Programs.

The GEF-7 investment framework for chemicals and wastes seeks to:

- Eliminate/restrict/control emissions from chemicals listed under the Stockholm Convention.
- Eliminate mercury emissions and releases.
- Support SAICM objectives, including building capacity for e-waste management and HHPs.
- Make efforts to deal with marine littering / micro-plastics from nationally derived sources and so influence industrial manufacturing and pollution management from plastics across SIDS.
- Inform decisions and actions in the agricultural sectors in countries in order to better integrate the work of the Conventions into national level agricultural policy.

ISLANDS is in full alignment with GEF-7 Programming direction on SIDS[93], which supports:

- Implementing Sustainable Low and Non-Chemical Development Strategies in SIDS and LDCs.
- Promoting Best Available Technologies (BAT) and Best Environmental Practices (BEP) to reduce UPOPs releases from sectors relevant to the Minamata and Stockholm Conventions in SIDS and LDCs.
- Promoting cleaner health-care waste management based on the lessons learnt from GEF funded healthcare waste projects to reduce uPOPs and mercury releases.
- Strengthening the management system for e-waste, addressing all stages of the life cycle (i.e. acquisition of raw materials, design, production, collection, transportation and recycling) in SIDS and LDCs.
- Phasing out of mercury-containing products.
- Undertaking gender mainstreaming and project monitoring and evaluation.
- Developing a strategy to ensure that technical assistance and investments are solidly linked to enhance countries' ability to deal with the management of POPs and mercury in a sustainable manner.

The ISLANDS Programme is also fully aligned with the GEF-7 principles of cost-effectiveness; sustainability; innovation; private sector engagement; promotion of resource efficiency (including circular economy approaches); and building on the use of existing networks.

GEF-7's chemicals and wastes approach focuses on sectors as an entry point to change, rather than taking a chemical-by-chemical approach. In response the ISLANDS Programme components were designed to facilitate child projects meeting the aims of the investment framework in each of the three regions through engaging with specific sectors.

In Component 1, preventing the future build-up of chemicals, the project will focus on assisting countries with instituting legislative measures to control imports, emissions, and establish sustainable financing mechanisms.

[93] GEF-7 Programming Directions, https://www.thegef.org/sites/default/files/council-meeting-documents/GEF-7%20Programming%20Directions%20-%20GEF_R.7_19.pdf,

In Component 2, managing and disposing of existing hazardous chemicals, products and materials, the project will eliminate emissions and releases through chemical disposal, as well as develop partnerships with the private sector to address potentially hazardous wastes, such as end of life vehicles, in a sustainable way.

In Component 3, preventing the future build-up of chemicals entering SIDS through the development of end-of-life systems, will be achieved through establishing regional recycling systems, in partnership with the private sector, and working with communities and civil society group to establish remaking and repair spaces to reduce e-waste through device repair.

In Component 4, the project will generate, communicate and share the knowledge developed from the above components among SIDS, through the Communication, Coordination and Knowledge Management project.

5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

Globally, there is a well recognized need for investment in the waste management sector in Small Island Developing States (SIDS). According to the Global Waste Outlook[94], of the funding made available to support improved waste management in the last decade, two-thirds of this has been invested in just ten middle-income countries[95]. Making the necessary finance for investment available to least developed countries (LDCs) and SIDS, which face unique challenges and often lack basic infrastructure, is a major challenge which this ISLANDS Programme aims to overcome.

In the case of chemicals and wastes management in SIDS, GEF financing has a significant catalytic role in orientating countries onto a more sustainable development pathway. That catalytic effect is achieved through the focusing on achieving global environmental benefits (GEBs). Achievement of the GEBs is based on activities linked to promoting the avoidance of specific chemicals through stronger import controls (including banning mercury containing medical devices), and instituting sustainable financing systems on products that results in hazardous waste at end of life, integrating principles such as circularity at national and regional level. This includes investment in waste collection and associated recycling systems and, through the strengthening and where possible harmonization of national policies (to ensure regional equivalence on CDL, advanced disposal fee, and other levies to finance waste management).

GEF financing under this project has also resulted in the commitment of $35 million in co-finance from Swire Shipping to develop a long term commercially viable recycling operation for ELVs. The commitment of this project to fund the feasibility study for this operation, catalyzed Swire into fast-tracking this commitment.

GEF financing under this project is focused on enabling Pacific SIDS to align and integrate priorities in a manner that will minimize trade-offs in generating GEBs, while achieving sustainability and development goals. All outputs proposed deliver both local and global benefits. The relationship of the national and regional level outputs to global benefits, that is, GEF's incremental contribution, is outlined in Table 5, below.

Table 5: **Incrementality of proposed project outputs**

Project Component	Outputs	GEBs achieved through interventions
1. Preventing the Future Build-Up of Chemicals Entering SIDS	1.1: Robust legislative frameworks for waste in place Pacific SIDS 1.2: Strategies to reduce hazardous imports in place in Pacific SIDS1.3: Model legislation to control mercury containing products for use by Pacific SIDS	• Indirectly decreased emissions, through improved management of wastes • Toxic chemicals reduced, through – reduction and avoidance of chemicals of global concern • Reduction/elimination of Mercury

[94] Global Waste Management Outlook (2018)
[95] Global Waste Management Outlook (2018)

2. Safe Management and Disposal of Existing Chemicals, products and materials	2.1: Repackaging, shipping and collection of POPs and mercury waste 2.2: Shipping and disposal of end of life vehicles (ELVs) from Pacific SIDS to Asian recycling markets 2.3: Improved residual waste management to reduce emissions 2.4 Feasibility analysis and design of waste management systems for atolls	• Reduction/elimination of Mercury • Toxic chemicals reduced, through disposal/destruction of chemicals of global concern and their waste in the environment and in processes, materials and products. • Toxic equivalent TEQ reduced through - reduction, avoidance of emissions of POPs to air • To facilitate investment mobilization by develop banks.
3. Safe Management of Products entering SIDs/Closing Material and Product loops for Products	3.1 Establishment of e-waste dismantling and recycling system 3.2 Operationalisation of waste transfer and sorting stations 3.3 Establishment of used oil management of used oil management systems in SIDS 3.4 Establishment of plastics and bulky waste recycling system	• Toxic chemicals reduced, through disposal/destruction of chemicals of global concern and their waste in the environment and in processes, materials and products • Avoidance of marine litter • Toxic equivalent TEQ reduced through - reduction, avoidance of emissions of POPs to air • Avoidance of marine litter
4. Knowledge Management and Communication	4.1 Communication of national systems on sustainable financing 4.2 Behaviour change in Pacific SIDS communities through community education on waste management 4.3 Widespread engagement of youth through Tide Turners program 4.4 Regional campaign to promote mercury-free Pacific	• Increased beneficiaries resulting from project interventions • Avoidance of marine litter • Avoidance of marine litter • Reduction/elimination of Mercury

Component 4 of the project will develop knowledge products and promote SIDS learning, through transfer of these products to the global Communication, Coordination and Knowledge Management child project. The Communication, Coordination and Knowledge Management project will develop a repository for knowledge, and communicate this knowledge to child projects in all regions. This will extend the benefit of project investments and thereby ensure important and costly resources developed under the project are available to all relevant stakeholders. Better use of resources means additional SIDS beneficiaries for a marginal investment.

6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

GEF investments in the chemicals and wastes focal area seek to prevent a toxic legacy through both reducing existing stockpiles and preventing the use and emissions both current and future of the chemicals covered under the Minamata and Stockholm Conventions.

The ISLANDS Programme is conceived as the first integrated attempt to assist SIDS across several regions to address chemicals and waste issues at the sectoral level. By addressing objectives of the Stockholm and Minamata Conventions and SAICM, the Programme will look to broaden the scope of interventions to address the wider chemicals and waste management issues unique to SIDS. This will also be achieved through ensuring the GEF investment is fully integrated with the large number of other ongoing and planned interventions across the regions in this sector.

6.1 Chemicals and Wastes GEBs

The child project is designed to provide support Pacific SIDS in improving chemicals and waste management in line with international commitments and national plans (as outlined in Section 7). The project, through both regional and country level activities (outlined in Section 1a), is anticipated to lead to the global environmental benefits, significantly higher than those forecast at PFD submission. The following table presents a summary of forecast GEBs based on baseline research and a series of assumptions. The methodology for the calculation of the GEBs is outlined in the following section (1.b).

Table 6: Breakdown of chemicals and wastes GEBs forecast from project activities

Core indicators		**Predicted totals in PFD submission**	**GEB forecast at project submission**
Core Indicator 9 *Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products [Metric Tons]*		**105.51**	**548.08**
Core Indicator 9.1 *Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type) [Metric Tons].*	DDT	100	12
	PCBs	1	532
	PentaBDE	0.01	0.34
	OctaBDE	1	0
	tetraBDE		0.19372
	hexaBDE		0.047
	heptaBDE		0.00293
Core Indicator 9.2 *Quantity of mercury reduced [Metric Tons]*	Mercury Containing Products	1	1
	Liquid mercury for ASGM	2.5	2.5
Core Indicator 9.4 *Number of countries with legislation and policy implemented to control chemicals and waste [number]*		10	10
Core Indicator 9.6		5,050	4,338 [96]

[96] See below for more details

Tons of contaminated materials/products.			
Core Indicator 10 *Reduction, avoidance of emissions of POPs to air from point and non-point sources [g-TEQ]*		8	8
Core Indicator 5.3 *Amount of Marine Litter Avoided [Metric Tons]*		28,000	28,000
Core indicator 11 *Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment*		200,000	200,000 (m: 100,000; f: 100,000)

6.2 GEBs methodology and assumptions

Global environmental benefits (GEBs) for core indicator 9.1 were calculated based on the responsible disposal of PCBs and polybrominated diphenyl ethers (PBDE).
The total amount of PCB was taken from the Papua New Guinea scoping report conducted as part of the PPG and attached as Appendix 11 which identified 611,720 litres of waste oil containing PCBs. This value was conservatively converted to metric tons using the relatively light mass density of mineral oil (870 kg/ m3). Thus, the total amount of PCB waste oil to be disposed of is approximately 532 tons.

In addition to PCB, the project will facilitate the disposal of POPs pesticides. Twelve tons of DDT stockpiles were identified and safeguarded during the PPG. These will be repackaged and destroyed in an environmentally sound manner as part of the project.

The total PBDE to be disposed of was calculated using the Stockholm Convention POPs inventory guidance.97 The guidance provides a simple equation for the calculation of total penta-, tetra-, hexa- and hepta-BDE contained in automobiles built between 1974–2004. Specifically, the calculation assumes that affected cars and trucks each contain 160 grams of commercial PentaBDE (c-PentaBDE), which was used as a flame retardant in polyurethane foam seat cushions. For busses a value of 1,000 grams c-PentaBDE is used. The calculation further assumes that 50 % of cars manufactured in the United States during this time period were affected while only 5 % of cars manufactured in Asia were affected. Data were not available for other regions. The total c-PentaBDE in each car is then used to approximate the total grams of the homologues above (penta-, tetra, and so on) which are the values reported to the Stockholm Convention. The current project has a target of safely disposing 5 % of the stockpile of End of Life Vehicles (ELVs) in each country beginning in year 2. Waste audit data from Palau (Appendix 11), vehicle registrations statistics and population data were used to approximate the total stockpile of ELVs in each country. In total a stockpile of 35,000 ELVs was conservatively estimated in the 14 countries Bus data was more difficult to calculate and was arbitrarily set at the safe disposal of 10 buses in each of the 14 countries over the life of the project. For the purpose of calculating GEBs a conservative estimate of 80 % was used as the proportion having been manufactured in Asia, while 20 % was uses as the proportion having been manufactured in the United State. GEB calculations assume the safe disposal of 5 % of the baseline (n=~1,745) of ELVs beginning in year 2 and extending for a total of 10 years. These assumptions result in a total c-PBDE estimate of 587 kg over 10 years and the following estimate for is homologues: hepta- (2.93 kg); hexa- (47 kg); penta- (340 kg); and tetra- (193 kg).

With regard to mercury use in ASGM, relatively little is known about the situation in much of the region. The project will focus the majority of its efforts on Papua New Guinea, which is the 15th largest producer of gold in the world exporting 72.9 tonnes annually. The number of small-scale miners in Papua New Guinea is estimated to exceed 108,000, with most using mercury in gold concentration. The project will limit the importation of Hg in the region through legislative updates reducing inputs by a conservatively estimated 2.5 tonnes. Similar efforts will target mercury-added products reducing mercury imports by 1 tonne. Thus the project's total contribution to indicator 9.2 will be 3.5 tonnes. Related legilsation on chemicals including mercury will be adopted in 10 countries, reported against indicator 9.4.

For the purpose of estimating GEBs against core indicator 9.6, the total mass of equipment containing > 50 mg/kg PCB oil during the Papua New Guinea scoping mission (Appendix 11) was used. The scoping report identifies 11 discrete pieces of equipment (including transformers and storage tanks) totalling approximately 145 tons. In addition the total weight of the polyurethane foam in car, truck and bus seats was calculated following Stockholm Convention guidance. In the case of cars and trucks, a value of 160 kg of contaminated materials was used. In the case of buses, 1,000 kg was used. Assuming the same disposal targets outlined for PBDEs under indictor 9.1, this equation results in the responsible disposal of 4,193 tonnes of PBDE contaminated material. Thus the total contribution of the project to indicator 9.6 is 4,338 tonnes.

For indicator 10, the project seeks to reduce and avoid the emissions of 8 g TEQ of POPs to air from point and non-point sources. The quantity of 8 g TEQ identified at PFD stage for reduction and avoidance remains valid. As for indicator 11, it is expected that the project will positively impact 20% of the population (¬ 200,000 direct beneficeries) of the participating countries through direct demonstration sites, improved control mechanism and dissemination activities in component 4.

Marine Litter:
In addition to avoidance and elimination of POPs and mercury, the project will prevent an estimated 28,000 tonnes of plastic pollution throughout the five-year execution phase, which is equivalent to the quantity predicted at the initiation of the PPG Phase. The baseline information for this reduction was initially linked to the efforts by the participating countries to ban and phase out the use of plastic bags and polystyrene products, which form a large part of the marine litter that is generated in the Pacific Ocean.

4) 6.3 Forecast GEBs from other focal areas

As noted by the STAP review the project has the potential to generate GEBs beyond the chemicals and waste focal area including: biodiversity benefits (through the prevention of harmful impacts of chemicals and waste on terrestrial and marine ecosystems); international waters benefits (through the prevention of chemical pollution and plastic pollution of international waters); and climate change benefits (through the mitigation of greenhouse emissions from poor waste management). The STAP recommended analysis of these co-benefits should be carried out at the PPG stage and that final interventions be designed to maximize these co-benefits.

The following table outline the specific biodiversity, international waters, and climate change benefits predicted. A methodology for monitoring these will be developed during inception, in consultation with other Biodiveristy Focal Area projects being executed by SPREP.

Table 7: **GEBs forecast from other focal areas**

Focal area	GEB	Project activity
Biodiversity: prevention of harmful impacts of chemicals and waste on terrestrial and marine ecosystem.	3.1 Area of degraded agricultural land restored:	1 Hectare in PNG as a result of clean up, collection, and repackaging of DDT waste from agricultural site.
International waters: Prevention of chemical and plastic pollution to international waters	5.2. Number of Large Marine Ecosystems with reduced pollution and hypoxia.	The project will support improved waste management and recycling initiatives in eight large marine ecosystems (Fiji; FSM; Marshall Islands; Niue; Palau; Samoa; Tonga; Tuvalu). All of these activities are designed to reduce pollution being discharged to international waters.
Climate change: CO2 Emissions avoided.	6.2. Emissions avoided. (The exact amount of CO2 emissions avoided will be calculated during project executed and reported.)	Expected through the rehabilitation and climate-proofing of landfills in Tonga.

7) Innovativeness, sustainability and potential for scaling up

The objective of this child project is to prevent the build-up of materials and chemicals in the environment that contain POPS and Mercury and other harmful chemicals in Pacific SIDS, and to manage and dispose of existing harmful chemicals and materials in Pacific SIDS.

The project has been designed to include numerous innovations, including:

- Linking with previously isolated SIDS regions. Interventions in the Caribbean, Indian Ocean and the Pacific regions have traditionally occurred in isolation from each other. As a child project of the ISLANDS Programme, this project is linked with activities occurring in other SIDS regions. This will facilitate Pacific SIDS stakeholders having the opportunity to communicate, participate in communities of practice, share experiences, and learn from each other at the global level.
- A regional approach with high level support for the phase out of mercury in medical devices. The project is supporting a Mercury Free Pacific Campaign, an idea generated by Pacific representatives during regional project consultations. The Campaign will be launched at the SPREP meeting, to facilitate high level ministerial buy-in at the regional level. The Pacific region prides itself on boasting a pristine natural environment. Eradicating hazardous substances is in line with regional values and vision.
- Establishing a remaking workshop in Samoa. This physical workshop will be developed in cooperation with PWP (which is establishing an e-waste dismantling facility in Samoa) and working with Samoan communities and civil society groups to establish remaking and repair space to reduce electronic waste through device repair. By doubling the life of electronic products the amount of electronic waste can be reduced by half. Repair of electronic household products is therefore considered an important management tool to reduce electronic waste.
- The regional child projects seek to address identified barriers through interventions, sourced from a broad range of experience and expertise. This project will coordinate through the Coordination, Communication and Knowledge Management project and through communities of practice with SIDS from other regions. These innovations are intended to bring SIDS stakeholders together and, communicating to promote and ultimately achieve sustained behavioral change.

Project activities aimed to achieve sustainability include the incubation and development of joint venture partnership with key private sector actors operating regionally in the recycling and logistics sector, to collect, dismantle, and safely dispose and recycle end of life vehicles. The project will establish the feasibility for this operation, and work with the joint venture partnership, being led by Swire Shipping to establish operations focused on the scrapping of legacy vehicles prevalent in Pacific countries. The operation will lead to expanded employment opportunities in the vehicle scrapping sector in several Pacific countries (with the specific countries to be determined during feasibility stage). The project will support the commercial longevity of this operation by, together with PWP, supporting Pacific countries in instituting advanced disposal fees on vehicles, through levying vehicle imports.

The innovations and sustainability activities described above will facilitate replication and scale up of project activities based on solid evidence and information from across all SIDS. Opportunities for scale up and replication will be facilitated by information exchange and knowledge sharing under the Coordination, Communication and Knowledge Management project.

***1b. Project Map and Geo-Coordinates*. Please provide geo-referenced information and map where the project interventions will take place.**

See annex E.

***1c. Child Project?* If this is a child project under a program, describe how the components contribute to the overall program impact.**

The project is the Pacific regional project under the ISLANDS Programme. The objective of the ISLANDS Progamme is to prevent the build-up of materials and chemicals in the environment that contain POPS and Mercury and other harmful chemicals in SIDS, and to manage and dispose of existing harmful chemicals and materials in SIDS. The intervention logic for the ISLANDS Programme the theory of change included as Figure 5, below.

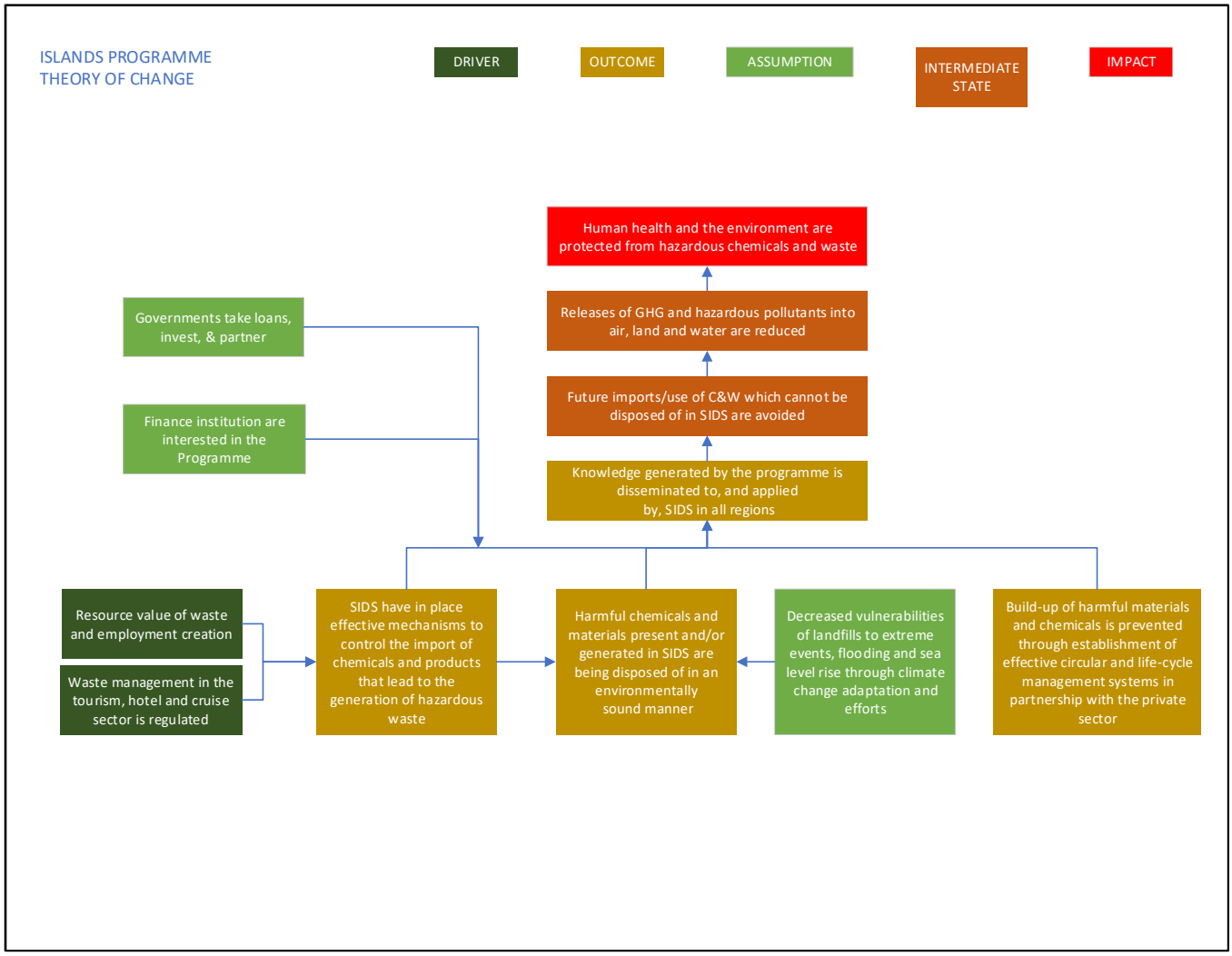

Figure 5: ISLANDS Programme theory of change

This objective of this child project is to prevent the build-up of materials and chemicals in the environment that contain POPS and Mercury and other harmful chemicals in Pacific SIDS, and to

manage and dispose of existing harmful chemicals and materials in Pacific SIDS. The relationship of each project component to the overall programmatic impact is outlined in the paragraphs below.
Activities under Component 1 are intended to achieve the outcome of Pacific SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste. Activities are focused on providing support to Pacific SIDS to improve and amend legislation to prevent the build-up of materials and chemicals in the fragile natural environments of Pacific SIDS. This includes legislative on e-waste, bulky waste and used oil, and focuses on support for instituting sustainable financing mechanisms, related to extended producer responsibility and container deposit legislation.

Activities under Component 2 are intended to achieve the outcome of harmful chemicals and materials present and/or generated in SIDS are disposed of in an environmentally sound manner. Activities in this component focus on managing and disposing of existing harmful stockpiles of chemicals. This includes stocks of DDT and PCB contaminated oil in PNG and pharmaceutical and other hazardous chemicals in Palau; and mercury containing products from throughout the region. This will also include improved management of solid waste to prevent the generation of uPOPs emissions and hazardous waste through uncontrolled burning.

Activities under component 3 are intended to achieve the outcome of preventing the build-up of harmful materials and chemicals through establishing of effective circular and life-cycle management systems in partnership with the private sector. Activities under this component aim to establish a degree of circularity in Pacific imports, contributing to improved management. Included are initiatives to establish collection and recycling of plastics, used oil, e-waste, and bulky wastes in Asian markets. This will link closely to the work of the CCKM which is establishing a shipping partnership to support fee-free backloading and shipping to recycling markets.

Activities under Component 4 are intended to achieve the outcome that the knowledge generated by the programme is disseminated to, and applied by, SIDS in all regions. Activities include communication activities targeted at youth and other civil society groups, to promote behavior change related to chemicals and waste management. Widespread behavior change in the Pacific is considered a prerequisite to improved waste management.

2. *Stakeholders*. Provide the Stakeholder Engagement Plan or equivalent assessment. In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.
Select what role civil society will play in the project:
☐ Consulted only;
☒ Member of Advisory Body; contractor;
☐ Co-financier;
☒ Member of project steering committee or equivalent decision-making body;
☐ Executor or co-executor;
☐ Other (Please explain)

During project preparation stakeholders were identified and mapped at both the regional and national level. Consultations with national level stakeholders were undertaken by SPREP national focal points. Consultations with regional stakeholders were undertaken by the project preparation team and SPREP. The full stakeholder engagement plan is presented in Appendix 6.

In summary, the plan first identifies social groups and persons that are associated with the project in different ways at all stages. It delineates stakeholders that are: affected by outcomes of the project; are expected to participate in the project; and those stakeholders that can influence the project. It also outlines the classifies stakeholders by group, outlines the key expectations and concerns of each group, and makes recommendations for engagement during project execution.

The plan then outlines stakeholder roles and responsibilities, and timing of the engagement throughout the project cycle, as well as detailing level of engagement during the project preparatory stage. The preposed engagement modalities for each group are presented in Table 8 below.

Table 8: Details of stakeholder groups consulted in project preparation, and proposed engagement approaches for execution.

Stakeholder group	Engagement in project preparation	Engagement in child project
International stakeholders		
International development partners/projects/activities (PWP, POLP, AFD)	Consulted at donor meeting on 9 December 2019 (Brisbane, Australia). Virtual communications and consultations took place regularly throughout PPG phase.	PWP national activities will be closely aligned to reduce administrative burden on Pacific SIDS. PWP, AFD and POLP will participate PSC
Intergovernmental organizations (SPREP)	SPREP is executing the project, and executed the PPG. This included consultation with SPREP's focal point on gender.	SPREP will execute the project. SPREP's focal point on gender will continue to provide advice to the project.
International private sector partners (Swire Shipping)	Ongoing consultation throughout PPG phase.	Swire will be directly engaged in the end of life vehicle activities planned for Output 2.2
National stakeholders		

National: National Ministries	Consulted by national focal points throughout the PPG, as well as by consultant for the Cleaner Pacific 2025 mid term review	Members of national coordinating committees
National Residents/communities living and working near project activities/Women's groups	Consulted by national focal points throughout the PPG	Will be regularly consulted by national technical assistant.
Nationally based private sector partners (PNG Power, recycling companies)	Consulted by national focal points and SPREP throughout the PPG	Consulted by national focal points throughout the PPG
National Church/Youth/Faith groups	Consulted by national focal points throughout the PPG	Representatives of specific groups will be asked to join the National coordinating committee Will be regularly consulted by national technical assistant.
National academic institutions	Minimal consultation during PPG	Academic stakeholders will be mapped by National technical assistants and invited to join National Coordinating Committees

The final sections detail the project budget allocation for stakeholder engagement, and the monitoring process. It is noted that all of this information has also been submitted to the Communication, Coordination, Knowledge Management project, which is developing a programmatic stakeholder engagement plan, to ensure coherent treatment of stakeholders across child projects.

3. Gender Equality and Women's Empowerment. **Provide the gender analysis or equivalent socio-economic assessment.**

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women's empowerment? (yes ☒ /no☐) If yes, please upload gender action plan or equivalent here.

Yes, a gender assessment and action plan has been completed for this project.

The Coordination, Communication and Knowledge Management project will use this information to develop the ISLANDS Programmatic Gender Action Plan.

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

☐ closing gender gaps in access to and control over natural resources;

☒ improving women's participation and decision making; and or

☒ generating socio-economic benefits or services for women.

Does the project's results framework or logical framework include gender-sensitive indicators? (yes ☒ /no☐)

The following gender-sensitive indicators are proposed:

- No. of Pacific countries with communities consulted on sustainable financing measures in place, % of women consulted
- No. of community education activities on waste management behaviour, % of women involved
- No of youth participating in Tide Turners program, % girls involved

Gender Assessment and Action Plan

The following gender assessment and action plan is based on the outline provided by the Coordination, Communication and Knowledge Management project, to inform the harmonious development of all child projects. It is intended that at project inception the Coordination, Communication and Knowledge Management project will develop a programmatic gender action plan, using the gender analysis and assessments undertaken by each child project. The sections below are submitted as the Pacific contribution to a programmatic approach to gender.

1. **What are the main gender gaps / issues to specific chemicals / waste that are relevant to the child project?**

Despite regional and national policy progress on gender equality, most Pacific Island constitutions still do not grant women equality in substantive terms, whilst customary laws obstruct women's access to education, employment and the capacity to be heard in decision-making. There is also a disconnection between policy commitments on women's rights and equality and policy implementation in local contexts. The Pacific Ocean Litter Project (co-financing this project) recognises the need for a multi-pronged approach to gender equality to bridge gender gaps. This approach is in line with the SPREP Gender Policy and considered relevant to this child project and recognises as necessary, the following specific issues:

- Positive social norms change towards gender equality and women's agency.
- Improved equality of outcomes in education and health.
- Improved women's leadership and decision-making opportunities at regional, national, sub-national and community levels.
- Strengthened women's groups, male advocates for gender equality and coalitions for change.
- Increased economic opportunities for women.
- Reduced violence against women and expanded support services.

2. **What actions / activities are necessary in the child project to help address the identified gender issues/gaps?**

In the child project, activities will be executed at the national level. Each project country has a specific priority area of focus. A national coordinating committee will be established to coordinate and oversee activities in each country. These committees are necessary to ensure consultation, buy in, from all stakeholder groups. Men and women should participate equally in these groups and this will be monitored.

Component 1 activities include review of legislation and support with enforcement. In several countries this will include training opportunities, and the project will require equal gender representation in all training activities envisaged. Activities under this component will also involve extensive stakeholder consultation. Activities undertaken to engage stakeholders will actively target local women's groups, NGOs, CSOs. These consultations will also glean important on gender and socioeconomic aspects of policy solutions (such as reducing use of single use plastics).

Activities under Component 2 will include exporting legacy wastes including used oil, POPs, mercury containing products, and car interiors containing PBDEs. Project activities will ensure that consultations with stakeholders on management of legacy wastes includes consultation with women's groups and that women are aware of, and involved in, activities. Where possible small-scale surveys near legacy waste sites for collection of gender-relevant data and information will be undertaken.

Activities under Component 3 involves establishing national systems for recycling. Stakeholders (including women's groups) will be consulted, and opportunities and risks to women clearly defined. It is recognised that a key to reducing residual landfill waste, is through increasing composting systems at the household level. Women are key partners in composting and activities around composting provide the opportunity to develop gender responsive activities. It is also noted that in some Pacific countries (for example PNG, Fiji, Samoa) the most vulnerable groups in the waste management value chain are waste pickers living around dump-sites. It is essential that these groups (women and men) can get access to and benefit from any levies put in place as part of the project, and do not lose out economically from losing access to informal recyclers for their collected materials.

Component 4 on Knowledge Management and communications will include the development of a programmatic best practice in chemicals and wastes activities, that will be disseminated in participating countries and used to guide project the execution of national activities. Further, recognizing the responsibility of women in sorting and managing waste in the homes, as well as educating family members, targeted communication materials will be developed, and local women's NGOs will be used to assist in dissemination and education of women.

3. **Is there anything else the child project should/can do to ensure equal opportunities for women and men to participate in and equally benefit from the child project?**

This project is being executed by SPREP. SPREP has a gender policy[2] and a focal point for for activities, projects, and general programming. According to SPREP's Gender Policy, SPREP aims to promote the integration of a gender perspective into SPREP- supported programmes and projects through: gender indicators integrated into SPREP project and programme logframes; and gender analysis undertaken when appropriate for fully appraised projects and programmes. The project will be executed in line with this policy, and in line with the ISLANDS programmatic guidance.

Women's Rights Organisations, exist at national and sub-national levels to facilitate broad consultation on national level activities. For nationally executed activities, the project will work through local coalitions. This is important to support ownership, tap into local understanding, facilitate development of local solutions and build the capacity of local development partners to implement those solutions. Working through coalitions of local stakeholders, and active networks of women, extends the strategies, capacity and resources available to address multilevel and multifaceted development problems. Significantly, coalitions and active networks of women can increase the opportunities for women to participate in decision-making at local, sub- national and national and regional levels. It increases the safety for women to participate, as well as the capacity and strength of their voice.

4. **Are there women's organizations or other relevant organizations that the child project can/should partner with?**

The Pacific Women Shaping Pacific Development (PWSPD) is an Australian Government funded project being implemented from 2012-2022. PWSPD aims to increase women's leadership, influence and economic empowerment as well as to shape efforts to reduce violence. It specifically supports development of a network of local, national and regional actors supporting gender equality and it supports innovative responses and lesson learning to build knowledge on what works. Since 2018, the Government of Australia has also supported the Pacific Partnership to End Violence Against Women and Girls ($7.6 million, 2018-22). These established initiatives provide a resource and network that the project can utilise to access expertise and facilitate appropriate consultation, whilst drawing lessons from experience in each focus country through these networks.

Additionally, the following key current activities related to gender include: UN Women Markets For Change program directly focused on improving the conditions and rights of women in national and local markets; IFC and SICCI funded Waka Mere in the Solomon Islands; work completed through the cross-cutting components of the Market Development Facility and Strongim Bisnis; the New Zealand Ministry of Foreign Affairs and Trade funded Business Link Pacific; and INGO-delivered women's economic empowerment programming focussed on skills development and access to financial services. These aforementioned activities focus on promoting economic activities for women. This relates to project activities in e-waste recycling, plastics recycling, bulky waste recycling, and ELVs. The project will seek to consult and establish partnerships with relevant national and regional level activities to ensure a coherent approach to promoting economic opportunities for women in the region.

5. **What are the gender-sensitive indicators that can be adopted in the child project that will help monitor and assess the child project's impacts on gender?**

The following indicators are proposed.

Indicator	Means of Verification	Baseline	Target	
			Mid	End
No. of Pacific countries with communities consulted on sustainable financing measures in place, % of women consulted	Consultation reports	3 % of women unknown	10 50% women	14 50% women
No. of community education activities on waste management behaviour, % of women involved	Project reports	0	20 50% women	40 50% women
No of youth participating in Tide Turners program, % girls	Tide Turner app data	200	5000 50% girls	20,000 50% girls

6. **Are there any potential risks associated with the proposed child project? What actions are needed to mitigate such risks?**

The key risk related to gender in the project, is that despite being provided the opportunity to engage, due to cultural dynamics, women don't feel comfortable. This risk will be mitigated by creating a safe space for consultation on national activities, by consulting directly with women's groups, as well as women being represented in national committees.

***4).* Private Sector Engagement. Elaborate on the private sector's engagement in the project, if any.**

As elaborated in the alternative scenario, the project is engaging the private sector through several initiatives. This includes Swire Shipping which is providing $35 million in co-financing investment in an ELV operation. The project will also provide opportunities for Pacific based enterprises to become involved in recycling activities in each country.

The following outlines planned private sector involvement in each of the components and outputs.

Table 9: Private sector involvement

Component	Output	Details of private sector involvement
2	2.1 Repackaging, shipping and collecting of POPs and Hg waste	This involves the collection, repackaging and shipping of DDT stockpiles and PCB contaminated oils to Australia for destruction. Swire Shipping has agreed to provide shipping free of charge from PNG to Australia, as part of the Moana Taka Partnership. PNG Power, owner of the transformer oil has agreed to co-finance clean up and disposal costs.
2	2.2 Shipping and disposal of ELVs from Pacific SIDS to Australian recycling markets	Swirer shipping is leading a private sector consortium to dismantle, ship and recycle end of life vehicles on a commercial basis. This initiative has committed £35 million in co-finance to the project., The
3	3.1: Establishment of e-waste dismantling and recycling system	Systems will be developed in Cook Islands and the Solomon Islands. Local companies will be consulted and invited to become involved in the project as partners.
3	3.3 Establishment of used oil management systems in SIDS	FSM is putting in place a levy system to fund the offshore disposal of used oil. The project will also support FSM is identify a private buyer for the legacy stocks of used oil. Discussions with Kwyoa Shipping are ongoing.

5 Risks. **Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable).**

SIDS worldwide share similar development trajectories and vulnerabilities. Due to these common vulnerabilities, several risks are common to all SIDS. These global risks are outlined in the following paragraphs. Regionally specific mitigation measures are then included in the following table.

5.1 Global risks:

5.1.1: COVID-19: Direct risks from the COVID-19 pandemic to the project include travel restrictions and the generation of additional single use plastic waste. Some Pacific SIDS, for example, have indicated plans to close their borders until 2022, while SIDS in the Caribbean and Indian Ocean continue to be subject to rolling lockdowns. Restrictions on traveling to and within SIDS will impact project execution activities.

SIDS are also importing COVID-specific medical equipment, leading to increased pressure on medical waste management. These medical wastes include single use plastics, may include mercury containing medical devices, and other wastes that the ISLANDS programme seeks to reduce.

Indirect risks and decreased resilience from the COVID-19 pandemic include decreased local support due to shifted priorities and impacts to SIDS economies. SIDS governments have had to prioritise their COVID-19 response over other management issues, including waste management. Tourism-dependent countries in particular are facing significant decreases in GDP and sharp increases in state debt.

5.1.2: Climate change: SIDS are highly vulnerable to climate change, facing increased natural disasters and rising sea levels in the present and future. In particular, coral atolls and low-lying island regions, such as in the Bahamas, Barbuda, the Cook Islands, the Federated States of Micronesia, Kiribati, the Maldives, the Marshall Islands and Tuvalu are at high risk of damage to infrastructure and the economy due to rising sea levels and more frequent storm surges. SIDS globally are also at risk of more frequent and more intense cyclone activity that may result in infrastructure damage, disaster waste, shifts in political priorities, and delays in project outputs. For example, in recent years hurricane activity has been much more frequent and severe than the historical average in the Caribbean region.

Vulnerability to extreme climatic events poses risks to project activities. Consideration must be given to storage sites for waste, and also of the need for climate-proofing waste management infrastructure. Without such consideration, project gains in waste management improvements are at significant risk of being undermined or destroyed by extreme climate events.

All project countries face COVID-19 and climate change related risks. Regionally specific mitigation measures are needed to adequately address specific regional vulnerabilities.

5.2 Regional risks

The following table outlines the risks and proposed mitigation measures for the Pacific region.

Table 10: Identified project risks and mitigation measures

Risk	Risk ranking	Proposed mitigation measures
COVID-19 risks		
Due to COVID-19 travel ban, Project Coordinator cannot travel to Samoa to begin post	High	Currently, there is very restricted travel in and out of Samoa. Consultations with the Government of Samoa indicate that this situation is set to continue well into 2021. As such, placement of an international Project Coordinator will be difficult. To mitigate this risk, the recruitment activities for the Project Coordinator will focus on New Zealand, the one country with flights to New Zealand. Administrative arrangements will be made with the Government of Samoa, in advance to ensure that travel is possible. If the successful applicant is from another country, additional consultation work will be required to clear travel (through the Government of New Zealand).
Restricted travel	High	The Pacific region has avoided many impacts of COVID-19 by restricting travel within and into the region since February 2020. It is likely these restrictions will continue into the foreseeable future. As such project travel for meetings, trainings, consultations, and technical assistance may not be possible. To ensure project activities can continue in an environment of constrained travel, the project will focus on establishing regular project meetings via Zoom. At the beginning of the project, countries will be offered internet upgrade to ensure they are able to participate in online meetings and training. The first year of the project will include recruitment of national technical officers in each country, to ensure a dedicated focal point is available to prepare for national activities, and convene national consultations. No international consultancies or technical assistance involving travel to countries is planned for 2021. This approach will be reviewed when the COVID-19 pandemic subsides.
Decreased local support due to shifted priorities	Low	National consultations have been (virtually convened) to assess country readiness, and adapted accordingly. A project technical assistant will be hired in each Pacific country to ensure that the project does not overburden Pacific counterparts.
Increase of new waste streams	Medium	It is noted that single use plastic use is increasing internationally as part of the response to COVID-19. This has the potential to offset the work of the project in decreasing waste. This will be monitored carefully during the project and corrective measures taken where necessary.
Negative impacts to SIDS economies (especially due to tourism and remittance reduction)	High	Consultations convened with country counterparts indicate that they are facing general economic downturns and increased unemployment. Development of in-country capacity will help to mitigate impacts, and generating new employment opportunities.
Climate change risks		
Rising sea levels	High	In many Pacific SIDS climate change is considered one of the greatest threats to the livelihoods, security and wellbeing of their people, particularly on low-lying atolls. Areas of the Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, and Tuvalu are only a few metres above present sea level and may face serious threat of permanent inundation from sea-level rise, this presents significant barriers to the sound management of chemicals and wastes. SIDS waste management

		facilities face threats of inundation. While the project cannot mitigate this risk in its entirety, activities to climate proof landfills have been prioritized by Tonga and will be the focus of Tonga's national activity.
Infrastructure damage due to increased cyclone frequency and severity	Medium	The impacts of climate change have been considered in the design of the project and will be closely monitored during execution. National activities involving landfill and recycling infrastructure will be executed in a climate sensitive way, ensuring that all structures are well cited, and climate-proofed.
Increase in disaster waste due to increased cyclone frequency	Medium	This is an ongoing issue in the Pacific region. While the project does not address the reduction of disaster waste directly, it aims to reduce the overall amount of waste being directed to landfill. Indirectly, this will ease the burden on landfill sites. The project is collaborating closely with PWP which is addressing disaster waste, and synergies between activities will be ensured.
Operational/delivery risks		
Political priorities, will and/or buy-in are not adequate for execution of key project activities	Medium	The institutionalisation of the project's activities will be encouraged. Pacific government stakeholders were engaged throughout the project development phase to ensure that national priorities are clearly reflected in the project design. Continuous communication and updates will be provided to the national focal point and key agencies to ensure sustained support. The presence of a technical assistance in each country will facilitate project coordination and communication, without overburdening national counterparts.
Executing Agency procurement processes not capable of expending project funds in a timely manner	High	The project is one of several large (>$10million) projects being executed by SPREP. Close consultation has been undertaken with the other large projects, PWP and POLP, to establish the procurement capability of SPREP. Both projects have been working closely with the SPREP executive to improve procurement procedures. This risk will be mitigated through ongoing cooperation with PWP and POLP, and joint consultation with the SPREP executive. In addition, UNEP will procure the services related to the PNG POPs disposal in the first year of the project, to ensure these proceeds without delay.
Centralized regional execution results in the project unable to achieve sufficient results at national level.	Medium	Extensive consultation was undertaken with Pacific focal points on this issue. It was noted that the centralised regional execution of previous projects resulted in little national ownership, or awareness of the project. This project is much larger than previous interventions, with significant national level activities in each country. As such it was agreed that all national activities will be coordinated by a national technical assistant to ensure a consistent concentrated national presence for the project in each of the participating countries.
Stockpiles of remaining POPs in PNG are unable to be located, and released to the environment	Low	To mitigate this risk, DDT stocks in PNG were safe-guarded during the project preparatory phase. The DDT stocks were secured in two shipping containers and are being monitored by the PNG ministry of environment. The collection, repackaging and transport of these stocks is scheduled for year 1 of the project to ensure that the chemicals are transported to Australia as quickly as possible for destruction. Given the possibility of continued restricted global travel, qualified PNG based companies have been identified and confirmed they can undertake this work.

Duplication of effort by donors/projects	Low	During the project preparatory phase, UNEP recognised the need for regional coordination, among the numerous donors/actors undertaking activities in the chemicals and waste space. In response a donor coordination briefing was convened in December in Australia. Donors/actors agreed to ongoing increased communication and coordination, to ensure activity designs are synergistic and do not overlap. This coordination continues, with frequent communications between donors/actors. In addition a regional focal point was established (within the PWP) to monitor the progress in each country on container deposit legislation, as this is acknowledged a precursor to improved recycling approaches in each country.
Private sector and/or community support and behavioural change are not adequate	Low	The private sector and CSOs/NGOs have been engaged throughout the project preparation phase and will continue to be engaged throughout the project's execution. Members will be included on National Working Groups to ensure that their needs are being met. Awareness raising campaigns will be developed and executed to engender additional support from these groups.
Some countries make little progress, due to not prioritising the projec	Medium	The project includes 14 Pacific countries. It is highly likely that some countries will face delays in interventions due to competing priorities, or other reasons. To mitigate this risk each country will host a national technical assistant, based at the ministry of environment and responsible to the Project Coordinator (based at SPREP). The role of this individual will to maintain momentum of the activity (where possible) and to adapt activities (where necessary) in coordination with the country counterparts and the Project Coordinator.
Technical risks		
Recycling systems cannot be financed sustainably	High	High costs of transport and large geographic distances to global markets mean, recycling is not viable without additional funds. Successful initiatives in the Pacific involve the introduction of container deposit legislation. To ensure technical assistance provided by the project is sustainable, the project has confirmed that all Pacific countries prioritising activities on recycling are also working on container deposit legislation to sustain the cost of recycling. In addition, the Moana Taka partnership provides free shipping for recycling activities.
Inadequate data available to support activities	Medium	Historically, data collection within the region is not adequate. Where required information is not available, the project executers and partners will work with stakeholders to collect raw data and develop mechanisms to ensure that sustainable data collection mechanisms are implemented.
Social risks		
Continued disregard for the environmental and health impacts of existing waste management activities	Low	Awareness raising campaigns will be developed and conducted for government and private sectors as well as the public to engage key community authorities and vulnerable groups (e.g. youth, Indigenous communities).
Economic displacement of informal sector workers through formalisation of chemicals and waste management systems	Low	Communities/relevant experts and the informal sector will be engaged in the execution of the project's activities to ensure that developed and implemented strategies provide safe economic opportunities for informal recyclers. These workers will also benefit from training on best environmental practices to protect them from the negative health impacts associated with improper waste management.

6. Institutional Arrangement and Coordination. **Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

The following sections describe arrangements for programmatic execution. The proposed institutional arrangements for project execution are then described. The final section elaborates planned coordination with other initiatives.

6.1 Programme level coordination

The GEF ISLANDS Programme is a multi-agency initiative that builds on the experience of several GEF Implementing Agencies (IAs) across the Caribbean, Indian Ocean and Pacific SIDS. UNEP is the lead agency, responsible for the overall Programme coordination and ensuring the results at national / regional level are fed into a system (this project) resulting in benefit to all regions. This role includes the monitoring of progress and reporting on the delivery of programmatic results as well as providing a platform for knowledge sharing and exchange of information to all project beneficiaries.

UNEP is the lead Implementing Agency for the Programme. As lead agency UNEP is overseeing the development of the child projects, and reports to GEFSEC on progress. UNEP will coordinate the Programme through regular meetings of a Programme Coordination Group (described graphically below) made up of FAO, GEF C&W Focal Area team, IADB and UNDP. As Lead Implementing Agency (IA) UNEP will provide all reports to the GEF Secretariat to allow for onward report to GEF Council.

UNEP's comparative advantage is its mandate to coordinate the work of the UN in the area of environment, and its experience as a successful and efficient IA specializing in regional and global activities. UNEP's expertise includes proof of concept, testing of ideas, and the best available science and knowledge to form the basis of GEF investments. UNEP also serves as the Secretariat to three of the MEAs (BRS, Minamata and SAICM), for which GEF is the/a financial mechanism. UNEP will take the lead in finalizing the programme level data flow and reporting to the GEF Secretariat as indicated in the organo-gram on the following page. The GEF Secretariat function remains the presentation of the data and results to GEF Council and member states.

The following diagram outlines the proposed structure of the ISLANDS Programme, including the Child projects, the implementation and execution modalities, as well as the relationship to the project.

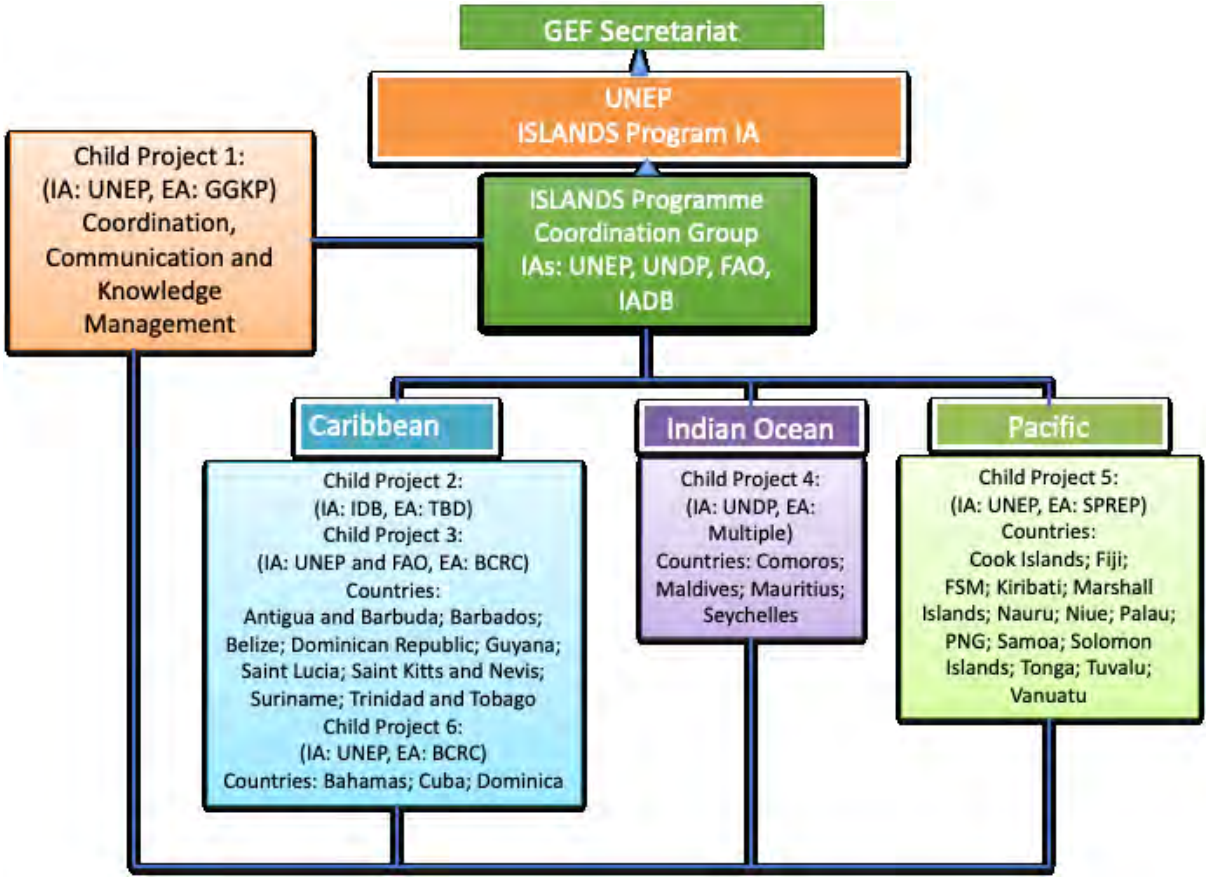

Figure 6: ISLANDS Programme Structure

The GEF ISLANDS Programme will be coordinated through a Programme Coordinating Group (PCG) which will consist of the GEF Secretariat and the Implementing and Executing Agencies for the Child Projects (UNEP, UNDP, SPREP, BCRC, GGKP, IADB, Indian Ocean national governments, and a government representative from both the Caribbean and Pacific regions). The PCG will meet face to face annually, taking advantage of existing events in the chemicals and wastes calendar such as Conferences of the Parties of the Basel, Minamata, Rotterdam and Stockholm Conventions and events linked to the Strategic Approach to International Chemicals Management (SAICM). This modality serves to reduce cost and provides the opportunity for further interaction with a wider network of project stakeholders from the beneficiary countries, private sector and civil society through additional parallel events. The approach also ensures close collaboration with the Conventions and SAICM Secretariats.

6.2 Project institutional arrangements and coordination

This project will be implemented by UNEP and executed by SPREP. SPREP has a pivotal role in supporting Pacific Island SIDS in chemical and waste management and is a regional hub for coordination of regional activities. Currently chemicals and wastes activities funded by four donors

are coordinated through the SPREP waste unit, with a combined value of over $40million (including this project).

As Executing Agency (EA) for the Pacific Child SPREP will convene annual Regional Project Steering Committee (PSC) meetings. While COVID-19 continues to preclude travel, these meetings will be held virtually. Once physical meetings are again possible PSC meetings will be scheduled back-to-back and in close coordination with the regional meetings for the other projects, to reduce travel costs and burden. PSC meetings may also be linked with Cleaner Pacific Roundtable and Waigani Convention meetings. This approach will serve to reduce travel and meeting related costs and ensure prudent use of donor funds.

The PSC will include representatives from UNEP, SPREP, Pacific countries, Swire Shipping, other regional projects (including PWP, POLP and the AFD activities). The PSC will review progress of project activities as well as the workplan for the coming year. The PSC will also review the budget and approve any budget revisions proposed by the EA.

The project will be coordinated by the Project Coordinator, based at SPREP. The Project Coordinator will recruit a communications coordinator, a finance and procurement officer, and national technical consultants.

The project will coordinate actively with other key regional activities on chemicals and waste management currently being managed through SPREP. This includes the European funded PWP, the Japanese funded JPRISM II, the Australian Government funded POLP, and the soon to be executed French Government funded activity on waste management. Collaboration with these projects began in the preparatory phase and will continue as a key modality for execution ensuring avoidance of duplication, pooling of resources, and consultation on best practices and lessons learned. Representatives from these projects will be invited to Project Steering Committee meetings, and efforts made to hold these meetings both concurrently and/or back-to-back to ensure coordination is sustained and mainstreamed into project execution.

In addition SPREP is responsible for ongoing monitoring of the implementation of the CP2025. The Project Coordinator will represent the project at meetings of this monitoring group, ensuring that project activities remain closely linked to the implementation of the CP2025.

National technical consultants will be hired in the first year of the project in all project countries. The role of the technical consultant is to provide an in-country focal point for all country activities. These individuals will be housed within the respective environment ministries, but will report to the Project Coordinator at SPREP. This will provided an essential link to country officers, and a focal point for the coordination of all country activities.

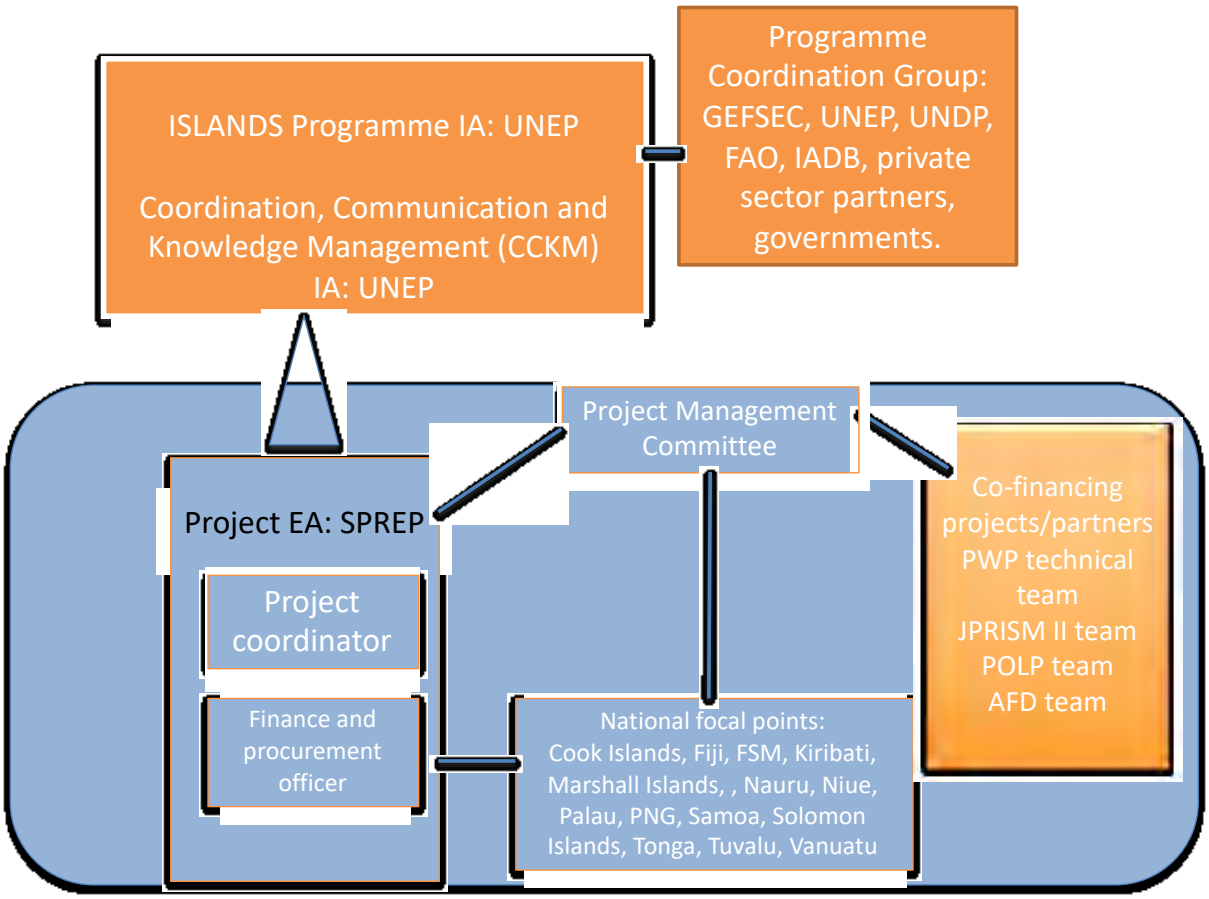

Figure 7: Proposed project structure, staffing and relationships with other key regional projects

6.3 Planned coordination with other relevant GEF-financed projects and other initiatives

The project will coordinate with relevant activities being concurrently executed by SPREP. These are fully outlined in Table 11, below. As noted above, coordination with these projects was initiated during project preparation and will be ongoing through project execution. Coordinating project calls will be convened every two months, to provide project representatives an update on progress in each respective project.

In the case of PacwastePlus, project representatives have joined country consultation calls during project preparation, to ensure opportunities for cooperation and collaboration are identified. These are clearly articulated in the country priority frameworks included as Appendix 12.

Table 11. Additional information on Pacific Islands regional activities

Country / Territory	Current Sustainable Financing System for waste	AFD			GEF ISLANDS			JPRISM II			POLP			PWP		
		Participating	Thematic Focus	Specific Details	Participating	Thematic Focus	Specific Details	Participating	Thematic Focus	Specific Details	Participating	Thematic Focus	Specific Details	Participating	Thematic Focus	Specific Details
Cook Islands	Currently considering an Advance Disposal Fee. Discussing with PWP for legislative support	N			Y	Hazardous Waste	E-waste collection and disposal system	N			Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Recyclables	Legislation, facilities
FSM	Kosrae and Yap has a CDL system.	N			Y	Hazardous Waste	Sustainable financing system for disposal used oils	Y	Solid Waste	Strategy, CDL, Waste Collection, Promotion on Good practice	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Recyclables	TBC
Fiji	Environmental and Climate Adaptation Levy (ECAL). Pollution Levy for Ships.	Y	Marine Debris	Community Engagement	Y	Recycling	Waste collection and recycling systems at selected settlements	Y	Solid Waste	SWM Plan, Pilot study on recycle	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Healthcare Waste	TBC

Kiribati	CDL on limited products, lead cell batteries and prepaid collection bag system.	N			Y	Disposal	Atoll Friendly Landfill design and feasibility study	N			Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Asbestos	Legislation, clean up, disposal
Marshall Islands	CDL on limited products, and prepaid collection bag system.	N			Y	Recycling	Deposit scheme for selected waste items	Y	Solid Waste	SWMPlan, CDL, Promotion on Good practice	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Organics	Composting established to reduce landfill load
Nauru		N			Y	Recycling	Increased recycling, composting	N			Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Asbestos	Legislation, clean up, disposal
Niue		N			Y	Disposal /Recycling	Bulky waste disposal	N			Ye	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Recyclables	TBC
Palau	CDL on limited products. Environment Tax.	N			ys	Recycling	Increased recyclig,	Y	Solid Waste	Strategy, Waste Collection, Landfill management, Promotion on Good practice	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	-	TBC

PNG		N			Y	Hazardous Waste	Removal of obsolete POPs (DDT and PCBs)	Y	Solid Waste	SWM Plan, Landfill management; install aweighbridge system	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Healthcare Waste / asbestos / e-waste	Policy, legislation and training on these hazardous waste streams
Samoa	Currently considering a waste levy system. Initial work supported by JPRISM II, now seeking PWP assistance. Port Environmental Levy. Considering a Pollution Levy that would supercede the Pollution Levy.	Y	Used Oil.	Pilot projects	y	Recycling	Improved management of residual wastes	Y	Solid Waste	Strategy, Waste Collection, Study on finacial option	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	E-waste	Legislation, facility, training
Solomon Islands	Voluntary on certain brands	Y	Sustainable financing,	Pilot projects and community engagement	y	Hazardous Waste	E-waste collection and disposal system	Y	Solid Waste	SWM Plan, Promotion on Good practice, Study on financial option	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Organics	Legislation, facility, training
Tonga		Y	Disaster Waster	Pilot Project	y	Disposal	Landfill improvement	Y	Solid Waste	SWM Plan, Waste Collection, Landfill Operation	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Asbestos	Legislation, clean up, disposal

Tuvalu	CDL on limited products	N			y	Recycling	Collection and recycling of plastics	N			Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Asbestos / Recyclables	Outer Island asbestos Assessment and recycling
Vanuatu	Pre-paid bag system in provinces. Voluntary CDL on certain brands. JPRISM II leading support on CDL, PWP Supporting	Y	Disaster Waste Used Oil, Marine Debris	Pilot projects and community engagement	y	Hazardous Waste	E-waste collection and disposal system	Y	Solid Waste	SWM Plan, Landfill management, CDL	Y	Marine Litter - Single-use Plastic reduction in coastal environments	TBC	Y	Recyclables / Organics	Village level recovery project

In addition to cooperation with these regional projects, several Pacific countries are undertaking projects under the Special Programme on Institutional Strengthening in the Chemicals Cluster. which is managed by UNEP. Consultation was undertaken during project preparation with each country focal point and the Special Programme Secretariat to coordinate efforts. Proposed modalities for cooperation with each Special Programme project are outlined in Table 12 below.

Table 12: **Pacific countries with existing activities under the Special Progamme on Institutional Strengthening of the Chemicals Cluster[97].**

Country	Special Programme (SP) focus and activities	Links with project activities
Federated States of Micronesia	Developing a national chemicals profile and update the 2015 chemicals inventory; develop a National Chemicals Management Policy and Action Plan; strengthening national and state legislative frameworks to provide comprehensive coverage of all chemicals and hazardous waste management matters; establish a centralised national database to hold chemicals and waste data.	The project will provide support to FSM on used oil management. This includes support on introducing a levy on oil inputs. This work will be in close collaboration with the SP activities on legislation. The project will also make available used oil data to the FSM national database.
Kiribati	Strengthening the legal and non-regulatory framework and enforcement; practical training; and establishing updated centralized information sharing on chemicals and waste (chemical import, use, waste generation, and export)	The project will provide support to Kiribati on a feasibility study for an improved, atoll appropriate landfill, and to developing systems for waste management on outer islands. Links will be made with training exercises and the project will make use of (and support the development of) the centralized information sharing platform developed under the SP.
Nauru	Developing a profile of waste through a comprehensive situational analysis; developing an Integrated Chemicals and Waste Management Policy and costed implementation plan; reviewing and updating the national legislative framework for chemicals and waste management to reduce overlap, close legislative loopholes, and strengthen national; and establishing a centralised data management system to enable updated data on chemicals and waste to be collected, stored, reported, and used for better decision- and policy-making;	The project will use (and where necessary assist) in the development of a comprehensive situational analysis of wastes in Nauru. This is required for the project intervention which includes establishing a waste transfer depot and large-scale composting at the landfill. The project will liaise closely on legislative upgrades, and make use of (and assist in the development of) a centralized data management system for chemicals and wastes.
Palau	Strengthening national and state legislative frameworks on chemicals and hazardous waste management matters; developing a centralised data management system for chemicals and waste data to ultimately improve reporting to the Conventions; strengthening human technical capacity to implement sound management of chemicals and waste by establishing vocational training programs; and establishing a certification system for preparers of Environmental	The project will assist Palau in the inventory and disposal of hazardous chemicals. The project will liaise closely with the SP activities on legislative upgrades (providing assistance where required), and on the development of a centralized data management system on chemicals and wastes.

[97] https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/special-programme

	Assessments (EAs) under Palau's environmental impact statement (EIS) process to improve the standard of EAs and strengthen capacity of EA assessors.	
Papua New Guinea	Establishing a coordination mechanism to coordinate chemicals and waste management issues effectively with stakeholders; stakeholder consultation on policy, legal, chemicals and waste management; identification of follow up actions necessary for policy and legal framework implementation; and public awareness and capacity building workshops on chemicals and waste with industry and key stakeholders;	Project activities will focus on the clean up, repackaging, transport and disposal of disused DDT and PCB contaminated oil. The project will consult and brief the national coordinating committee established under the SP and cooperate and support on public awareness and capacity building activities. The project will make links between the SP public awareness activities, and Tide Turners plastic waste challenge youth engagement activities, ensuring activities are coordinated.

***7. Consistency with National Priorities*. Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:**

- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- National Action Program (NAP) under UNCCD
- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- Minamata Initial Assessment (MIA) under Minamata Convention
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- National Communications (NC) under UNFCCC
- Technology Needs Assessment (TNA) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- National Implementation Plan (NIP) under POPs
- Poverty Reduction Strategy Paper (PRSP)
- National Portfolio Formulation Exercise (NPFE) under GEFSEC
- Biennial Update Report (BUR) under UNFCCC
- Others

The proposed ISLANDS programme design is consistent with SIDS' commitments and priorities. Globally, SIDS are guided by commitments to achieve the SDGs and the associated targets at national level. This programme is fully in line with SDG 12 on Sustainable Consumption and Production; SDG 3 on Good Health and Well-being; and SDG 6 on Clean Water and Sanitation. ISLANDS is designed to assist SIDS to meet the following specific SDG targets:

- 12.4 by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.
- 12.5 by 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. The programme is also consistent with the guiding global policy for SIDS' development, the SAMOA Pathway. On chemicals and wastes management, the SAMOA pathway recognises the need to reduce, reuse, recycle, recover and return approaches according to national capacities and priorities *inter alia* through capacity-building and environmentally appropriate technologies[98].

7.1 Pacific Priorities and regional setting

The project is in full alignment with the objectives of the Framework for Pacific regionalism[99], including that of Strengthened governance, legal, financial, and administrative systems. This is to be achieved through regional collective actions such as: cooperation; coordination; collaboration; harmonization; and legal and institutional integration.

The Project is consistent with the strategic goals of the regional Cleaner Pacific 2025 Strategy[100]. The four priorities of this strategy are to:

- Prevent generation of wastes and pollution;
- Recover resources from waste and pollutants;
- Improve management of residuals;
- Improve monitoring of the receiving environment.

[98] http://www.sids2014.org/content/documents/336SAMOA%20Pathway.pdf

[99] https://www.forumsec.org/wp-content/uploads/2017/09/Framework-for-Pacific-Regionalism.pdf

[100] Cleaner Pacific Strategy, https://www.sprep.org/attachments/Publications/WMPC/cleaner-pacific-strategy-2025.pdf

The project preparatory phase involved the midterm review of regional and national progress towards achieving the goals set out in the Cleaner Pacific 2025, and the project design has been informed by the results of this review.

Table 13 outlines national priority issues, and consistency with relevant plans under the Stockholm and Minamata conventions.

Table 13: National priority issues

Country	National priority	NIP (Stockholm Convention)	NIP Update (Stockholm Convention)	MIA (Minamata Convention)
PACIFIC SIDS				
Cook Islands	e-waste	Yes, 2011 NIP prioritizes e-waste	Yes, 2018 NIP update prioritizes e-waste	Under development
Fiji	Improved waste management and recycling in settlements		NIP Update 2019 prioritizes the reduction of uPOPs emissions through improved waste management	Fiji is not a party to Minamata Convention
FSM[101]	Used oil	2007 NIP prioritizes used oil management.	Not yet complete. Delayed due to COVID-19 travel restrictions	MIA under development
Kiribati	Landfill redesign	Draft NIP prioritizes residual landfill waste	Completed March 2019. Prioritizes waste management and hazardous substances management.	MIA Under development – impacted by COVID-19 travel restrictions
Marshall Islands	Used oil	2009 NIP prioritizes residual landfill waste	Under development, impacted by COVID-19 travel restrictions	MIA Under development – impacted by COVID-19 travel restrictions
Nauru	Landfill management	2012 NIP prioritizes landfill waste	2018 draft NIP prioritizes landfill waste management	Not started
Niue	Recycling/Residual landfill waste	2005 NIP prioritizes landfill waste	NIP in initial stages, travel restricted due to COVID-19	MIA in initial stages impacted by COVID-19
Palau	Chemicals and pharmaceutical waste.	NIP prioritizes landfill waste	Under development, draft not yet available.	Under development, progress impacted by COVID-19
PNG	Stockholm POPs (DDT and PCBs)	2013 NIP prioritizes POPs stockpiles	2018 draft NIP update prioritizes POPs stockpiles	Under development, draft inventory available and reviewed
Samoa	Recycling, management of residual waste.	NIP prioritizes increasing recycling to decrease open burning	Priorities include improved waste management, and management of articles containing POPs.	Replacing and disposing of mercury medical instruments, reducing the use of dental amalgam, and phasing out mercury-containing products.[102]

[102] http://www.mercuryconvention.org/Portals/11/documents/MIAs/Samoa-MIA-2018.pdf

Solomon Islands	e-waste	NA, proceeded directly to NIP update	2018 NIP and NIP Update prioritizes e-waste management	Solomon Islands is not a party to the Minamata Convention
Tonga	Recycling/Residual landfill waste	2007 NIP prioritizes landfill waste	January 2020, priorities include improved landfill management to reduce uPOPs generation	Under development, progress impacted by COVID-19
Tuvalu	Plastics management/Outer islands recycling	2006 NIP prioritizes landfill waste, as does National uPOPs action plan (2018)	Under development, progress impacted by COVID-19	Under development, progress impacted by COVID-19
Vanuatu	E-waste	Included in 2018 NIP, and in National uPOPs action plan	Under development, progress impacted by COVID-19	Under development, progress impacted by COVID-19

In addition to the specific national priorities listed above all countries in the Caribbean, Pacific and Indian Ocean regions confirmed the need to address a set of issues / priorities common across many countries. These include:

- Better management of land-based sources of marine litter, including the potential take informed decisions on / phase out of use of single use plastics.
- Better management of electronics and improved access to recycling technologies.
- Systems to address huge increases in waste volumes produced following natural disasters such as cyclones, hurricanes and tsunamis.
- Improved customs regulations and controls on import of hazardous chemicals and goods containing future hazardous waste.
- Reduced risks from pesticide use, specifically phasing out Highly Hazardous Pesticides (HHP) linked to less environmental pollution, to lower chemical residues in food and exposure during application.
- Improved management of used oil waste, e-waste, pneumatic tyres, and end of life vehicles.
- Phase-out of mercury containing products and devices in line with the Minamata Convention phase-out deadline of 2020.
- Improved management of waste streams that can lead to the releases of Hg, new POPs, UPOPs, or marine litter, etc., including WEEE management, Healthcare Waste Management and Municipal Waste Management through the engagement of the private sector, introduction of BAT/BEP and introduction of import bans/restrictions (Hg containing products, single use plastics, etc.).
- Reduced risks from pesticide use, specifically phasing out Highly Hazardous Pesticides (HHP) linked to less environmental pollution, to lower chemical residues in food and exposure during application.

8. *Knowledge Management.* Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

As outlined in the approved ISLANDS PFD, effective knowledge management is required to ensure that ISLANDS' child projects equate to more than the sum of their parts. That is, accumulated knowledge assets (derived from each of the ISLANDS child projects) will be captured, stored, and distributed through knowledge products and services plus knowledge assets (by the Coordination, Communications and Knowledge Management project), to all stakeholders. The aim is to foster an environment of cross fertilisation between regions to ensure best practice is applied at global level thus "raising the bar" of environmental compliance, and ensuring the project acts as an efficient "hub," to the regional child project "spokes."

Under the ISLANDS Programmatic knowledge management approach, each ISLANDS Regional Child project includes Component 4*: Coordination, knowledge management and communications*. This component is expected to lead to the outcome of SIDS experiences being available to other SIDS, and that SIDS learning exchange is active. In this project, activities under Component 4 will include both generate and disseminate knowledge within the Pacific region (using tools and formats developed by the Coordination, Communications and Knowledge Management project) and, provide inputs to the Coordination, Communications and Knowledge Management project for dissemination outside the region. The Coordination, Communications and Knowledge Management project is a vehicle to capture and make accessible knowledge derived from all regional child project activities, as well as SIDS relevant resources from other activities (historical and future). The overall aim of this approach to promote the use of evidence-based learning to deliver benefits across SIDS into the future.

The Pacific project includes activities dedicated to the generation of case studies and sharing of knowledge on best practices and technologies related to chemicals and waste management for SIDS. These are outlined in the Alternative Scenario (above), and budgeted under Component 4. Key deliverables include detailed case studies and fact sheets on:

- e-waste management and recycling systems in the Solomon Islands and the Cook Islands;
- oil recycling levy and take back system in the four states of FSM;
- national composting and recycling system in Nauru;
- levies on import and recycling of bulky waste in Niue;
- National behavioral change (to reduce overall waste generation, increase recycling rates, and improve waste management) campaign in Tuvalu.

The timing of the development and delivery of these deliverables will be agreed and reviewed annually with the Coordination, Communications and Knowledge Management project, as part of the execution of the programmatic communications plan. This draft plan (included as Annex C) outlined the links between knowledge creators with knowledge users, and sets out the timing of communications activities.

The aim of the project's communications work is to increase the total number of ISLANDS beneficiaries by communicating information and disseminating knowledge on chemicals and wastes, increasing awareness among target groups, stimulating behaviour change, and expanding and extending project impact.

9. *Monitoring and Evaluation.*

Describe the budgeted M & E plan.

All monitoring activities will be developed to be fully in line with the forthcoming GEF monitoring policy. Monitoring activities will be developed by the Project Coordinator, and the Project Coordinator will be responsible for ongoing monitoring of the project and for reporting to the Coordination, Communications, Knowledge Management project, which is monitoring the overall ISLANDS Programme.

The Project Coordinator will prepare an annual report on project level activities and achievements to be submitted to the Coordination, Communications, Knowledge Management project. These annual reports will include progress towards Programme-level outcomes, and major milestones achieved through project execution.

In-line with the GEF Evaluation requirements, the project will be subject to an independent Terminal Evaluation (TE). Additionally, a performance assessment will be conducted at the project's mid-point. The Evaluation Office will decide whether a Mid-Term Review, commissioned and managed by the Project Manager, is sufficient or whether a Mid-Term Evaluation, managed by the Evaluation Office, is required.

The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP staff and implementing partners. The direct costs of the evaluation will be charged against the project evaluation budget. The TE will typically be initiated after the project's operational completion. If a follow-on phase of the project is envisaged, the timing of the evaluation will be discussed with the Evaluation Office to feed into the submission of the follow-on proposal.

The draft TE report will be sent by the Evaluation Office to project stakeholders for comment. Formal comments on the report will be shared by the Evaluation Office in an open and transparent manner. The final determination of project ratings will be made by the Evaluation Office when the report is finalised.

The evaluation report will be publicly disclosed and will be followed by a recommendation compliance process. The evaluation recommendations will be entered into a Recommendations Implementation Plan template by the Evaluation Office. Formal submission of the completed Recommendations Implementation Plan by the project manager is required within one month of its delivery to the project team. The Evaluation Office will monitor compliance with this plan every six months for a total period of 12 months from the finalisation of the Recommendations Implementation Plan

Table 14: Project Monitoring and Evaluation plan

M&E activity	Purpose	Responsible Party	Budget (US$)	Timeframe
Inception workshop	Review of project activities, outputs and intended outcomes; detailed work planning	EA	0	**Within two months of project start.Will convene virtually.**
Inception report	Provides implementation plan for progress monitoring	EA	Included in EA fee	**Immediately following Inception Workshop**
PSC meetings	Provide for project level oversight	EA	0	**Annually (convening virtually)**
Ongoing monitoring	This activity will be ongoing to allow continuous monitoring of the execution of the project. This	Project coordinator	112,500	**Ongoing**

(project execution)	will be completed by the project coordinator and the finance and procurement officer	and Finance and Procurement Officer		
Gender mainstreaming	A gender consultant will monitor gender mainstreaming and overall opportunities for women on an annual basis	Gender consultant	30,000	**Annually**
Annual reporting on progress to CCKM	This will be completed annually by the Project Coordinator	EA	Included in EA fee	**Annually**
Midterm Review	To assess project progress and to recommend corrective actions	Consultant	50,000	**At the midterm of the project**
Terminal report	Reviews effectiveness against implementation plan Highlights technical outputs Identifies lessons learned and likely design approaches for future projects, assesses likelihood of achieving design outcomes	EA	Included in EA fee	**At the end of project implementation**
Independent Terminal evaluation	Reviews effectiveness, efficiency and timeliness of project implementation, coordination mechanisms and outputs Identifies lessons learned and likely remedial actions for future projects Highlights technical achievements and assesses against prevailing benchmarks	UNEP Evaluation Office	100,000	**At end of project implementation**
Total indicative Monitoring &Evaluation cost			**$292,500**	

10. *Benefits.* Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The project is designed to deliver socioeconomic benefits in each of the 14 project countries. The planned project will be executed in a unique context. The ongoing COVID-19 pandemic means that borders to Pacific countries that rely on tourism for large portions of their GDP are closed. This contraction of the economy is causing rising levels of unemployment across the region.

This situation is further exacerbated in the Pacific region where the median age is 23 years of age and this is particularly pronounced in the Melanesian subregion[103]. The future economic prosperity, political success and social stability of the region is dependent on harnessing this group, and preventing youth marginalisation and disillusionment[104].

The project is focused on behavioural change. This means increased awareness and understanding on waste management of the wider population, and increased recycling in SIDS. Increased recycling is expected in Pacific SIDS due to both increased awareness (through the project) and increased economic activity around recycling (facilitated by the Moana Taka shipping partnership which provides free shipping). National activities related to recycling are expected to lead to more job opportunities in the recycling and waste management sector. Project interventions have been conceived in light of the need to provide opportunities for youth, for sustainable livelihoods and employment. Unemployed youth are key project stakeholders and will be targeted for jobs. Establishment of and increased container deposit legislation (CDL) schemes will also lead to increased economic opportunity, as individuals can collect PET, cans, and other recyclables included under CDL schemes and receive the refund. Anecdotal evidence from discussions with Tuvaluan counterparts indicate these schemes have been successful on the outer islands of Tuvalu, the financial incentive of refunds resulting in enthusiastic uptake of the scheme by young people.

In Component 2, the private sector partnership planned with Swire Shipping is likely to provide employment opportunities in end-of-life vehicle collection. Swire plan to employ a local labour force for collection and packing of vehicles for export. In Fiji, where it is expected vehicles will be dismantled (with the POPs contaminated car interiors being disposed of a sanitary landfill) and car bodies crushed for shipment to steel recycling markets, the project is expected to generate significant local employment. The details and specific targeting will be confirmed by a feasibility study to be completed in the first year of the project.

In Component 3, e-waste dismantling and recycling facilities will be established in the Cook Islands and the Solomon Islands. Both of these activities have the potential to generate long-term employment opportunities supported by related levies placed on the import of electronic products. In Samoa, a pilot remaking workshop will be established to repair electronic equipment including small household items. The aim of this initiative is to provide skills training and life-long learning opportunities for Samoans. It is envisaged that a small shop will be established (selling repaired discarded items), in order to fund the ongoing operation of the workshop. It is envisaged this initiative will provide some employment opportunities, but more significantly it will provide the opportunity for people to learn how to repair household items, decreasing waste and demand on imported goods, and providing the opportunity for the

[103] https://www.lowyinstitute.org/publications/demanding-future-navigating-pacific-youth-bulge, accessed online 10 August 2020.
[104] Ibid.

establishment of repair businesses. Also in Component 3, in Nauru, Niue, Tonga and Tuvalu, jobs will be created as waste transfer stations are developed to process recycling waste. These countries are working on efforts to levy beverage and other containers. The introduction of these sustainable financing measures means citizens are incentivised to collect recyclables to claim the deposit. This provides cash for people and results in less litter, and waste in the envbvcsxzironment.

In Component 4, there is a focus on educating and empowering 150,000 youth through joining the Tide Turners movement to address plastics waste. Engaging youth to make changes in their personal plastic consumption, and in becoming community leaders, is essential to changing long-term behaviours around plastic and waste management in the Pacific. Socially, the focus is expected to engage as opposed to marginalise, and empower, as opposed to disempowerment youth.

ANNEX A: PROJECT RESULTS FRAMEWORK

(either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Component 1: Preventing the Future Build-Up of Chemicals Entering SIDS						
Outcome 1	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP MTS Expected Result**
Pacific SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste	- No. of Pacific SIDS with policies, strategies, laws, regulations to control the import of chemicals, and products that lead to the generation of hazardous waste, including the number that address gender	Pacific SIDS have varying levels of environmental legislation and controls in place to control imports of chemicals and the generation of hazardous wastes. Levels of capacity to develop, draft, enact, implement and enforce. A thorough review of the situation in each Pacific country was undertaken concurrently with the preparatory process of this project, through PWP. Information on gaps and capacity constraints have informed the	**Mid-term** 3 x specific legislative revisions for Pacific countries 1 x strategy to reduce hazardous imports 4 x legislative references to gender **End of Project** 1 x generalized model legislation to control mercury and associated drafting instructions (to support Mercury Free Pacific campaign)	Draft legislation Strategy to reduce hazardous imports	Countries fail to enact legislation within the lifetime of the project. Parliamentary processes are slow in many Pacific countries.	(a) Policies and legal, institutional and fiscal strategies and mechanisms for sound chemicals management developed or implemented in countries within the framework of relevant multilateral environmental agreements and SAICM (b) Policies and legal, institutional and fiscal strategies and mechanisms for waste prevention and sound management developed or implemented in countries within the

		development of project activities.	6 x specific legislative revisions for Pacific countries 6 x references to gender			framework of relevant multilateral environmental agreements and SAICM
Component 1 Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 1.1: Legislative frameworks for sustainable finance in place in Pacific SIDS	1. No. of Pacific SIDS supported to establish functioning sustainable finance systems for e-waste, used oil and bulky waste (1.1.1, 1.1.2, 1.1.3) (Indicator 4.1) 2. No. of Pacific SIDS supported to draft litter management acts (1.1.4) (Indicator 4.12	According to the Midterm review of the Cleaner Pacific 2025, the Pacific aims to have 8 e-waste collection systems and 10 used oil collection systems in place by 2025. As of 2020 however there are only 2 e-waste recycling systems and 4 used oil systems. The Cook Islands, FSM and Niue do not yet have in place economic instruments to sustainably finance e-waste, used oil and bulky waste respectively, but have prioritized these waste streams in their national waste management strategies and in consultations on the	**<u>Mid-term</u>** 1 x e-waste system legislated for (Cook Islands, Vanuatu, Cook Islands) 1 x used oil system legislated for (FSM) FSM 4 x webinars on process of developing waste levies 1 x finalized updated litter management act (Fiji) **<u>End of Project</u>** 2 x bulky waste system legislated for (Marshall Islands, Niue)	Draft legislation Gazetting of legislation	Country maintains appetite for establishing systems to put in place sustainable financing mechanisms for specific wastes	(a)(2)(3)

		preparations for ISLANDS. Fiji has requested support to complete the update of its litter management act.				
Output 1.2: Strategies to improve waste management in Pacific SIDS	3. No. of Pacific SIDS supported with training, tools to draft national hazardous waste strategies (1.2.1, 1.2.3, 1.2.5) (Impact Indicator 4.2) 4. No. of regional codes of conduct on hazardous management in the Pacific region (1.2.3, 1.2.4, 1.2.5, 1.2.6) (Impact Indicator 4.1)	The Waigani Convention requires parties to develop national hazardous waste management strategies. This is in line with Cleaner Pacific 2025 requirements. Currently, all Pacific countries have, or are working with JRPISM II and SPREP to develop national solid waste management strategies. These strategies however omit hazardous waste. Samoa has started to consider this issue. Having completed its MIA and identified priorities for phasing-out mercury-containing products. It is working to reduce the amount of imports entering the country that finish their life as hazardous waste, but	**<u>Mid-term</u>** 7 x national hazardous waste management strategies 1 x national strategy to reduce hazardous imports (Samoa) 1 x digital training platform on hazardous waste management **<u>End of project</u>** 14 x national hazardous waste management strategies 1 x regional code of practice on hazardous waste management in the Pacific	Samoa national hazardous import strategy Final act	Information available from Customs agencies to complete analysis of potentially hazardous imports	(a)(1)(2)

		is yet to undertake a complete and systematic assessment for non-mercury containing hazardous waste.				
Output 1.3: Model legislation to control mercury containing products for use by Pacific SIDS drafted and made available for adoption **(regional)**	5. No. of model legislation on mercury and mercury containing products available for Pacific SIDS (1.3.1, 1.3.2, 1.3.3) (Impact Indicator 4.1) 6. No. of drafting instructions on mercury and mercury containing products available to Pacific SIDS (Impact Indicator 4.1)	According to a recent review by the University of Melbourne on the Pacific legislative environment. The review notes that Pacific countries party to the Minamata Mercury Convention (Kiribati,) require legislative reforms to address these mercury wastes streams identified in initial assessments.	**Mid-term** 1 x model legislation on mercury and mercury containing products 1 x drafting instructions on mercury and mercury containing products **End of project** 10 x webinars on mercury regulation	Model legislation Drafting instructions		(a)(3)
Component 2: Safe Management and Disposal of Existing Chemicals, products and materials						
Outcome 2	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP MTS Expected Result**
Harmful chemicals and materials present and/or generated in SIDS are being disposed of in an	- No. of Pacific countries implementing Sustainable Best Practices in WCP (or	Pacific countries lack facilities to dispose of hazardous and bulky wastes including in country. These include POPs	**Mid Term** 7 Pacific countries with Improved management of harmful	Project reports Chemicals destruction certificates Shipping documentation	That the DDT and PCB contaminated oil identified remains available for collection.	(a)(1)(2)

environmentally sound manner	legacy chemicals and other hazardous wastes) - No. of tonnes of DDT repackaged and disposed of in an environmentally sound manner. - No. of tonnes of mercury containing products disposed of	chemicals and products containing mercury; end of life vehicles. Pacific countries with low lying atoll geography, also lack adequate facilities to dispose of non-hazardous waste in an environmentally sound manner. As a result, high quantities of plastic wastes are burned, created dioxins and furans, or released directly into the marine environment, as dumpsites are inundated with seawater during storm surges.	chemicals and waste **End of project** 14 Pacific countries with Improved management of harmful chemicals and waste			
Component 2 Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 2.1: Pacific SIDS supported in sound repackaging, shipping, collection, and disposal of POPs and mercury waste	7. No. of tonnes of DDT repackaged and disposed of in an environmentally sound manner. (2.1.1, 2.1.2) (Impact Indicator 1.1) 8. No. of tonnes of mercury	Papua New Guinea historically used DDT for vector borne disease control. Since PNG stopped using DDT stocks have been stored in various location around the country. Said stocks have often been looted, and DDT has	**Mid-term** 12 tonnes of DDT disposed of 11 tonnes of PCB contaminated oil disposed of **End of project** 1 tonne of mercury containing	Repackaging reports Transport certificates Destruction certificates	DDT stocks remain secure.	(a)(1)(2) (b)(1)(2)

	containing products disposed of (2.1.3) (Impact Indicator 1.1)	been used by local communities used for gardening and fishing. During the project preparation phase the project team inventoried and secured remaining 15 tonnes of stocks.	products disposed of			
Output 2.2: Technical assistance and support for shipping and disposal of end of life vehicles (ELVs) from Pacific SIDS to Asian recycling markets **(regional)**	9. No. of partnership agreements established (2.2.2) (impact indicator 11.1) 10. No. of people trained in vehicle dismantling (2.2.1, 2.2.3, 2.2.4) (Impact Indicator 10.1) 11. No. of people employed in vehicle dismantling (2.2.3, 2.2.4) (Impact Indicator 6.1) 12. No. of tonnes of POPs contaminated car parts disposed of (2.2.4) (Impact Indicator 1.1)	ELVs are a common form of bulky waste in all Pacific island countries. ELVs contain POPs. Currently no Pacific country has in place a scrapping scheme, or any other modalities to dispose of ELVs. To begin addressing this problem, some Pacific countries (including Samoa), have put in place age restrictions on second hand vehicles being imported into the country. Additional work is required to assess the feasibility of exporting ELVs on a commercial basis, and on environmentally sound management of the POPs component.	**Mid-term** 1 x feasibility studies on regional approach to ELV disposal 100 x people trained in vehicle dismantling (50% women) 1 x ELV private sector partnership established **End of project** 170 tons of POPs disposed of in an environmentally sound manner 20 x employed in vehicle dismantling 1 x recycling partnership established and	Shipping records Project reports	Pacific SIDS governments prepared to provide ELVs to partnership without cost. Each vehicle contains approximately 0.016Kg of POPs contaminated car parts (dashboard, plastic components and seats)	(a)(1)(2) (b)(1)(2)

			operating at a profit			
Output 2.3: Studies, technical assistance and training provided to improve residual (municipal) waste management in selected Pacific SIDS	13. No of landfills climate-proofed in Tonga (2.3.1, 2.3.2) (Impact Indicator 3.1) 14. No. of compost facilities established in Nauru (2.3.3, 2.3.4) (Impact Indicator 3.3)	In Tonga, the Government of Japan through the JICA/JPRISM Project funded the rehabilitation of Kalaka Landfill, into a semi-aerobic landfill to better manage waste in Vava'u. Rehabilitation of Ha'apai and 'Eua landfills using the same semi aerobic method is a priority of the Tongan government. This work is central to the implementation of the national 3R program to reduce waste and to climate proof the landfills, preventing pollution of the environment with waste. In Nauru over 50% of household waste is organic and currently going to landfill. Nauru has very little topsoil or growing medium due to	**<u>Mid-term</u>** 2 x climate proofing designs and project plans (Tonga) 1 x feasibility study for national composting facility (Nauru) **<u>End of project</u>** 2 x landfills in Tonga rehabilitated and climate proofed 1 x compost facility established in Nauru to process organic fraction	Compost facility design Compost facility construction contracts and reports Landfill rehabilitation reports		(a)(1)(2) (b)(1)(2)

		widespread phosphate mining, as such composting is an essential resource to upscale the growing of food crops.				
Output 2.4: Feasibility analysis and design of waste management systems for atolls completed and made available to all Pacific SIDS	15. No. of atoll-appropriate landfill designs completed and made available (2.4.1, 2.4.2) (Impact Indicator 4.1) 16. No. Of comprehensive waste management systems for outer islands (2.4.3) completed and made available (Impact Indicator 4.2)	Kiribati is series of a low-lying coral atolls. Throughout the country there are only four operational waste disposal sites. Three are located on coastal areas on South Tarawa, the capital. These dumping sites are not well designed thus the walls often break down during king tides and heavy rains. The wastes dumped at these sites were mixed with high volume of organic wastes. The outer islands (with the exception of Kiritimati) have no disposal sites, nor waste collection systems and wastes are being openly burned, or dumped at sea or on land.	**Mid-term** 1 x feasibility analysis for solid waste management system (Kiribati) **End of project** 1 x atoll appropriate landfill design (Kiribati) 10 x comprehensive waste management systems for outer islands	Feasibility study Landfill design Specification Tender documents	It is assumed that the Government of Kiribati is prepared to identify finance for the construction of the landfill.	(a)(1)(2) (b)(1)(2)
Component 3: Safe Management of Products entering SIDs/Closing Material and Product loops for Products						

Outcome 3	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP PoW Output Reference Number
Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector	- No. of Pacific SIDS meeting the CP2025 target of 75% recycling of e-waste and used oil - No. of tonnes of e-waste recycled with project support	According to the Midterm review of the Cleaner Pacific 2025, the Pacific aims to have 8 e-waste and 10 used oil collection systems in place by 2025. As of 2020 however there are only 2 e-waste recycling systems and 4 used oil systems. Current recycling rates in the Pacific are low, reported to be below 32% in 2014. The region has a target recycle rate of 75% by 2025.	**<u>End of project</u>** 8 Pacific SIDS meeting CP2025 target of 75% of e-waste recycled 10 Pacific SIDS with used oil collection systems in place 100 tonnes of e-waste recycled 8 TEQ of POPs prevented through reduction in opening burning		.	(a)(1)(2)(3)(4)
Outputs	Output Indicators	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 3.1: Tools, TA and training for the Establishment of e-waste dismantling and recycling system **(national and regional),** results documented and	17. No of e-waste dismantling facilities and recycling systems in Pacific Island countries (3.1.1, 3.1.2, 3.1.3, 3.1.4) (Impact Indicator 3.1) 18. No. of pilot remaking	The Cook Islands worked with Pacwaste (2016-2018) to complete an initial design for an e-waste dismantling system. Some export of e-waste has been completed, but assistance is required to scale up the	**<u>End of project</u>** 40 x trainees trained in e-waste dismantling (from Cook Islands, Solomon Islands and Vanuatu) (50% of trainees	Project reports Export certificates for e-waste	Support from PacwastePlus remains on schedule. This includes the designation of land for a suitable dismantling facility. Participants from Cook Islands and Solomon Islands can take advantage of the PWP training in Samoa.	(a)(1)(2)(3) (b)(1)(2)(3)

made available to all Pacific SIDS	workshops established (3.1.5, 3.1.6) (Impact Indicator 8.1) 19. No. of trainees trained in e-waste dismantling (Impact Indicator 10.1)	system, and to include outer islands. The Solomon Islands is receiving support from PWP to conceive and develop an e-waste management system, including supporting legislation. Incremental assistance is sought from ISLANDS to scale up and operationalize the system. In Samoa PWP is working to establish e-waste recycling. There is significant regional interested in piloting "remaking workshops" in an effort to divert waste from landfill, and provide a space for vocational learning. As the median age in the Pacific is 23 years old and unemployment is high, sustainably livelihoods are desperately required. The concept of "remaking" from waste materials is seen a potential	should be women) 3x e-waste dismantling facilities and recycling systems operating (Cook Islands, Solomon Islands and Vanuatu) 1 x pilot remaking workshop established (Samoa)			

		contributor to both increased sustainable livelihoods and decreased waste.				
Output 3.2: Operationalisation of waste transfer and sorting stations for bulky waste and recycling results documented and made available to all Pacific SIDS	20. No. of waste transfer stations established and operationalized (3.2.1, 3.2.3) (Impact Indicator 3.3) 21. No. of tonnes of waste prevented from entering landfill (3.2.2) (Impact Indicator 1.3) 22. No. of plastics and bulky waste recycling systems in place (3.2.4) (Impact Indicator 4.1)	Due to limited space in landfills and the need to prevent the generation of hazardous waste through burning of municipal waste, Nauru, Niue, Tonga and Tuvalu are seeking to establish waste transfer facilities to sort, process and establish recycling systems for wastes.	**Mid-term** 5 x waste transfer stations (Nauru, Niue, Palau, Tonga, Tuvalu) 5x plastics and bulky waste recycling systems established (Palau, Marshall Islands, Niue and Tonga) **End of project** 1,000 tonnes of waste diverted from landfill 500 tonnes of plastics waste recycled 500 tonnes of bulky waste recycled	Technical construction reports Export certificates and documentation from recycling		(a)(1)(2) (b)(1)(2)
Output 3.3: Establishment of used oil management of used oil management systems in SIDS	23. No. of used oil storage facilities (3.3.1) (Impact Indicator 3.3) 24. No. of tonnes of oil recycled. (3.3.2)	FSM has a used oil stockpile of 900,000L. Assistance was provided under GEF ID 4066 to dispose of 70,000L (through export to New	**Mid-term** 3 x used oil storage facilities established 1 x used oil management guide	Construction reports. Shipping paperwork, export permits	Recyclers interested in procuring used oil	(a)(1)(2)

results documented and made available to all Pacific SIDS	(Impact Indicator 1.3) 25. No. of used oil management guides (3.3.3, 3.3.4) (Impact indicator 4.1)	Zealand for recycling and the construction of a used oil storage facility). FSM recognizes the need to put in place a levy system on the import of oil, to ensure funds are available for disposal (assistance in this regard it proposed under Component 1). Assistance is also required to establish additional used oil storage facilities, as well as developing agreements with used oil recyclers, and identifying a buyer for legacy used oil.	**End of project** 900L tonnes of used oil disposed of/recycled			
Output 3.4: Technical backstopping provided to manage healthcare waste to Pacific SIDS	26. No. of Pacific countries assisted through technical backstopping facilities for healthcare waste management (3.4.1, 3.4.2) (Impact Indicator 3.1) 27. Reduction in dioxin and furan emissions from	Healthcare waste in the Pacific is currently being managed poorly. This is due in part to the failure of countries to maintain and appropriately utilise the healthcare waste incinerators provided through a European Union	**Mid-term** 10 x Pacific countries assisted with technical backstopping **End of project** 14 x Pacific countries provided with technical backstopping	s		(a)(1)(2)

	incomplete combustion of healthcare waste (3.4.1, 3.4.2) (Impact Indicator 1.2)	healthcare waste project funded through the EDF10 from 2014-18. SPREP, as the implementation partner of the PWP is currently undertaking activities to understand, and to improve, healthcare waste management in 14 Pacific Island Countries. Available funding under the PWP Programme is insufficient to undertake all necessary actions, and with the impact of the COVID-19 pandemic on healthcare waste, SPREP has called for a multi-donor response is required to ensure adequate management of healthcare waste throughout the region.	14 x countries with reduced dioxin and furan emissions			

Component 4: Knowledge Management and Communication						
Outcome 4	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Knowledge generated by the programme is disseminated to, and applied by, SIDS in all regions	- No. of knowledge assets generated and disseminated to Pacific SIDS	Knowledge generated by projects and activities in SIDS is not currently shared, disseminated or communicated in a systematic way. As a result, and fuelled by geographic isolation, Pacific SIDS rarely learn from each other, nor from the experiences of other SIDS.	**Mid-term** 25 Knowledge products disseminated to PICs **End of project** Project activities communicated to all SIDS Over 70,000 youth engaged in improved waste management through Tide Turners		It is assumed the project and ISLANDS programme accurately identify SIDS stakeholders requiring information, and that this information will be used.	(a)(4)(5) (b)(4)(5)
Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 4.1 Communication of national systems on sustainable financing	28. No. of Pacific countries with communities consulted on sustainable financing measures in place (% of women in community consultations)(4.1.1, 4.1.2, 4.1.3, 4.1.4,	The Cook Islands, FSM, Nauru and Niue have requested assistance in developing sustainable financing measures for various wastes (including e-waste, used oil, and bulky waste). Communities are yet	**Mid-term** 4 x Pacific countries effectively consulted on sustainable financing measures (Nauru, Niue, FSM, Cook Islands)	Project reports	Is it assumed that communities are receptive to the introduction of sustainable financing measures.	(a)(4)(5) (b)(4)(5)

	4.1.5) (Impact Indicator 12.3)	to be fully informed or consulted on these plans, or eventual measures.	At least 45% of total individuals women consulted are women			
Output 4.2 Community education activities and programmes on waste management behaviour designed and conducted	29. No of Pacific countries signed up to mercury free Pacific pledge (4.2.4, 4.2.5) 30. No. of regional strategies in place for Mercury free Pacific (4.2.1, 4.2.2, 4.2.3) (Impact Indicator 4.1) 31. No. of community education activities on waste management behaviour (4.2.4, 4.2.5) (Impact Indicator 8.1)	The Government of Tuvalu is undertaking a concerted national effort to reduce waste generation, increase recycling rates, and improve waste management. This requires changes in behavior at both the individual and community level. In the context of the Minamata Convention MIA activities being undertaken in the region, SPREP is planning on promoting mercury free Pacific. Such a plan would involve including this on the agenda of the 2021 SPREP meeting, with the aim of getting Pacific countries to pledge commitment. From this a regional strategy will be developed to guide	**<u>Mid-term</u>** 14 x countries signed up to Mercury-Pacific pledge 20 community activities on waste management in Tuvalu **<u>End of project</u>** 60 community activities on waste management 1 x regionally endorsed mercury free Pacific strategy in place.	Project reports Pledge from SPREP meeting Press release from SPREP meeting Draft strategy	SPREP remain committed to introducing this as a key regional action area at the 2021 SPREP meeting. There is a risk that this idea could be over-shadowed by another more pressing issue.	(a)(4)(5) (b)(4)(5)

		regional and national actions to eliminate mercury.				
Output 4.3: Widespread engagement of youth through Tide Turners program (**regional)**	32. No of youth participating in Tide Turners program (4.3.1, 4.3.2) (Impact Indicator 8.2)	Across the Pacific region half of the population is aged under 23 years of age. In Melanesia more than a third are aged 14 and under. PNG, Solomon Islands, and Vanuatu are recording population growth rates of 2%, or more, double the global average annual growth rate[105]. The involvement of young people is central to changing behaviors related to waste management. UNEP Youth developed the Plastic Tide Turners badge, together with the Scouts, a leadership challenge to educate and empower young people to change	**<u>Mid-term</u>** 70,000 Pacific Youth participating in the Plastics Tide Turners program (50% girls). **<u>End of project</u>** 160,000 Pacific Youth from 14 countries participating in the Plastics Tide Turners program	Downloads of Tide Turners app Registration of participation on the app	App will be developed and available under the Coordination, Communications and Knowledge Management project. It is also assumed UNV can be hired through UNEP Youth and located at SPREP to mentor and work with Pacific communities working on Tide Turner activities.	(a)(4)(5) (b)(4)(5)

[105] https://www.lowyinstitute.org/publications/demanding-future-navigating-pacific-youth-bulge#sec42951

		their own behavior and that of their communities.				
Output 4.4: Best practices in Pacific SIDS on hazardous waste management documented and made available reporting through the global component	33. No. of quarterly Programmatic update reports provided to the Coordination, Communications and Knowledge Management project (4.4.1, 4.4.2)	The ISLANDS Programme has not yet started and therefore there is no quarterly communications or reporting.	**<u>Mid-term</u>** 10 x quarterly update reports provided to the Coordination, Communications and Knowledge Management project **<u>End of project</u>** 10 x quarterly update reports provided to the Coordination, Communications and Knowledge Management project	Reports		(a)(4)(5) (b)(4)(5)

ANNEX A: PROJECT RESULTS FRAMEWORK

(either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Component 1: Preventing the Future Build-Up of Chemicals Entering SIDS						
Outcome 1	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP MTS Expected Result**
Pacific SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste	- No. of Pacific SIDS with policies, strategies, laws, regulations to control the import of chemicals, and products that lead to the generation of hazardous waste, including the number that address gender	Pacific SIDS have varying levels of environmental legislation and controls in place to control imports of chemicals and the generation of hazardous wastes. Levels of capacity to develop, draft, enact, implement and enforce. A thorough review of the situation in each Pacific country was undertaken concurrently with the preparatory process of this project, through PWP. Information on gaps and capacity constraints have informed the	**Mid-term** 3 x specific legislative revisions for Pacific countries 1 x strategy to reduce hazardous imports 4 x legislative references to gender **End of Project** 1 x generalized model legislation to control mercury and associated drafting instructions (to support Mercury Free Pacific campaign)	Draft legislation Strategy to reduce hazardous imports	Countries fail to enact legislation within the lifetime of the project. Parliamentary processes are slow in many Pacific countries.	(a) Policies and legal, institutional and fiscal strategies and mechanisms for sound chemicals management developed or implemented in countries within the framework of relevant multilateral environmental agreements and SAICM (b) Policies and legal, institutional and fiscal strategies and mechanisms for waste prevention and sound management developed or implemented in countries within the

		development of project activities.	6 x specific legislative revisions for Pacific countries 6 x references to gender			framework of relevant multilateral environmental agreements and SAICM
Component 1 Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 1.1: Legislative frameworks for sustainable finance in place in Pacific SIDS	1. No. of Pacific SIDS supported to establish functioning sustainable finance systems for e-waste, used oil and bulky waste (1.1.1, 1.1.2, 1.1.3) (Indicator 4.1) 2. No. of Pacific SIDS supported to draft litter management acts (1.1.4) (Indicator 4.12	According to the Midterm review of the Cleaner Pacific 2025, the Pacific aims to have 8 e-waste collection systems and 10 used oil collection systems in place by 2025. As of 2020 however there are only 2 e-waste recycling systems and 4 used oil systems. The Cook Islands, FSM and Niue do not yet have in place economic instruments to sustainably finance e-waste, used oil and bulky waste respectively, but have prioritized these waste streams in their national waste management strategies and in consultations on the	**<u>Mid-term</u>** 1 x e-waste system legislated for (Cook Islands, Vanuatu, Cook Islands) 1 x used oil system legislated for (FSM) FSM 4 x webinars on process of developing waste levies 1 x finalized updated litter management act (Fiji) **<u>End of Project</u>** 2 x bulky waste system legislated for (Marshall Islands, Niue)	Draft legislation Gazetting of legislation	Country maintains appetite for establishing systems to put in place sustainable financing mechanisms for specific wastes	(a)(2)(3)

		preparations for ISLANDS. Fiji has requested support to complete the update of its litter management act.				
Output 1.2: Strategies to improve waste management in Pacific SIDS	3. No. of Pacific SIDS supported with training, tools to draft national hazardous waste strategies (1.2.1, 1.2.3, 1.2.5) (Impact Indicator 4.2) 4. No. of regional codes of conduct on hazardous management in the Pacific region (1.2.3, 1.2.4, 1.2.5, 1.2.6) (Impact Indicator 4.1)	The Waigani Convention requires parties to develop national hazardous waste management strategies. This is in line with Cleaner Pacific 2025 requirements. Currently, all Pacific countries have, or are working with JRPISM II and SPREP to develop national solid waste management strategies. These strategies however omit hazardous waste. Samoa has started to consider this issue. Having completed its MIA and identified priorities for phasing-out mercury-containing products. It is working to reduce the amount of imports entering the country that finish their life as hazardous waste, but	**<u>Mid-term</u>** 7 x national hazardous waste management strategies 1 x national strategy to reduce hazardous imports (Samoa) 1 x digital training platform on hazardous waste management **<u>End of project</u>** 14 x national hazardous waste management strategies 1 x regional code of practice on hazardous waste management in the Pacific	Samoa national hazardous import strategy Final act	Information available from Customs agencies to complete analysis of potentially hazardous imports	(a)(1)(2)

		is yet to undertake a complete and systematic assessment for non-mercury containing hazardous waste.				
Output 1.3: Model legislation to control mercury containing products for use by Pacific SIDS drafted and made available for adoption **(regional)**	5. No. of model legislation on mercury and mercury containing products available for Pacific SIDS (1.3.1, 1.3.2, 1.3.3) (Impact Indicator 4.1) 6. No. of drafting instructions on mercury and mercury containing products available to Pacific SIDS (Impact Indicator 4.1)	According to a recent review by the University of Melbourne on the Pacific legislative environment. The review notes that Pacific countries party to the Minamata Mercury Convention (Kiribati,) require legislative reforms to address these mercury wastes streams identified in initial assessments.	**Mid-term** 1 x model legislation on mercury and mercury containing products 1 x drafting instructions on mercury and mercury containing products **End of project** 10 x webinars on mercury regulation	Model legislation Drafting instructions		(a)(3)
Component 2: Safe Management and Disposal of Existing Chemicals, products and materials						
Outcome 2	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP MTS Expected Result**
Harmful chemicals and materials present and/or generated in SIDS are being disposed of in an	- No. of Pacific countries implementing Sustainable Best Practices in WCP (or	Pacific countries lack facilities to dispose of hazardous and bulky wastes including in country. These include POPs	**Mid Term** 7 Pacific countries with Improved management of harmful	Project reports Chemicals destruction certificates Shipping documentation	That the DDT and PCB contaminated oil identified remains available for collection.	(a)(1)(2)

environmentally sound manner	legacy chemicals and other hazardous wastes) - No. of tonnes of DDT repackaged and disposed of in an environmentally sound manner. - No. of tonnes of mercury containing products disposed of	chemicals and products containing mercury; end of life vehicles. Pacific countries with low lying atoll geography, also lack adequate facilities to dispose of non-hazardous waste in an environmentally sound manner. As a result, high quantities of plastic wastes are burned, created dioxins and furans, or released directly into the marine environment, as dumpsites are inundated with seawater during storm surges.	chemicals and waste **End of project** 14 Pacific countries with Improved management of harmful chemicals and waste			
Component 2 Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 2.1: Pacific SIDS supported in sound repackaging, shipping, collection, and disposal of POPs and mercury waste	7. No. of tonnes of DDT repackaged and disposed of in an environmentally sound manner. (2.1.1, 2.1.2) (Impact Indicator 1.1) 8. No. of tonnes of mercury	Papua New Guinea historically used DDT for vector borne disease control. Since PNG stopped using DDT stocks have been stored in various location around the country. Said stocks have often been looted, and DDT has	**Mid-term** 15 tonnes of DDT disposed of 11 tonnes of PCB contaminated oil disposed of **End of project** 2 of tonnes of mercury containing	Repackaging reports Transport certificates Destruction certificates	DDT stocks remain secure.	(a)(1)(2) (b)(1)(2)

	containing products disposed of (2.1.3) (Impact Indicator 1.1)	been used by local communities used for gardening and fishing. During the project preparation phase the project team inventoried and secured remaining 15 tonnes of stocks.	products disposed of			
Output 2.2: Technical assistance and support for shipping and disposal of end of life vehicles (ELVs) from Pacific SIDS to Asian recycling markets **(regional)**	9. No. of partnership agreements established (2.2.2) (impact indicator 11.1) 10. No. of people trained in vehicle dismantling (2.2.1, 2.2.3, 2.2.4) (Impact Indicator 10.1) 11. No. of people employed in vehicle dismantling (2.2.3, 2.2.4) (Impact Indicator 6.1) 12. No. of tonnes of POPs contaminated car parts disposed of (2.2.4) (Impact Indicator 1.1)	ELVs are a common form of bulky waste in all Pacific island countries. ELVs contain POPs. Currently no Pacific country has in place a scrapping scheme, or any other modalities to dispose of ELVs. To begin addressing this problem, some Pacific countries (including Samoa), have put in place age restrictions on second hand vehicles being imported into the country. Additional work is required to assess the feasibility of exporting ELVs on a commercial basis, and on environmentally sound management of the POPs component.	**<u>Mid-term</u>** 1 x feasibility studies on regional approach to ELV disposal 100 x people trained in vehicle dismantling (50% women) 1 x ELV private sector partnership established **<u>End of project</u>** 170 tons of POPs disposed of in an environmentally sound manner 20 x employed in vehicle dismantling 1 x recycling partnership established and	Shipping records Project reports	Pacific SIDS governments prepared to provide ELVs to partnership without cost. Each vehicle contains approximately 0.016Kg of POPs contaminated car parts (dashboard, plastic components and seats)	(a)(1)(2) (b)(1)(2)

			operating at a profit			
Output 2.3: Studies, technical assistance and training provided to improve residual (municipal) waste management in selected Pacific SIDS	13. No of landfills climate-proofed in Tonga (2.3.1, 2.3.2) (Impact Indicator 3.1) 14. No. of compost facilities established in Nauru (2.3.3, 2.3.4) (Impact Indicator 3.3)	In Tonga, the Government of Japan through the JICA/JPRISM Project funded the rehabilitation of Kalaka Landfill, into a semi-aerobic landfill to better manage waste in Vava'u. Rehabilitation of Ha'apai and 'Eua landfills using the same semi aerobic method is a priority of the Tongan government. This work is central to the implementation of the national 3R program to reduce waste and to climate proof the landfills, preventing pollution of the environment with waste. In Nauru over 50% of household waste is organic and currently going to landfill. Nauru has very little topsoil or growing medium due to	**<u>Mid-term</u>** 2 x climate proofing designs and project plans (Tonga) 1 x feasibility study for national composting facility (Nauru) **<u>End of project</u>** 2 x landfills in Tonga rehabilitated and climate proofed 1 x compost facility established in Nauru to process organic fraction	Compost facility design Compost facility construction contracts and reports Landfill rehabilitation reports		(a)(1)(2) (b)(1)(2)

		widespread phosphate mining, as such composting is an essential resource to upscale the growing of food crops.				
Output 2.4: Feasibility analysis and design of waste management systems for atolls completed and made available to all Pacific SIDS	15. No. of atoll-appropriate landfill designs completed and made available (2.4.1, 2.4.2) (Impact Indicator 4.1) 16. No. Of comprehensive waste management systems for outer islands (2.4.3) completed and made available (Impact Indicator 4.2)	Kiribati is series of a low-lying coral atolls. Throughout the country there are only four operational waste disposal sites. Three are located on coastal areas on South Tarawa, the capital. These dumping sites are not well designed thus the walls often break down during king tides and heavy rains. The wastes dumped at these sites were mixed with high volume of organic wastes. The outer islands (with the exception of Kiritimati) have no disposal sites, nor waste collection systems and wastes are being openly burned, or dumped at sea or on land.	**Mid-term** 1 x feasibility analysis for solid waste management system (Kiribati) **End of project** 1 x atoll appropriate landfill design (Kiribati) 10 x comprehensive waste management systems for outer islands	Feasibility study Landfill design Specification Tender documents	It is assumed that the Government of Kiribati is prepared to identify finance for the construction of the landfill.	(a)(1)(2) (b)(1)(2)
Component 3: Safe Management of Products entering SIDs/Closing Material and Product loops for Products						

Outcome 3	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP PoW Output Reference Number
Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector	- No. of Pacific SIDS meeting the CP2025 target of 75% recycling of e-waste and used oil - No. of tonnes of e-waste recycled with project support	According to the Midterm review of the Cleaner Pacific 2025, the Pacific aims to have 8 e-waste and 10 used oil collection systems in place by 2025. As of 2020 however there are only 2 e-waste recycling systems and 4 used oil systems. Current recycling rates in the Pacific are low, reported to be below 32% in 2014. The region has a target recycle rate of 75% by 2025.	**End of project** 8 Pacific SIDS meeting CP2025 target of 75% of e-waste recycled 10 Pacific SIDS with used oil collection systems in place 100 tonnes of e-waste recycled 8 TEQ of POPs prevented through reduction in opening burning		.	(a)(1)(2)(3)(4)
Outputs	Output Indicators	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 3.1: Tools, TA and training for the Establishment of e-waste dismantling and recycling system **(national and regional),** results documented and	17. No of e-waste dismantling facilities and recycling systems in Pacific Island countries (3.1.1, 3.1.2, 3.1.3, 3.1.4) (Impact Indicator 3.1) 18. No. of pilot remaking	The Cook Islands worked with Pacwaste (2016-2018) to complete an initial design for an e-waste dismantling system. Some export of e-waste has been completed, but assistance is required to scale up the	**End of project** 40 x trainees trained in e-waste dismantling (from Cook Islands, Solomon Islands and Vanuatu) (50% of trainees	Project reports Export certificates for e-waste	Support from PacwastePlus remains on schedule. This includes the designation of land for a suitable dismantling facility. Participants from Cook Islands and Solomon Islands can take advantage of the PWP training in Samoa.	(a)(1)(2)(3) (b)(1)(2)(3)

made available to all Pacific SIDS	workshops established (3.1.5, 3.1.6) (Impact Indicator 8.1) 19. No. of trainees trained in e-waste dismantling (Impact Indicator 10.1)	system, and to include outer islands. The Solomon Islands is receiving support from PWP to conceive and develop an e-waste management system, including supporting legislation. Incremental assistance is sought from ISLANDS to scale up and operationalize the system. In Samoa PWP is working to establish e-waste recycling. There is significant regional interested in piloting "remaking workshops" in an effort to divert waste from landfill, and provide a space for vocational learning. As the median age in the Pacific is 23 years old and unemployment is high, sustainably livelihoods are desperately required. The concept of "remaking" from waste materials is seen a potential	should be women) 3x e-waste dismantling facilities and recycling systems operating (Cook Islands, Solomon Islands and Vanuatu) 1 x pilot remaking workshop established (Samoa)			

		contributor to both increased sustainable livelihoods and decreased waste.				
Output 3.2: Operationalisation of waste transfer and sorting stations for bulky waste and recycling results documented and made available to all Pacific SIDS	20. No. of waste transfer stations established and operationalized (3.2.1, 3.2.3) (Impact Indicator 3.3) 21. No. of tonnes of waste prevented from entering landfill (3.2.2) (Impact Indicator 1.3) 22. No. of plastics and bulky waste recycling systems in place (3.2.4) (Impact Indicator 4.1)	Due to limited space in landfills and the need to prevent the generation of hazardous waste through burning of municipal waste, Nauru, Niue, Tonga and Tuvalu are seeking to establish waste transfer facilities to sort, process and establish recycling systems for wastes.	**Mid-term** 5 x waste transfer stations (Nauru, Niue, Palau, Tonga, Tuvalu) 5x plastics and bulky waste recycling systems established (Palau, Marshall Islands, Niue and Tonga) **End of project** 1,000 tonnes of waste diverted from landfill 500 tonnes of plastics waste recycled 500 tonnes of bulky waste recycled	Technical construction reports Export certificates and documentation from recycling		(a)(1)(2) (b)(1)(2)
Output 3.3: Establishment of used oil management of used oil management systems in SIDS	23. No. of used oil storage facilities (3.3.1) (Impact Indicator 3.3) 24. No. of tonnes of oil recycled. (3.3.2)	FSM has a used oil stockpile of 900,000L. Assistance was provided under GEF ID 4066 to dispose of 70,000L (through export to New	**Mid-term** 3 x used oil storage facilities established 1 x used oil management guide	Construction reports. Shipping paperwork, export permits	Recyclers interested in procuring used oil	(a)(1)(2)

results documented and made available to all Pacific SIDS	(Impact Indicator 1.3) 25. No. of used oil management guides (3.3.3, 3.3.4) (Impact indicator 4.1)	Zealand for recycling and the construction of a used oil storage facility). FSM recognizes the need to put in place a levy system on the import of oil, to ensure funds are available for disposal (assistance in this regard it proposed under Component 1). Assistance is also required to establish additional used oil storage facilities, as well as developing agreements with used oil recyclers, and identifying a buyer for legacy used oil.	**End of project** 900L tonnes of used oil disposed of/recycled			
Output 3.4: Technical backstopping provided to manage healthcare waste to Pacific SIDS	26. No. of Pacific countries assisted through technical backstopping facilities for healthcare waste management (3.4.1, 3.4.2) (Impact Indicator 3.1) 27. Reduction in dioxin and furan emissions from	Healthcare waste in the Pacific is currently being managed poorly. This is due in part to the failure of countries to maintain and appropriately utilise the healthcare waste incinerators provided through a European Union	**Mid-term** 10 x Pacific countries assisted with technical backstopping **End of project** 14 x Pacific countries provided with technical backstopping	s		(a)(1)(2)

	incomplete combustion of healthcare waste (3.4.1, 3.4.2) (Impact Indicator 1.2)	healthcare waste project funded through the EDF10 from 2014-18. SPREP, as the implementation partner of the PWP is currently undertaking activities to understand, and to improve, healthcare waste management in 14 Pacific Island Countries. Available funding under the PWP Programme is insufficient to undertake all necessary actions, and with the impact of the COVID-19 pandemic on healthcare waste, SPREP has called for a multi-donor response is required to ensure adequate management of healthcare waste throughout the region.	14 x countries with reduced dioxin and furan emissions			

Component 4: Knowledge Management and Communication						
Outcome 4	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Knowledge generated by the programme is disseminated to, and applied by, SIDS in all regions	- No. of knowledge assets generated and disseminated to Pacific SIDS	Knowledge generated by projects and activities in SIDS is not currently shared, disseminated or communicated in a systematic way. As a result, and fuelled by geographic isolation, Pacific SIDS rarely learn from each other, nor from the experiences of other SIDS.	**Mid-term** 25 Knowledge products disseminated to PICs **End of project** Project activities communicated to all SIDS Over 70,000 youth engaged in improved waste management through Tide Turners		It is assumed the project and ISLANDS programme accurately identify SIDS stakeholders requiring information, and that this information will be used.	(a)(4)(5) (b)(4)(5)
Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 4.1 Communication of national systems on sustainable financing	28. No. of Pacific countries with communities consulted on sustainable financing measures in place (% of women in community consultations)(4.1.1, 4.1.2, 4.1.3, 4.1.4,	The Cook Islands, FSM, Nauru and Niue have requested assistance in developing sustainable financing measures for various wastes (including e-waste, used oil, and bulky waste). Communities are yet	**Mid-term** 4 x Pacific countries effectively consulted on sustainable financing measures (Nauru, Niue, FSM, Cook Islands)	Project reports	Is it assumed that communities are receptive to the introduction of sustainable financing measures.	(a)(4)(5) (b)(4)(5)

	4.1.5) (Impact Indicator 12.3)	to be fully informed or consulted on these plans, or eventual measures.	At least 45% of total individuals women consulted are women			
Output 4.2 Community education activities and programmes on waste management behaviour designed and conducted	29. No of Pacific countries signed up to mercury free Pacific pledge (4.2.4, 4.2.5) 30. No. of regional strategies in place for Mercury free Pacific (4.2.1, 4.2.2, 4.2.3) (Impact Indicator 4.1) 31. No. of community education activities on waste management behaviour (4.2.4, 4.2.5) (Impact Indicator 8.1)	The Government of Tuvalu is undertaking a concerted national effort to reduce waste generation, increase recycling rates, and improve waste management. This requires changes in behavior at both the individual and community level. In the context of the Minamata Convention MIA activities being undertaken in the region, SPREP is planning on promoting mercury free Pacific. Such a plan would involve including this on the agenda of the 2021 SPREP meeting, with the aim of getting Pacific countries to pledge commitment. From this a regional strategy will be developed to guide	**<u>Mid-term</u>** 14 x countries signed up to Mercury-Pacific pledge 20 community activities on waste management in Tuvalu **<u>End of project</u>** 60 community activities on waste management 1 x regionally endorsed mercury free Pacific strategy in place.	Project reports Pledge from SPREP meeting Press release from SPREP meeting Draft strategy	SPREP remain committed to introducing this as a key regional action area at the 2021 SPREP meeting. There is a risk that this idea could be over-shadowed by another more pressing issue.	(a)(4)(5) (b)(4)(5)

		regional and national actions to eliminate mercury.				
Output 4.3: Widespread engagement of youth through Tide Turners program (**regional)**	32. No of youth participating in Tide Turners program (4.3.1, 4.3.2) (Impact Indicator 8.2)	Across the Pacific region half of the population is aged under 23 years of age. In Melanesia more than a third are aged 14 and under. PNG, Solomon Islands, and Vanuatu are recording population growth rates of 2%, or more, double the global average annual growth rate[106]. The involvement of young people is central to changing behaviors related to waste management. UNEP Youth developed the Plastic Tide Turners badge, together with the Scouts, a leadership challenge to educate and empower young people to change	**Mid-term** 70,000 Pacific Youth participating in the Plastics Tide Turners program (50% girls). **End of project** 160,000 Pacific Youth from 14 countries participating in the Plastics Tide Turners program	Downloads of Tide Turners app Registration of participation on the app	App will be developed and available under the Coordination, Communications and Knowledge Management project. It is also assumed UNV can be hired through UNEP Youth and located at SPREP to mentor and work with Pacific communities working on Tide Turner activities.	(a)(4)(5) (b)(4)(5)

[106] https://www.lowyinstitute.org/publications/demanding-future-navigating-pacific-youth-bulge#sec42951

		their own behavior and that of their communities.				
Output 4.4: Best practices in Pacific SIDS on hazardous waste management documented and made available reporting through the global component	33. No. of quarterly Programmatic update reports provided to the Coordination, Communications and Knowledge Management project (4.4.1, 4.4.2)	The ISLANDS Programme has not yet started and therefore there is no quarterly communications or reporting.	**Mid-term** 10 x quarterly update reports provided to the Coordination, Communications and Knowledge Management project **End of project** 10 x quarterly update reports provided to the Coordination, Communications and Knowledge Management project	Reports		(a)(4)(5) (b)(4)(5)

ANNEX B: RESPONSE TO PROJECT REVIEWS IF APPLICABLE

(from GEF Secretariat and GEF Agencies, and Responses to Comments from Council, and responses to comments from the Convention Secretariat and STAP).

Response to GEF Secretariat Review

GEF noted that the co-135financing of the PMC is less than the GEF amount. In the majority of projects the practice is for the co-135financing to be equal or greater than the GEF amount.

The co-financing for PMC is now greater than the GEF contribution. Significant co-financing is coming from SPREP towards project management.

Response to STAP Reviews

STAP reviewed the PFD, concurred with the ISLANDS Programme, and made the following comments on the concept of ISLANDS PFD that are relevant to this project (https://www.thegef.org/sites/default/files/web-documents/10185_STAP_Screen.pdf). These comments and the responses are included below:

• *The project has the potential to generate Global Environment Benefits (GEBs) beyond the chemicals and waste focal area including: biodiversity benefits (through the prevention of harmful impacts of chemicals and waste on terrestrial and marine ecosystems); international waters benefits (through the prevention of chemical pollution and plastic pollution of international waters); and climate change benefits (through the mitigation of greenhouse emissions from poor waste management). It is recommended that a detailed analysis of these co-benefits should be carried out at the PPG stage and the final interventions designed to maximize these co-benefits. STAP also suggests that detailed information about how the chemicals and waste GEBs were estimated should be provided at the PPG stage.*

Agency response: Noted. Section on GEBs addressed co-benefits in the areas of biodiversity, international waters, and climate change benefits. This section also includes details on the basis for GEB calculations.

• *Component 2: one of the proposed interventions includes infrastructure, for example, engineered landfills. Given the limited land mass of SIDS and the susceptibility of SIDS to the impacts of climate change, for example, sea-level rise and increased frequency of extreme weather events, it is recommended that other alternatives should be assessed to ascertain that landfill is the best option. If landfill is the best option, it is recommended that the BAT be deployed that includes effective leachate management, methane recovery and waste- to-energy applications.*

Agency response: This has been noted and BAT will be deployed.

• *Stakeholders: The proposal contains a good representation of stakeholders, but their expected role in the project is not specified. STAP believes that academic and research institutions, especially local ones, are important stakeholders for this type of project that involves the assessment of BAT, knowledge management and dissemination. It is therefore recommended that relevant academic and research institutions should be*

Agency response: This is noted and the project will ensure knowledge assets are shared with a network of SIDS based academic stakeholders. In addition, representatives from SIDS based academic institutions will be targeted to join the communities of practice.

• Risks: The proposal presents a good preliminary analysis of the potential risks to the success of the project. STAP appreciates that the potential impact of climate change and sea-level rise is recognized and included in the preliminary risk analysis. It is important that ways of mitigating these risks be designed at the PPG stage and incorporated during project implementation. Beyond the identified risks, STAP recommends that the project proponents consider other potential risks, including political risk and coordination challenges for a large program.

Agency response: This is noted. Political risks are now included. During PPG an extensive assessment of climate risks and mitigation measures was undertaken. The result of this are included in the Section on Risk. Specifically, in Tonga, the project will work to rehabilitate and climate proof two landfills.

Response to Country comments on the PFD

GEF Council members made the following comments on the project. Where these comments pertain to this child project, a response is provided in the righthand column

Country	Comment	Agency Response
Canada	- The project appears to address some of the systemic issues facing SIDS that prevent them from fully implementing the Minamata Convention. While not highlighted in the project proposal, greater control of imports and waste could also assist countries in fulfilling their reporting requirements under the Convention. - This project is in line with previously adopted Stockholm COP decisions and proposed actions to the GEF in the 2018-2022 priority areas.	Noted. UNEP concurs and under Component 1 work is planned to reduce imports and waste. This will assist Pacific countries in fulfilling requirements under the Convention.
Germany	Germany welcomes this proposal, which addresses the major chemicals and waste issues in the SIDS through an interregional and intersectoral approach. At the same time, Germany has the following comments that it suggests be addressed in the next phase of finalizing the project proposal: Suggestions for improvements to be made during the drafting of the final project proposal: - The risks associated to the complex management structure should be addressed in the risk section of the PIF, as well as associated risk mitigation measures. As UNEP-Chemicals has already limited management capacities, Germany recommends to ensure that sufficient resources are provided in an early stage of project preparation. - In Component 1, the activity on "promotion and introduction of alternatives to identified priority chemicals and products (e.g. alternatives to POPs and Hg containing products, alternatives to HHPs, alternatives to certain	The global CCKM project will gather, synthesize and disseminate information on recording chemicals components contained in products. The Pacific project will use and disseminate this information to inform stakeholders and change behaviours in the Pacific region.

	plastics)(…)" does not clarify how identification is processed. Germany would welcome additional information on this component - In many sectors recording on chemical components contained in products is insufficient and incomplete. Germany therefore recommends to include the recording of chemicals and products as thematic building blocks in the component on strengthening regulatory/policy frameworks in the final proposal.	
Norway/Denmark	- We are pleased that such a program is suggested for SIDS as they are especially vulnerable to these issues and have limited resources. - Please note (1) that the programme document itself state that there have been many initiatives on chemicals and waste across SIDS in the past. A common feature of many of these has been the failure to learn from experience (both positive and negative) and, to build on results and successes. The programme intends to address this issue which is very positive. - Several of the components refer to strengthening the national governments capacity to implement the BRS and Minamata Conventions, plus SAICM. One should be aware that there may be an overlap with UN Environment Special programme. How will this be addressed? - Indicator 5.3 concerns the amount of Marine Litter Avoided. The target is set at 185,400.00 Metric Tons (expected at PIF) which is higher than the total target set for GEF-7. Will GEF-7's target be increased? It is also noted that marine litter estimates are based on available country baseline data in term of marine litter generated. It is noted that some of these studies are dated and the data will be confirmed, and hopefully increased during PPG. - It is difficult to get a full overview of the elements of the program and these should be more detailed. It is positive that import control, substitution and collaboration with sectors generating waste are elements of the program. It is also positive that work is planned to promote regional management solutions as	The potential overlap with countries with Special Programme activities is noted. During project preparation UNEP consulted both the Special Programme Secretariat and countries with Special Programme projects, to ensure national activities were complimentary, as opposed to duplicative of Special Programme activities.

	these are essential to ensure environmentally and economically sustainable waste solutions.	
US	- We believe that the overall goals of the ISLANDS program are positive and address important chemical and waste priorities, including those related to reducing plastic pollution. However, in the United States' view, the inclusion of project activities directed at advancing new national efforts to ban single-use plastic products or develop extended producer responsibility (EPR) mechanisms is not consistent with the GEF mandate, which is to achieve global environmental benefits. Single-use plastic bans do not yet have a demonstrated net environmental benefit, as analyses of the full economic and environmental impacts, including life-cycle analysis of the impact of plastic alternatives, are lacking. GEF interventions should focus on waste management to combat plastic pollution. Unless activities related to the ban of single-use plastics and EPR are removed during further project development, the United States will not be in a position to support the Pacific Regional, Caribbean Regional, Indian Regional and Caribbean Incubator Child Projects at the CEO endorsement stage. - The United States would appreciate additional information on whether the Basel Convention Regional Centre for Training and Technology Transfer (BCRC Caribbean) has the demonstrated competency and experience in the promotion and implementation single-use plastic bans. The below comments from the United States were provided prior to the Council meeting. An initial agency response was provided and can be found in the list of documents specific to the project in the GEF Portal. - Can the GEF please provide a breakdown of the relative funding directed to each country	The project does not propose single use plastic bans. The project is focused on waste management to combat plastic pollution. In the Pacific, each participating country has a national allocation of $750,000.

ANNEX C: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG) AND SIGNIFICANT PPG OUTPUTS

(If requesting for PPG reimbursement, please provide details in the table below:)

Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
SPREP	200,590.00	137,088.00	63,502.00
Communications consultant	5,500.00	5,500.00	0
Waste audit technical consultants	33,309.80	33,309.80	0
Lead consultant	60,600.20	60,600.20	0
Total	**300,000**	**236,498**	**63,502**

ANNEX E - MAPS AND COORDINATES

Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS) - Pacific

COK

FJI

FSM

KIR

MHL

NIU

NRU

PLW

PNG

SLB

TON

TUV

VUT

WSM

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

This map Is intended for illustrative purposes only, and should not be used to derive any information regarding the project's operations. All maps were downloaded from https://reliefweb.int/location-maps

ANNEX F: GEF 7 CORE INDICATOR WORKSHEET

Core Indicator 1	**Terrestrial protected areas created or under improved management for conservation and sustainable use**							***(Hectares)***
				Hectares (1.1+1.2)				
				Expected		Achieved		
				PIF stage	Endorsement	MTR	TE	
Indicator 1.1	Terrestrial protected areas newly created							
Name of Protected Area	WDPA ID	IUCN category		Hectares				
				Expected		Achieved		
				PIF stage	Endorsement	MTR	TE	
		(select)						
		(select)						
		Sum						
Indicator 1.2	Terrestrial protected areas under improved management effectiveness							
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score				
				Baseline		Achieved		
					Endorsement	MTR	TE	
		(select)						
		(select)						
		Sum						
Core Indicator 2	**Marine protected areas created or under improved management for conservation and sustainable use**							***(Hectares)***
				Hectares (2.1+2.2)				
				Expected		Achieved		
				PIF stage	Endorsement	MTR	*TE*	
Indicator 2.1	Marine protected areas newly created							
Name of Protected Area	WDPA ID	IUCN category		Hectares				
				Expected		Achieved		
				PIF stage	Endorsement	MTR	TE	
		(select)						
		(select)						
		Sum						
Indicator 2.2	Marine protected areas under improved management effectiveness							
	WDPA ID	IUCN category	Hectares	METT Score				
				Baseline		Achieved		

Name of Protected Area				PIF stage	Endorsement	MTR	TE
		(select)					
		(select)					
		Sum					
Core Indicator 3	**Area of land restored**						***(Hectares)***
				Hectares (3.1+3.2+3.3+3.4)			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Indicator 3.1	Area of degraded agricultural land restored						
				Hectares			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Indicator 3.2	Area of forest and forest land restored						
				Hectares			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Indicator 3.3	Area of natural grass and shrublands restored						
				Hectares			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Indicator 3.4	Area of wetlands (including estuaries, mangroves) restored						
				Hectares			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Core Indicator 4	**Area of landscapes under improved practices (hectares; excluding protected areas)**						***(Hectares)***

		Hectares (4.1+4.2+4.3+4.4)				
		Expected		Expected		
		PIF stage	Endorsement	MTR	TE	
Indicator 4.1	Area of landscapes under improved management to benefit biodiversity					
		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
Indicator 4.2	Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
Indicator 4.3	Area of landscapes under sustainable land management in production systems					
		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
Indicator 4.4	Area of High Conservation Value Forest (HCVF) loss avoided					
Include documentation that justifies HCVF		Hectares				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
Core Indicator 5	**Area of marine habitat under improved practices to benefit biodiversity**					***(Hectares)***
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):		Number				
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	

Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.3	Amount of Marine Litter Avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			28,000	*28,000*		
Core Indicator 6	**Greenhouse gas emission mitigated**					***(Metric tons of CO_2e)***
			Expected metric tons of CO_2e (6.1+6.2)			
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)					
	Expected CO2e (indirect)					
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector					
			Expected metric tons of CO_2e			
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)					
	Expected CO2e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting					
Indicator 6.2	Emissions avoided Outside AFOLU					
			Expected metric tons of CO_2e			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)					
	Expected CO2e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting					
Indicator 6.3	Energy saved					
			MJ			
			Expected		Achieved	

			PIF stage	Endorsement	MTR	TE
Indicator 6.4	Increase in installed renewable energy capacity per technology					
		Technology	Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		(select)				
		(select)				
Core Indicator 7	**Number of shared water ecosystems (fresh or marine) under new or improved cooperative management**					***(Number)***
Indicator 7.1	Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.2	Level of Regional Legal Agreements and Regional Management Institutions to support its implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committees					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products					
		Shared water ecosystem	Rating (scale 1-4)			
			Rating		Rating	
			PIF stage	Endorsement	MTR	TE
Core Indicator 8	**Globally over-exploited fisheries Moved to more sustainable levels**					***(Metric Tons)***
Fishery Details			Metric Tons			

			PIF stage	Endorsement	MTR	TE

Core Indicator 9	**Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products**					***(Metric Tons)***
			Metric Tons (9.1+9.2+9.3)			
			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
			105.51	*548.08*		

Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
DDT	(select)	(select)	*100*	*12*		
(select)	(select)	Polychlorinated biphenyls (PCB)	*1*	*532*		
(select)	(select)	(select)	*0.01*	*0.58*		

Indicator 9.2	Quantity of mercury reduced					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			1	*3.5*		

Indicator 9.3	Hydrochloroflurocarbons (HCFC) Reduced/Phased out					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE

Indicator 9.4	Number of countries with legislation and policy implemented to control chemicals and waste					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			10	*10*		

Indicator 9.5	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					
		Technology	Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE

Indicator 9.6	Quantity of POPs/Mercury containing materials `and products directly avoided					
			Metric Tons			
				Expected		Achieved
			PIF stage	Endorsement	PIF stage	Endorsement
			5050	*4,338*		
Core Indicator 10	**Reduction, avoidance of emissions of POPs to air from point and non-point sources**					***(grams of toxic equivalent gTEQ)***
						8
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air					
			Number of Countries			
			Expected		Achiev	
			PIF stage	Endorsement	MTR	TE
Indicator 10.2	Number of emission control technologies/practices implemented					
			Number			
			Expected		Achiev	
			PIF stage	Endorsement	MTR	TE
Core Indicator 11	**Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**					***(Number)***
			Number			
			Expected		Achiev	
			PIF stage	Endorsement	MTR	TE
		Female	*100,000*	*100,000*		
		Male	*100,000*	*100,000*		
		Total	*200,000*	*200,000*		

ANNEX G: GEF PROJECT TAXONOMY WORKSHEET

Use this Worksheet to list down the taxonomic information required under Part I, item G by ticking the most relevant keywords/ topics/themes that best describe this project.

Level 1	Level 2	Level 3	Level 4
☒**Influencing models**			
	☒**Transform policy and regulatory environments**		
	☒**Strengthen institutional capacity and decision-making**		
	☒**Convene multi-stakeholder alliances**		
	☒**Demonstrate innovative approaches**		
	☐**Deploy innovative financial instruments**		
☒**Stakeholders**			
	☒**Indigenous Peoples**		
	☒**Private Sector**		
		☐Capital providers	
		☐Financial intermediaries and market facilitators	
		☒Large corporations	
		☒SMEs	
		☒Individuals/Entrepreneurs	
		☐Non-Grant Pilot	
		☐Project Reflow	
	☒**Beneficiaries**		
	☒**Local Communities**		
	☒**Civil Society**		
		☒Community Based Organization	
		☒Non-Governmental Organization	
		☒Academia	
		☐Trade Unions and Workers Unions	
	☒**Type of Engagement**		
		☒Information Dissemination	
		☐Partnership	
		☒Consultation	
		☒Participation	
	☒**Communications**		
		☒Awareness Raising	
		☒Education	
		☒Public Campaigns	
		☒Behavior Change	
☒**Capacity, Knowledge and Research**			
	☐**Enabling Activities**		
	☒**Capacity Development**		
	☒**Knowledge Generation and Exchange**		
	☐**Targeted Research**		
	☒**Learning**		
		☒Theory of Change	
		☒Adaptive Management	
		☒Indicators to Measure Change	
	☒**Innovation**		
	☒**Knowledge and Learning**		
		☒Knowledge Management	
		☒Innovation	
		☒Capacity Development	
		☒Learning	
	☒**Stakeholder Engagement Plan**		

☒**Gender Equality**			
	☒**Gender Mainstreaming**		
		☒Beneficiaries	
		☒Women groups	
		☒Sex-disaggregated indicators	
		☒Gender-sensitive indicators	
	☒**Gender results areas**		
		☐Access and control over natural resources	
		☐Participation and leadership	
		☒Access to benefits and services	
		☒Capacity development	
		☒Awareness raising	
		☒Knowledge generation	
☒**Focal Areas/Theme**			
	☐**Integrated Programs**		
		☐Commodity Supply Chains ([107]Good Growth Partnership)	
			☐Sustainable Commodities Production
			☐Deforestation-free Sourcing
			☐Financial Screening Tools
			☐High Conservation Value Forests
			☐High Carbon Stocks Forests
			☐Soybean Supply Chain
			☐Oil Palm Supply Chain
			☐Beef Supply Chain
			☐Smallholder Farmers
			☐Adaptive Management
		☐Food Security in Sub-Sahara Africa	
			☐Resilience (climate and shocks)
			☐Sustainable Production Systems
			☐Agroecosystems
			☐Land and Soil Health
			☐Diversified Farming
			☐Integrated Land and Water Management
			☐Smallholder Farming
			☐Small and Medium Enterprises
			☐Crop Genetic Diversity
			☐Food Value Chains
			☐Gender Dimensions
			☐Multi-stakeholder Platforms
		☐Food Systems, Land Use and Restoration	
			☐Sustainable Food Systems
			☐Landscape Restoration
			☐Sustainable Commodity Production
			☐Comprehensive Land Use Planning
			☐Integrated Landscapes
			☐Food Value Chains
			☐Deforestation-free Sourcing
			☐Smallholder Farmers
		☐Sustainable Cities	
			☐Integrated urban planning
			☐Urban sustainability framework
			☐Transport and Mobility
			☐Buildings
			☐Municipal waste management
			☐Green space
			☐Urban Biodiversity
			☐Urban Food Systems
			☐Energy efficiency

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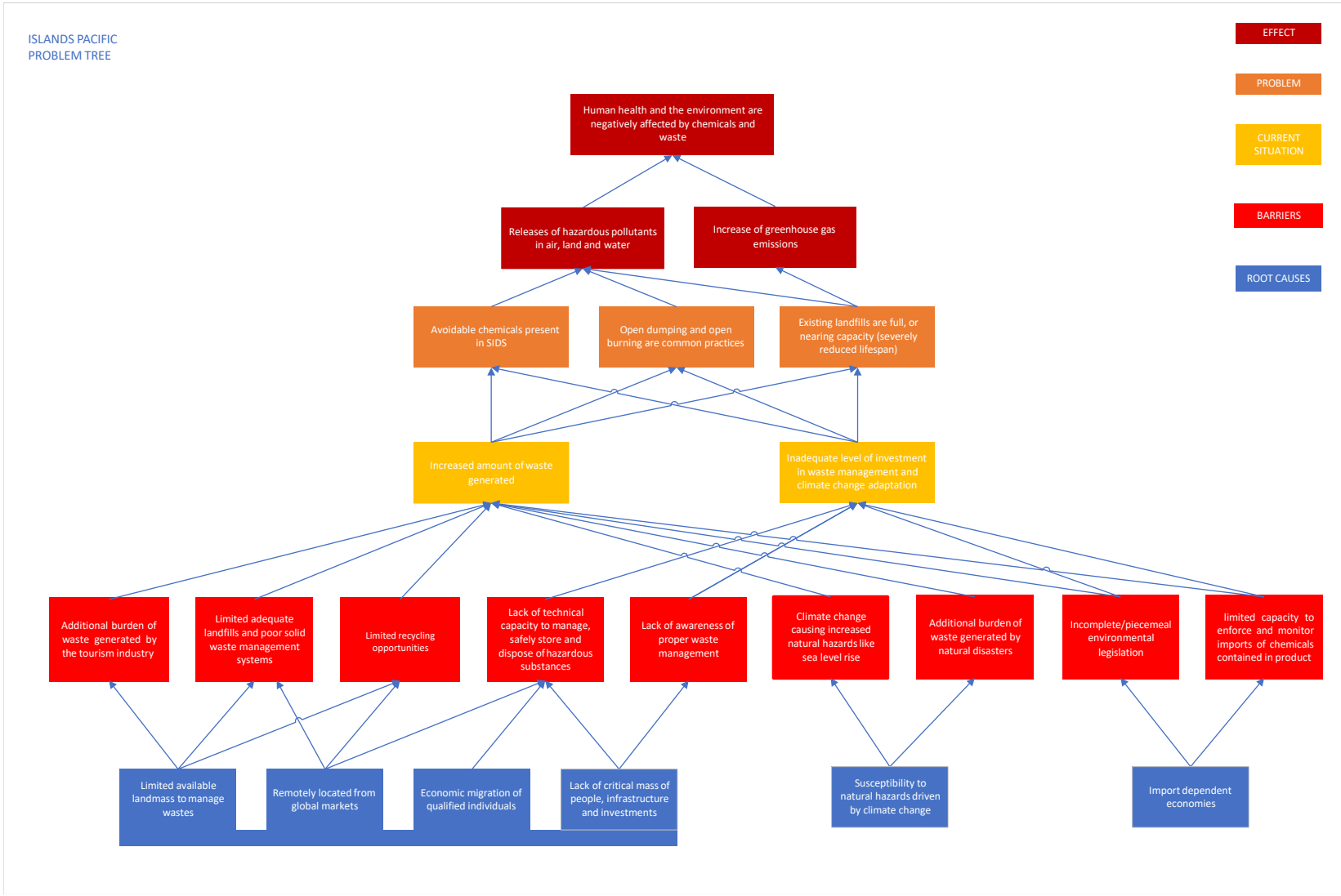
			☐Municipal Financing
			☐Global Platform for Sustainable Cities
			☐Urban Resilience
	☐**Biodiversity**		
		☐Protected Areas and Landscapes	
			☐Terrestrial Protected Areas
			☐Coastal and Marine Protected Areas
			☐Productive Landscapes
			☐Productive Seascapes
			☐Community Based Natural Resource Management
		☐Mainstreaming	
			☐Extractive Industries (oil, gas, mining)
			☐Forestry (Including HCVF and REDD+)
			☐Tourism
			☐Agriculture & agrobiodiversity
			☐Fisheries
			☐Infrastructure
			☐Certification (National Standards)
			☐Certification (International Standards)
		☐Species	
			☐Illegal Wildlife Trade
			☐Threatened Species
			☐Wildlife for Sustainable Development
			☐Crop Wild Relatives
			☐Plant Genetic Resources
			☐Animal Genetic Resources
			☐Livestock Wild Relatives
			☐Invasive Alien Species (IAS)
		☐Biomes	
			☐Mangroves
			☐Coral Reefs
			☐Sea Grasses
			☐Wetlands
			☐Rivers
			☐Lakes
			☐Tropical Rain Forests
			☐Temperate Forests
			☐Grasslands
			☐Paramo
			☐Desert
		☐Financial and Accounting	
			☐Payment for Ecosystem Services
			☐Natural Capital Assessment and Accounting
			☐Conservation Trust Funds
			☐Conservation Finance
		☐Supplementary Protocol to the CBD	
			☐Biosafety
			☐Access to Genetic Resources Benefit Sharing
	☐**Forests**		
		☐Forest and Landscape Restoration	
			☐REDD/REDD+
		☐Forest	
			☐Amazon
			☐Congo
			☐Drylands
	☐**Land Degradation**		
		☐Sustainable Land Management	

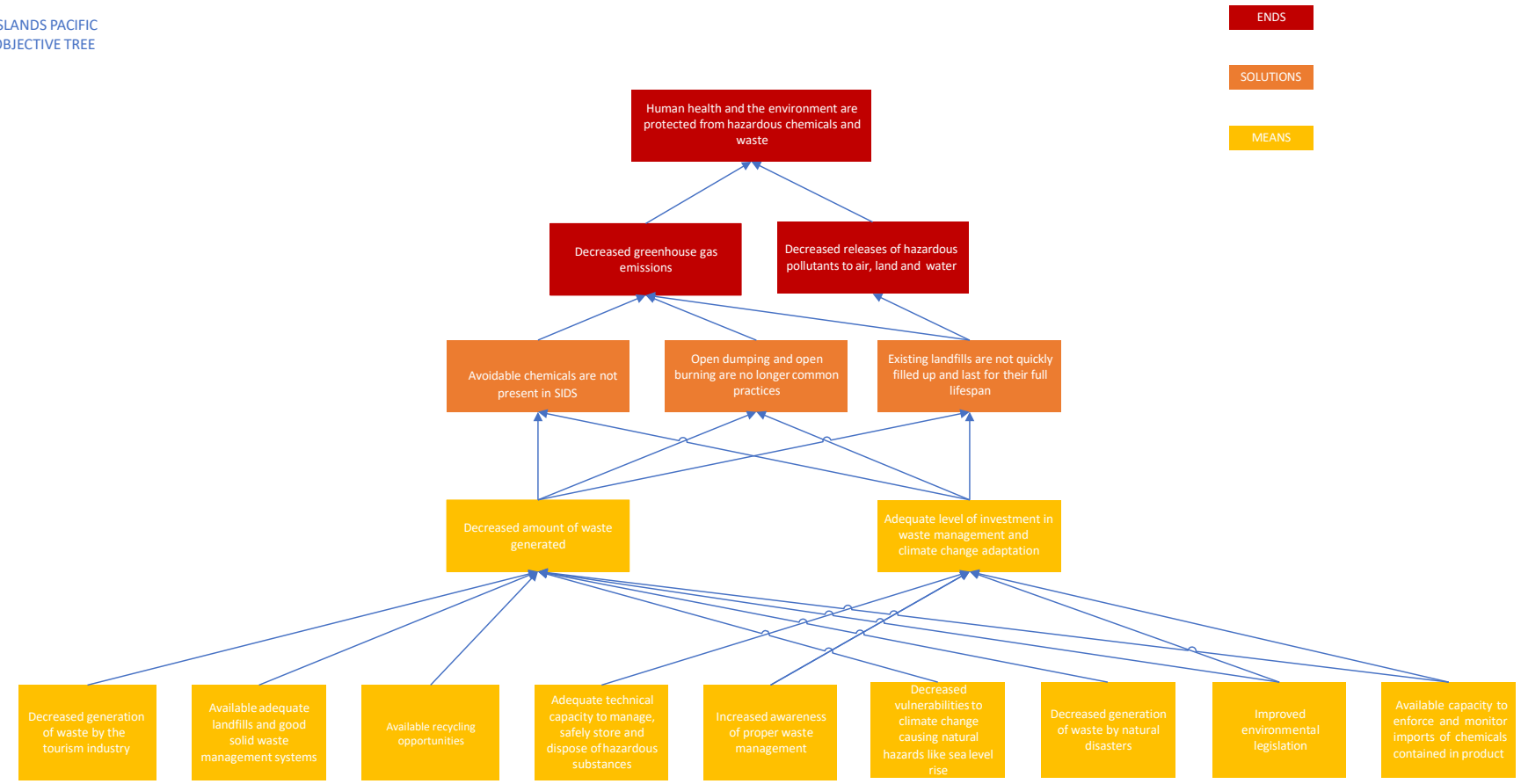
			☐Restoration and Rehabilitation of Degraded Lands
			☐Ecosystem Approach
			☐Integrated and Cross-sectoral approach
			☐Community-Based NRM
			☐Sustainable Livelihoods
			☐Income Generating Activities
			☐Sustainable Agriculture
			☐Sustainable Pasture Management
			☐Sustainable Forest/Woodland Management
			☐Improved Soil and Water Management Techniques
			☐Sustainable Fire Management
			☐Drought Mitigation/Early Warning
		☐Land Degradation Neutrality	
			☐Land Productivity
			☐Land Cover and Land cover change
			☐Carbon stocks above or below ground
		☐Food Security	
	☒**International Waters**		
		☐Ship	
		☐Coastal	
		☐Freshwater	
			☐Aquifer
			☐River Basin
			☐Lake Basin
		☐Learning	
		☐Fisheries	
		☐Persistent toxic substances	
		☒SIDS : Small Island Dev States	
		☐Targeted Research	
		☒Pollution	
			☐Persistent toxic substances
			☒Plastics
			☐Nutrient pollution from all sectors except wastewater
			☐Nutrient pollution from Wastewater
		☐Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		☐Strategic Action Plan Implementation	
		☐Areas Beyond National Jurisdiction	
		☐Large Marine Ecosystems	
		☐Private Sector	
		☐Aquaculture	
		☐Marine Protected Area	
		☐Biomes	
			☐Mangrove
			☐Coral Reefs
			☐Seagrasses
			☐Polar Ecosystems
			☐Constructed Wetlands
	☒**Chemicals and Waste**		
		☒Mercury	
		☒Artisanal and Scale Gold Mining	
		☐Coal Fired Power Plants	
		☐Coal Fired Industrial Boilers	
		☐Cement	
		☐Non-Ferrous Metals Production	
		☐Ozone	
		☒Persistent Organic Pollutants	

		☒Unintentional Persistent Organic Pollutants	
		☒Sound Management of chemicals and Waste	
		☒Waste Management	
			☒Hazardous Waste Management
			☒Industrial Waste
			☒e-Waste
		☒Emissions	
		☒Disposal	
		☒New Persistent Organic Pollutants	
		☒Polychlorinated Biphenyls	
		☒Plastics	
		☒Eco-Efficiency	
		☒Pesticides	
		☒DDT - Vector Management	
		☐DDT - Other	
		☒Industrial Emissions	
		☒Open Burning	
		☒Best Available Technology / Best Environmental Practices	
		☐Green Chemistry	
	☒**Climate Change**		
		☒**Climate Change Adaptation**	
			☐Climate Finance
			☐Least Developed Countries
			☒Small Island Developing States
			☒Disaster Risk Management
			☒Sea-level rise
			☒Climate Resilience
			☐Climate information
			☐Ecosystem-based Adaptation
			☐Adaptation Tech Transfer
			☐National Adaptation Programme of Action
			☐National Adaptation Plan
			☐Mainstreaming Adaptation
			☐Private Sector
			☐Innovation
			☐Complementarity
			☐Community-based Adaptation
			☐Livelihoods
		☐**Climate Change Mitigation**	
			☐Agriculture, Forestry, and other Land Use
			☐Energy Efficiency
			☐Sustainable Urban Systems and Transport
			☐Technology Transfer
			☐Renewable Energy
			☐Financing
			☐Enabling Activities
		☐**Technology Transfer**	
			☐Poznan Strategic Programme on Technology Transfer
			☐Climate Technology Centre & Network (CTCN)
			☐Endogenous technology
			☐Technology Needs Assessment
			☐Adaptation Tech Transfer
		☐**United Nations Framework on Climate Change**	
			☐Nationally Determined Contribution

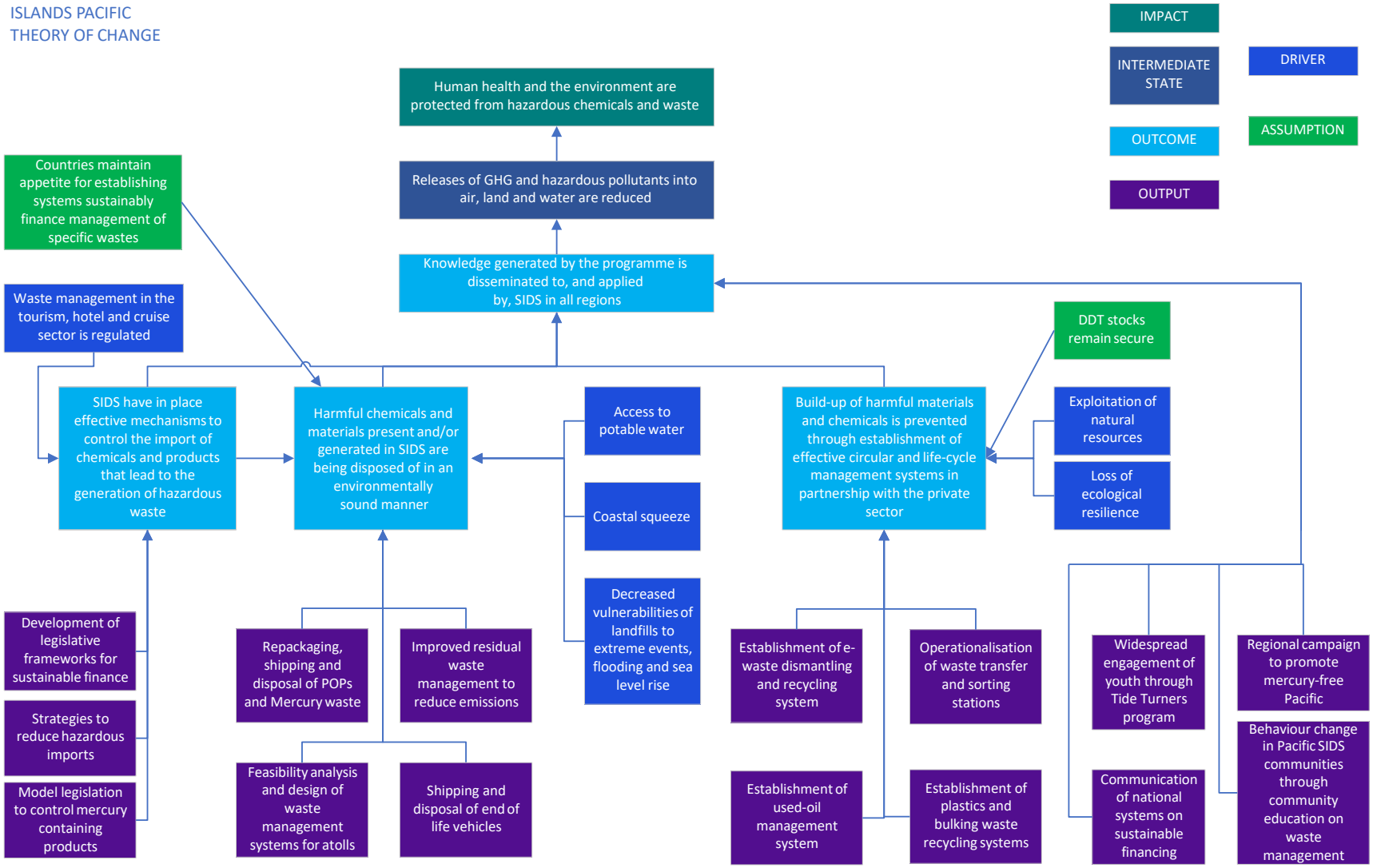
APPENDIX 01 - PROBLEM TREE, OBJECTIVE TREE, THEORY OF CHANGE



ISLANDS PACIFIC
OBJECTIVE TREE



ISLANDS PACIFIC
THEORY OF CHANGE



APPENDIX 02 - BUDGET

UMOJA		Component 1:			Component 2				Component 3				Component 4				M&E			Year 1			Year 2			Year 3			Year 4			Year 5		
CODE		Output 1.1	Output 1.2	Output 1.3	Output 2.1	Output 2.2	Output 2.3	Output 2.4	Output 3.1	Output 3.2	Output 3.3	Output 3.4	Output 4.1	Output 4.2	Output 4.3	Output 4.4		PMC	Total	Comp 1-4	M&E	PMC	Comp 1-4	M&E	PMC	Comp 1-4	M&E	PMC	Comp 1-4	M&E	PMC	Comp 1-4	M&E	PMC
STAFF AND PERSONNEL																																		
1001 PM Staff																			-															
	Project Coordinator									-						100,000	50,000	557,000	**707,000**	20,000	10,000	112,000	20,000	10,000	111,000	20,000	10,000	112,000	20,000	10,000	111,000	20,000	10,000	111,000
	Administrative Officer																62,500	300,500	**363,000**	0	12,500	60,000	0	12,500	60,000	0	12,500	60,000	0	12,500	60,000	0	12,500	60,500
1002 Targeted Technical Assistance																			-															
	Hazardous waste management advisor (assistance with NHWMS development)	-	100,000	-	-	-	-	-	-	-	-	-	-	-	-	-			**100,000**	20,000			20,000			20,000			20,000			20,000		
	Used oil specialist	25,000	-	-	-	-	-	-	-	-	75,000	-	-	-	-	-			**100,000**	20,000			20,000			20,000			20,000			20,000		
1003 International consultants																			-															
	Communications consultant	80,000								-	25,000		50,000			30,000			**185,000**	39,000			39,000			39,000			39,000			29,000		
	Gender consultant		50,000				10,000				20,000		10,000				30,000		**120,000**	24,000			24,000			24,000			24,000			24,000		
	Stakeholder engagement consultant															30,000			**30,000**	15,000						15,000								
	Waste management and landfill remediation expert (Tonga feasibility and design, and Kiribati feasibility study)						50,000	50,000																										
	Composting expert (Nauru feasibility and design) Waste transfer station design consultant (Nauru, Niue, Tonga, Tuvalu)																																	
	Environmental permitting consultant																		**100,000**	50,000			50,000											
	Environmental due diligence consultant to identify environmentally sound recycling firms						40,000												**40,000**	40,000														
	Hazardous Waste management strategy consultant Procurement Specialist									40,000									**40,000**	20,000			20,000											
	UNV Tide Turners				10,000														**10,000**	10,000														
	Samoa - national strategy to reduce hazardous imports Cook Islands - technical assistant					10,000			40,000	20,000	10,000																							
	Fiji - technical assistant																																	
	FSM - technical assistant																		**80,000**	30,000			40,000			10,000								
			450,000					-											**450,000**	100,000			100,000			75,000			75,000					
		50,000	50,000	50,000	20,000	20,000	20,000	20,000	30,000	30,000	30,000	30,000					-	-	**350,000**	70,000			70,000			70,000			70,000			70,000		
														192,000					**192,000**	48,000			48,000			48,000								
1004 National consultants								-											-															
			20,000																**20,000**	20,000														
		5,000	20,000	5,000	-	12,500	-	-	85,000	-	-	-	33,000						**160,500**	32,100			32,100			32,100			32,100			32,100		
		5,000	20,000	5,000	-	12,500	-	-	95,000	-	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
		5,000	20,000	5,000	-	12,500	-	-	-	-	85,000	-	33,000						**160,500**	32,100			32,100			32,100			32,100			32,100		
	Marshall Islands - technical assistant	5,000	20,000	5,000	-	12,500	-	-	-	95,000	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
	Kiribati - technical assistant	5,000	20,000	5,000	-	12,500	-	95,000	-	-	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
	Nauru - technical assistant	5,000	20,000	5,000	-	12,500	45,000	-	-	40,000	-	-	33,000						**160,500**	32,100			32,100			32,100			32,100			32,100		
	Niue - technical assistant	5,000	20,000	5,000	-	12,500	-	-	-	75,000	-	-	33,000						**150,500**	30,100			30,100			30,100			30,100			30,100		
	Palau - technical assistant	5,000	20,000	5,000	-	12,500	-	-	-	95,000	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
	PNG - technical assistant	5,000	20,000	5,000	95,000	12,500	-	-	-	-	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
	Samoa - technical assistant Solomon Islands - technical assistant Tonga - technical asistant	5,000	40,000	5,000	-	12,500	75,000	-	-	-	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
	Tuvalu - technical assistant Vanuatu - technical assistant	5,000	20,000	5,000	-	12,500	-	-	95,000	-	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
		5,000	20,000	5,000	-	12,500	75,000	-	-	20,000	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
		5,000	20,000	5,000	-	12,500	-	-	-	75,000	-	-	33,000						**150,500**	30,100			30,100			30,100			30,100			30,100		
		5,000	20,000	5,000	-	12,500	-	-	95,000	-	-	-	33,000						**170,500**	34,100			34,100			34,100			34,100			34,100		
subtotal		225,000	970,000	120,000	125,000	205,000	315,000	165,000	440,000	490,000	245,000	30,000	522,000	192,000	-	160,000	142,500	857,500	5,204,000	989,400	22,500	172,000	914,400	22,500	171,000	829,400	22,500	172,000	779,400	22,500	171,000	721,400	22,500	171,500
CONTRACTUAL SERVICES																																		
1202 International contracts																			-															
	Legislative support (to Niue, Cook Islands, Fiji, FSM, Kiribati, Palau and model legislation on mercury).	350,000	100,000	78,000															**528,000**															
	Feasibility study on end of life vehicals Investment in establishing system for processing																			150,000			150,000			150,000			78,000					
	ELVs					200,000													**200,000**	200,000														
	Tide Turners contracts to national youth institutions ($22,000 x 14 countries)					500,000													**500,000**				200,000			200,000			100,000					
	Remaking workshop (Samoa)													308,000					**308,000**															
	Healthcare waste technical backstopping contractor Mercury containing products regional collection																			77,000			77,000			77,000			77,000					
	and disposal								600,000										**600,000**	50,000			300,000			250,000								
	Cook Islands - national invetment in e-waste											1,000,000							**1,000,000**	200,000			200,000			200,000			200,000			200,000		
	Fiji - national investment in community waste management				300,000														**300,000**															
	FSM - national investment in construction of temporary used oil storage facilities and establishing used oil management system								600,000										**600,000**	20,000			100,000			200,000			200,000			80,000		
									600,000										**600,000**															
											600,000								**600,000**	20,000			100,000			200,000			200,000			80,000		
																				30,000			100,000			200,000			200,000			70,000		
	Marshall Islands - national investment in recycling									600,000									**600,000**															
	and bulky waste management																			30,000			100,000			200,000			200,000			70,000		
	Kiribati national investment - landfill design, specification and investment package, and outer islands waste management							590,000											**590,000**															
	Nauru - national composting activity and waste transfer/sorting/ recycling station						400,000			336,000									**736,000**	20,000			100,000			200,000			200,000			70,000		
	Niue - national investment in bulky waste recycling																			100,000			136,000			200,000			200,000			100,000		
										600,000									**600,000**															
																				20,000			100,000			200,000			200,000			80,000		
										600,000									**600,000**															
	Palau - national investment in improved recycling																			20,000			100,000			200,000			200,000			80,000		
	PNG clean up and repackaging				600,000														**600,000**	30,000			100,000			200,000			200,000			70,000		
	PNG POPs waste disposal contract				900,000														**900,000**	800,000			100,000											
	Samoa national investment in residual waste (from recycling dismantling) waste management						600,000												**600,000**															
																				30,000			100,000			200,000			200,000			70,000		
	Solomon Islands - national investment in e-waste								600,000										**600,000**															
	Tonga - national investment in climate-proofing Tongan landfills on two outer islands																			20,000			100,000			200,000			200,000			80,000		
	Tuvalu - national investment in outer islands recycling						600,000												**600,000**															
	Vanuatu - national investment in e-waste recycling																			30,000			100,000			200,000			200,000			70,000		
										600,000									**600,000**															
									600,000										**600,000**	30,000			100,000			200,000			200,000			70,000		
subtotal		350,000	100,000	78,000	1,800,000	700,000	1,600,000	590,000	3,000,000	2,736,000	600,000	1,000,000	-	308,000	-	-	-	-	12,862,000	1,907,000	-	-	2,463,000	-	-	3,877,000	-	-	3,305,000	-	-	1,310,000	-	-
TRAVEL																			-															
1601 Training/ meetings																					0													
	ISLANDS Programme Coordination Group meetings Project inception workshop (virtual)																		-															
	Advance disposal fee webinar series																		-															
	Digital training on advanced disposal fee	90,000																	**90,000**	90,000														
	E-waste dismantling training (funding of participatings from Cook Islands and Solomon	150,000																	**150,000**	50,000			100,000											
	ELVs training for vehicle dismantlers (details to be confirmed in feasibility study)								50,000										**50,000**				50,000											
	Tide Turners regional partner training event																																	
						200,000													**200,000**				50,000			100,000			50,000					
	SPREP meeting side event on Mercury Free Pacific Cleaner Pacific Roundtable meeting on Mercury Free Pacific													100,000					**100,000**				50,000			50,000								
1602 International events	PM Travel/project team travel																		-															
	UNV Tide Turners travel																		-															
	Communications consultant travel												50,000						**50,000**							50,000								
													100,000						**100,000**							25,000			75,000					
1603 International travel																			-															
		285,000											40,000			40,000		10,000	**375,000**				20,000	10,000		50,000			150,000			145,000		
															50,000				**50,000**							25,000			25,000					
		50,000											16,000						**66,000**							33,000			33,000					
subtotal		575,000	-	-	-	200,000	-	-	50,000	-	-	-	206,000	100,000	50,000	40,000	-	10,000	**1,231,000**	140,000	-	-	270,000	-	10,000	333,000	-	-	333,000	-	-	145,000	-	-
OPERATING AND OTHER DIRECT COSTS																			-															
Publications																			-															
	FSM national guide on used oil procedure Tude Turners brochures (for Pacific region) Regional code of conduct on hazardous waste management in the Pacific Communications assets (videos)											25,000							**25,000**				25,000											
			50,000											32,000					**32,000**	32,000														
	Advanced disposal fee regional guide																		**50,000**				50,000											
		100,000												50,000					**150,000**	30,000			30,000			30,000			30,000			30,000		
	Internet upgrades in countries as required to facilitate virtual meeting	100,000																	**100,000**				40,000			40,000			20,000					
Internet costs																			-															
		50,000	50,000	16,000									10,000	10,000	10,000	10,000			**156,000**	80,000			76,000											
M&E																			-															
	Audit																	40,000	**40,000**			8,000			8,000			8,000			8,000			8,000
	Midterm review																50,000		**50,000**								50,000							
	Terminal Evaluation																100,000		**100,000**													100,000		
subtotal		250,000	100,000	16,000	-	-	-	-	-	-	25,000		10,000	92,000	10,000	10,000	150,000	40,000	**703,000**	142,000	0	8,000	221,000	0	8,000	70,000	50,000	8,000	50,000	0	8,000	30,000	100,000	8,000
		1,400,000	1,170,000	214,000	1,925,000	1,105,000	1,915,000	755,000	3,490,000	3,226,000	845,000	1,055,000	738,000	692,000	60,000	210,000	292,500	907,500	**20,000,000**	3,178,400	22,500	180,000	3,868,400	22,500	189,000	5,109,400	72,500	180,000	4,467,400	22,500	179,000	2,206,400	122,500	179,500
				2,784,000				5,700,000				8,616,000				1,700,000	292,500	907,500	**20,000,000**			3,380,900			4,079,900			5,361,900			4,508,400		2,508,400

APPENDIX 02 - WORKPLAN

Project executing partner: SPREP

	Project Management and Supervisory Tasks	Responsibility	PROJECT YEAR 1												PROJECT YEAR 2												PROJECT YEAR 3												PROJECT YEAR 4												PROJECT YEAR 5											
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
0	PCA signature / Disbursement of funds	FMO																																																												
1	Hiring of Project Coordinator	SPREP																																																										
2.1	Inception Workshop (Review of Workplan, Budget, Procurement Plan and M&E plan)	PC																																																									
2.2	Prepare and submit Inception Workshop Report	PC																																																								
2.3	Review of Inception Workshop report	TM																																																								
3	Hiring of Consultants	PC																																																								
4	Procurement and subcontracts	PC																																																							
5.1	Preparation and Submission of Half-yearly Progress Report - December 31 + 30 days	PC																																																							
5.2	Review of Half-yearly Progress Report	TM																																																							
6.1	Project Implementation Review (PIR) - June 30 + 30 days	PC																																																						
6.2	Review of PIR	TM/FMO																																																						
7.1	Preparation and Submission of Quarterly Expenditure Report - March 31, June 30, Sept	PC																																					*Final*																				
7.2	Review of Quarterly Expenditure Reports	TM/FMO																																																						
8.1	Submit annual Audit report - Dec 31 + 180 days	IA																																																						
8.2	Review Audit report	TM/FMO																																																					
9.1	Preparation and Submission of Co-finance Report	PC																																			*Final*																				
9.2	Review of Co-finance Report	TM/FMO																																																					
10	Steering Committee Meetings (schedule to be confirmed)	PC/TM																																																							
11	Prepare and Submit Final Reports	PC																																																					
11	Review Final Reports	TM/FMO																																																				
12	Mid-Term Evaluation (MTE) or Mid-Term Review (MTR) (optional)	EOU/TM																																																				
13	Project Completion (technical completion)	PC																																																					
14	Terminal Evaluation (TE)	EOU																																																			
15	Return unspent funds (if applicable)	PC																																																			
16	Project Closure Pink file	FMO																																																			

PC - Project Coordinator

CC - Communications consultant

FMO - UN Environment Financial Management Officer

TM - UN Environment Task Manager

EOU - UN Environment Evaluation Office

IA - Indpendant Auditor

APPENDIX 03 - COFINANCE

Co-finance

		Component 1		Component 2		Component 3		Component 4		Project Management		*Total*		Total
		Recurrent	Investment mobilised	Recurrent	Investment mobilised	Recurrent	Investment mobilised	Recurrent	Investment mobilised	Recurrent	Investment mobilised	Recurrent	Investment mobilised	
STAFF AND PERSONNEL														
1001	PM Staff											0	0	0
	Project Coordinator (5%)										100,000	0	100,000	100000
	Finance/procurement officer										100,000	0	100,000	100000
	Administration and procurement support (6%)											0	0	0
1002	Targeted Technical Assistance											0	0	0
	Hazardous waste management advisor (assistance with NHWMS development)		100,000		40,000		100,000					0	140000	140000
	Used oil specialist		100,000		40,000		100,000					0	240,000	240000
1003	International consultants											0	0	0
	Communications consultant								9,000,000		4,000,000	0	13,000,000	13000000
	Gender consultant								1,000,000			0	1,000,000	1000000
	Stakeholder engagement consultant								1,000,000			0	1,000,000	1000000
	Waste management and landfill remediation expert (Tonga feasibility and design, and Kiribati feasibility study)				4,000,000				1,000,000			0	5,000,000	5000000
	Composting expert (Nauru feasibility and design)				1,000,000		500,000					0	1,500,000	1500000
	Waste transfer station design consultant (Nauru, Niue, Tonga, Tuvalu)				1,000,000		500,000					0	1,500,000	1500000
	Environmental permitting consultant											0	0	0
	Environmental due diligence consultant to identify environmentally sound recycling firms						500000					0	500000	500000
	Hazardous Waste management strategy consultant											0	0	0
1004	National consultants											0	0	0
	Samoa - national strategy to reduce hazardous imports											0	0	0
	Cook Islands - technical assistant											0	0	0
	Fiji - technical assistant											0	0	0
	FSM - technical assistant											0	0	0

	Marshall Islands - technical assistant																0	0	0
	Kiribati - technical assistant																0	0	0
	Nauru - technical assistant																0	0	0
	Niue - technical assistant																0	0	0
	Palau - technical assistant																0	0	0
	PNG - technical assistant																0	0	0
	Samoa - technical assistant																0	0	0
	Solomon Islands - technical assistant																0	0	0
	Tonga - technical assistant																0	0	0
	Tuvalu - technical assistant																0	0	0
	Vanuatu - technical assistant																0	0	0
subtotal		0	200000	0	6080000	0	1700000	0	12000000	0	4200000	0	22480000	24080000					
CONTRACTUAL SERVICES																			
1202																			
	International contracts																0	0	0
	Legislative support (to Niue, Cook Islands, Fiji, FSM, Kiribati, Palau and model legislation on mercury).		5,000,000														0	5,000,000	5000000
	Feasibility study on ELVs				1,000,000												0	1,000,000	1000000
	Investment in establishing system for processing ELVs (details to be confirmed in feasibility study)				35,000,000												0	35,000,000	35000000
	UNEP Youth (200K for JPO % and UNV - Samoa based, and $300K for Pacific partners)																0	0	0
	Remaking workshop (Samoa)						1,000,000										0	1,000,000	1000000
	Healthcare waste technical backstopping contractor						1,000,000										0	1,000,000	1000000
	Mercury containing products regional collection and disposal																0	0	0
	Cook Islands - national invetment in e-waste						1,500,000										0	1,500,000	1500000
	Fiji - national investment in community waste management						3,636,111										0	3,636,111	3636111
	FSM - national investment in construction of temporary used oil storage facilities and establishing used oil management system						200,000										0	200,000	200000
	Marshall Islands - national investment in recycling and bulky waste management						500,000										0	500,000	500000
	Kiriibati national investment - landfill design, specification and investment package, and outer islands waste management						475,000										0	475,000	475000
	Nauru - national composting activity and waste transfer/sorting/recycing station			420 42	310,000		446,000										42042	756,000	798042
	Niue - national investment in bulky waste recycling				1,069,480												0	1,069,480	1069480
	Palau - national investment in improved recycling			503, 000	375,000												503000	375,000	878000
	PNG clean up and repackaging				1,000,000												0	1,000,000	1000000

	PNG POPs waste disposal contract				1,217,000							0	1,217,000	1217000
	Samoa national investment in residual waste (from recycling dismantling) waste management					300,000	500,000					300000	500,000	800000
	Solomon Islands - national investment in e-waste					560,000						560000	0	560000
	Tonga - national investment in climate-proofing Tongan landfills on two outer islands			1,000,000								1000000	0	1000000
	Tuvalu - national investment in outer islands recycling		800,000	500,000	5,749,611							500000	6,549,611	7049611.2
	Vanuatu - national investment in e-waste recycling			60,000		910,000						970000	0	970000
subtotal		0	5800000	2105042	45721091.2	1770000	9257111	0	0	0	0	3875042	60778202.2	64653244.2
TRAVEL														
1601	Training/ meetings													
	ISLANDS Programme Coordination Group meetings										1,715,000	0	1,715,000	1715000
	Project inception workshop (virtual)										150,000	0	150,000	150000
	Advance disposal fee webinar series				200,000							0	200,000	200000
	Digital training on advanced disposal fee				200,000							0	200,000	200000
	E-waste dismantling training (funding of participatings from Cook Islands and Solomon Islands)						200,000					0	200,000	200000
	ELVs training for vehicle dismantlers (details to be confirmed in feasibility study)				500,000							0	500,000	500000
	Tide Turners regional partner training event								250,000			0	250,000	250000
1602	International events													
	SPREP meeting side event on Mercury Free Pacific						200,000		330,000		50,000	0	580,000	580000
	Cleaner Pacific Roundtable meeting on Mercury Free Pacific				150,000		200,000		500,000		50,000	0	900,000	900000
1603	International travel													
	PM Travel/project team travel											0	0	0
	UNV Tide Turners travel											0	0	0
	Communications consultant travel											0	0	0
subtotal		0	0	0	1050000	0	600000	0	1080000	0	1965000	0	4695000	4695000
OPERATING AND OTHER DIRECT COSTS														
	Publications													
	FSM national guide on used oil procedure											0	0	0
	Tude Turners brochures (for Pacific region)											0	0	0
	Regional code of conduct on hazardous waste management in the Pacific											0	0	0
	Communications assets (videos)		100,000						250,000			0	350,000	350000

	Advanced disposal fee regional guide						100,000					0	100,000	100000
	Internet costs											0	0	0
	Internet upgrades in countries as required to facilitate virtual meeting	50,000		50,001		50,000		50,000				200000.81	0	200000.81
	M&E											0	0	0
	Audit											0	0	0
	Midterm review											0	0	0
	Terminal Evaluation											0	0	0
subtotal		50000	100000	50000.81	0	50000	100000	50000	250000	0	0	200000.81	450000	650000.81
		50000	6100000	21550422.81	52851091.2	182000	11657111	50000	13330000	0	6165000	4075042.81	90103202.2	94178245.01

SPREP
Secretariat of the Pacific Regional Environment Programme

10th Pacific Islands Conference
NATURE CONSERVATION AND PROTECTED AREAS
Nature Conservation Action for a Resilient Pacific
Noumea, New Caledonia 19-24 April 2020

AP_6/5/9-GEF7_ISLANDS Programme

20 February 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
Nairobi, Kenya

Dear Ms West,

RE: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

The *Secretariat of the Pacific Regional Environment Programme (SPREP)* is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the *GEF ISLANDS Programme* with the ongoing work of the Pacific region through SPREP, as the designated *Council of Regional Organisations in the Pacific* for waste management and pollution control.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in the region. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further as the executing organization of this important project.

Yours sincerely,

Kosi Latu
Director-General

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
European Union PacWaste Plus Programme	17,800,000	
AUSAID Pacific Ocean Litter Project	12,000,000	
AFD Sustainable Waste Actions in the Pacific	3,240,000	
DeFRA UK Plastic Waste Management and Behaviours on Cruise Liners	84,000	
Fiji UK Embassy/CCOA Pipeline Project on Plastics and the receiving environment	129,000	
Assistance from SPREP Technical Staff	375,000	
ACPMEA	2,000,000	
IMO Marine Pollution	500,000	
Total co-financing	**36,128,000**	

National Environment Service
PO Box 371
Tupapa, Rarotonga
Phone: (682) 21256

14 September 2020.

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project

Dear Ms West,

The Cook Islands Gevernment is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work in the Cook Islands.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in the Cook Islands. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

.....

*Mr **Nga**tokotoru **Puna***

Director, National Environment Service,

COOK ISLANDS.

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
Cook Islands Government: - Contribution of staff time, office space, communication, transport, equipment for technical consultant, and - project venue in Rarotonga & Pa Enua.	**$688,612.81**	
Total co-financing	**$688,612.81**	

- GCF Waste Projects are in development and will support co-financing once implemented.

MINISTRY OF ENVIRONMENT

Levels 1 & 2, Bali Tower, 318 Toorak Road
P. O. Box 2109
Government Buildings, Suva, Fiji

TELEPHONE NO: (679) 3311-699 **FAX NO: (679) 3312-879**

August/7 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO BOX 30552
Nairobi, Kenya

Subject: Confirmation of co-financing for the Full-sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The Ministry of Environment is pleased to hereby confirm co-financing for the GEF ISLANDS "Pacific Regional Child Project" to the amount of USD $3,136,111.00 over the 5 year course of this project.

The Ministry of Environment is the coordinating body for environmental management in Fiji, and through this project important synergies and opportunities for partnerships have been noted to align with the on-going work within the country. The management of chemicals and waste, and sustainable development initiatives through this project is highly relevant for the implementation of the Stockholm Convention and the Minamata Convention in Fiji.

The co-financing contribution to the GEF project will be in-kind only and aligned to the following:

Litter Awareness	$USD	7,083.00
National Waste Management Strategy	$USD	4,722.00
3R Awareness Programme	$USD	3305.00
Subsidy Naboro Landfill	$USD	472,201.00
Naboro Landfill Project	$USD	2,548,560.00
Office rental and associated running cost	$USD	100,240.00

This contribution will be derived from the existing Ministry of Environment Annual Work Plan and budget and any amendment is subject to the Ministry of Environment budget approval by the Government of the Republic of Fiji

With this contribution, the Ministry looks forward to working with your team in ensuring that the objectives are achieved over the course of the project.

Sincerely

Joshua Wycliffe
Permanent Secretary
Ministry of Environment

Department of Environment, Climate Change and Emergency Management
PO BOX PS-69
Palikir, Pohnpei 96941 Phone: (691) 320-8814/8815 Fax: (691) 320-8936

June 24, 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The FSM Department of Environment, Climate Change, and Emergency Management (DECEM) is pleased to inform you of its support to UNEP for the preparation of the above mentioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the Federated States of Micronesia.

We regard this GEF funded project is highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Federated States of Micronesia. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the above mentioned project.

We look forward to collaborating further during the execution of this important project.

Sincerely,

Andrew R. Yatilman
Secretary

Breakdown of co-financing

Component of co-financing	**In kind**
FSM Department of Environment, Climate Change, and Emergency Management	100,000 USD
Total co-financing	100,000 USD

GOVERNMENT OF KIRIBATI
MINISTRY OF ENVIRONMENT, LANDS & AGRICULTURAL DEVELOPMENT
P.O BOX 234, BIKENIBEU TARAWA
Telephone Number: (686) 75228211, 75228212

File ref: 3/5(q)

28th September, 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Dear Ms West,

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

The Ministry of Environment, Lands and Agricultural Development is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the Ministry of Environment, Lands and Agricultural Development in Kiribati

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Kiribati. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

Ms. Nenenteiti Teariki-Ruatu
Director & GEF OFP,
Environment and Conservation Division
For Secretary, Ministry of Environment, Lands and Agricultural Development.

Breakdown of co-financing

Component of co-financing	**Grant US$**	**Investment Mobilized US$**
Environment and Conservation Division annual budget for solid, chemical and hazardous waste management.		375,000.00
Total co-financing	375,000.00	

Government Offices
Yaren District
NAURU
Ph: +674 5573133 Ext:303

Republic of Nauru
Ministry of Commerce, Industry and Environment

Berilyn Jeremiah
Secretary Commerce Industry
and Environment
Nauru

Date: 5th August 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The Department of Commerce Industry and Environment is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the Nauru.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Nauru. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

Department of Commerce Industry and Environment

Berilyn Jeremiah
Secretary Commerce Industry and Environment

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
Department of CIE annual budget for waste related activities	46,042.35	
GGP Segregation Pilot Project		60,000
Special Programme		250,000
Total co-financing	356,042.35	

GOVERNMENT OF NIUE
MINISTRY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENT – FAAHI GAHUA TAKATAKAIMOTU
Fonuakula, Alofi, NIUE | Phone: (683) 4011 | Email: haden.talagi@mail.gov.nu

Date: **06th July 2020**

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: "Co-financing letter Full-Sized Project entitled GEF ISLANDS Pacific Regional Child Project"

Dear Ms West,

The Department of Environment on behalf of the Government of Niue, is pleased to inform you of its support to UNEP for the preparation of the above-mentioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work for Niue Island.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Niue. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the above-mentioned project.

We look forward to collaborating further during the execution of this important project.

Breakdown of co-financing

Component of co-financing	**Grant US$**	**Investment Mobilized US$**
Department of Environment Annual budget (Over 5 years)	USD$ 500k	
AusAid (Waste Recycling & Resource Recovery facility, community waste initiatives and services)	USD$ 3.2m	
EU (PacWaste 2) Project Recyclables, in-country activities, initiatives on Waste.	USD$ 300k	
Total co-financing	**USD$ 4.0m**	

Yours sincerely,

Haden Talagi
Niue GEF-Operational Focal Point
Department of Environment
Ministry of Natural Resources
Government of Niue

Republic Of Palau

Environmental Quality Protection Board

P.O. Box 8086
BUREAU OF PUBLIC WORKS BLDG.
KOROR, REPUBLIC OF PALAU 96940

TEL: (680) 488-1639/3600 FAX: (680) 488-2963
E-mail Address: eqpb@palaunet.com

Date: 16 October 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The Palau Environmental Quality Protection Board is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the Republic of Palau.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in the Republic of Palau. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

Roxanne Y. Blesam
Chief Executive Officer

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
Palau Environmental Quality Protection Board		$503,000.00
Special Programme	$275,000.00	
US EPA Technical Assistance	$100,000.00	
Total co-financing	$878,000.00	

CONSERVATION AND ENVIRONMENT PROTECTION AUTHORITY
OFFICE OF THE MANAGING DIRECTOR

7TH Floor-Dynasty Tower II
Savannah Heights, Waigani
P O Box 6601
BOROKO, NCD
Papua New Guinea

Telephone: (675)3014500/3014530
Facsimile: (675)3250182
E-mail: officesec@dec.gov.pg
Website: www.dec.gov.pg

Date: **17th April 2020**
Our ref: **UNEPGEF-IUC**
A/O: **VKula**

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Dear Ms West,

SUBJECT: CO-FINANCING LETTER FOR THE FULL-SIZED PROJECT ENTITLED THE GEF ISLANDS "PACIFIC REGIONAL CHILD PROJECT"

The *Conservation and Environment Protection Authority* is pleased to inform you of its support to UNEP for the preparation of the above mentioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the *Independent State of Papua New Guinea.*

We regard this GEF funded project as highly relevant for the implementation of the *Stockholm Convention and the Minamata Convention*, in *Papua New Guinea*. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the above mentioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

Gunther JOKU
Managing Director

Enclosed:
Attachment 1: Breakdown of Co-financing

Attachment 1: Breakdown of Co-financing

Component of co-financing	**Grant US$**	**Investment Mobilized US$**
Special Project *(Duration: 2019 – 2022)*	USD$217,000.00	
J-PRISM II Project *(Duration: 2017 – 2022)*	USD$1,000,000.00	
Minamata Initial Assessment *(Duration: 2016 – Current)*	USD$300,000.00	
Stockholm Convention Integrated Toolkit Project *(Duration: 2020-2021)*	USD$92,000.00	
Est. Total co-financing	**USD$1,609,000.00**	

Government of Samoa

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

Matāgaluega o Puna'oa Faalenatura ma Siosiomaga

Level 3, Tui Atua Tupua Tamasese Efi Building
(TATTE), Sogi., P.O Private Bag, Apia, SAMOA
Website: http://www.mnre.gov.ws/

Telephone: (+685) 67200
Fax: (+685) 23176
Email: info@mnre.gov.ws

Please address all correspondence to the Chief Executive Officer, Private Bag, Apia, Samoa.
Faamolemole faatuatausi uma mai fesootaiga uma i le Ofisa Sili

Date: 9 September 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The Ministry of Natural Resources and Environment (MNRE) in Samoa is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of Samoa.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Samoa. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

Ulu Bismarck Crawley
Chief Executive Officer
Ministry of Natural Resources and Environment
Government of Samoa

Breakdown of co-financing

Component of co-financing	**Grant US$**	**Investment Mobilized US$**
European Union support to Ministry of Natural Resources and Environment under PacWaste Plus	USD$ 300,000	
Division of Environment and Conservation annual budget		0.6 Million USD
Total co-financing	0.9 Million USD	

Solomon Islands Government
Ministry Of Environment, Climate Change, Disaster Management & Meteorology
Post Office Box 21, Honiara, Solomon Islands
Phone: +677 23031 *Fax: +677 20854*

11th August 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Dear Ms. West,

Subject: **Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"**

Solomon Islands is pleased to inform you through this letter of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the Solomon Islands Government through the Ministry of Environment, Climate Change, Disaster Management and Meteorology.

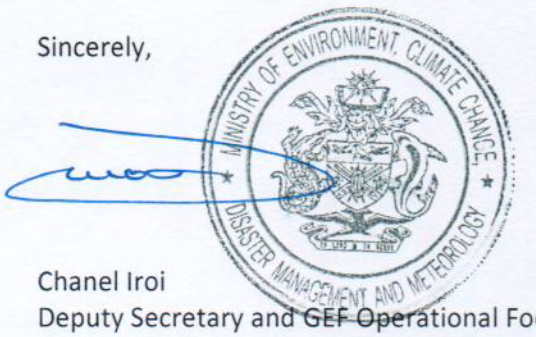
We regard this GEF funded project as highly relevant for the implementation of both the Stockholm and Minamata Conventions as well as national waste management programmes in Solomon Islands. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

We look forward to collaborating further during the execution of this important project.

Breakdown of Co-financing as follows:

Component of Co-Financing	Grants US$	**Investment Mobilized US$**
Environment and Conservation Division Development Budget Grants	50,000	
In-Kind and Administrative Costs	10,000	
Total Co-Financing	60,000	

Sincerely,



Chanel Iroi
Deputy Secretary and GEF Operational Focal Point
Ministry of Environment, Climate Change, Disaster Management & Meteorology

CHINA NAVIGATION

Date: 6 September 2020

Ms. Kelly West
Director, GEF Co-ordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS

"Pacific Regional Child Project"

Dear Ms West,

The China Navigation Company is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. We believe that there are many opportunities to connect relevant efforts of the GEF ISLANDS "Pacific Regional Child Project" with the work of CNCo under our proposed Project Rivendell and its sub projects.

We regard this GEF project as highly relevant for the implementation of the Basel, Rotterdam and particularly Stockholm Convention in Small Island Developing States in the Pacific region in connection with our proposed project.

In supporting this GEF ISLANDS project, we thus express our commitment to the sound management and operation of the disposal of the chemical and other waste streams from the disposal process of both abandoned and "fresh" End of Life Vehicles, other light gauge metals, and abandoned tyres etc., and to the sustainable development, through potential scale-up of our proposed Project Rivendell in the Pacific Islands Countries and Territories.

We also confirm that we will provide both a container, and freight shipment, *pro bono*, in accordance with our Moana Taka Partnership to move a shipment of DDT and PCB POPs waste that you advise is in your stewardship, from PNG to a port in Australia for destruction. This provision is strictly subject to observance of all IMDG Code regulations for the shipment of dangerous goods at sea and the regulations of the Waigani and Basel Conventions for the transboundary shipment of hazardous wastes, which we expect to be arranged through our partner, SPREP, as the local secretariat to these conventions.

CHINA NAVIGATION

Herewith, we confirm through this letter, our intended support to the abovementioned project over the period 2021-2030, through Capex and Opex investment in the activities of our proposed Project Rivendell.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

Simon Bennett
General Manager – Sustainable Development
The China Navigation Company Pte. Ltd

Breakdown of co-financing over the period 2021 - 2030

Component of co-financing, **subject to:** **1 Project Concept Approval in Principle, and then** **2 Acceptance of subsequent Feasibility Study and** **3 Issuance of Approval to Proceed**	**Proposed CNCo investment over the period 2021 - 2030**	**Investment Mobilized USD**
Capex for **Project Lory** – East Pacific, expected to be based near Suva, Fiji	10,452,000	
Opex per year for **Project Lory**, USD 2,482,548 p.a. for 10 years	24,825,480	
No figures available yet for **Project Paradise** – West Pacific, expected to be based in Lae, PNG		
Total co-financing	**35,277,480**	

MINISTRY OF METEOROLOGY,
ENERGY, INFORMATION, DISASTER
MANAGEMENT, ENVIRONMENT,
CLIMATE CHANGE AND
COMMUNICATIONS (MEIDECC)
NUKU'ALOFA, TONGA

Ref: **ENV.6/23**

26th February 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Dear Madam,

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

In my capacity as the GEF National Focal Point, I am pleased to inform you of our support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the Kingdom of Tonga.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Tonga. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

MINISTRY OF METEOROLOGY, ENERGY, INFORMATION, DISASTER MANAGEMENT, ENVIRONMENT, CLIMATE CHANGE & COMMUNICATIONS
MEIDECC TONGA

.....

Paula Ma'u
GEF Focal Point and CEO of MEIDECC

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
Department of Environment recurrent budget (In-kind) for the duration of the Project.	$1,000,000	
Total co-financing	$1,000,000	

Drafter:
Phone:
Email:
Ref:

Date: 29th October 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The Department of Waste Management (DWM) in Tuvalu is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of Tuvalu.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Tuvalu. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

Walter P. Kaua

Acting Director
Department of Waste Management
Ministry of Local Government and Agriculture
Government of Tuvalu

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
European Union Support to Department of Waste Management under European Development Fund 11th cycle (EDF 11) (USD 7.8 Million)	7.8 Million USD	
Department of Waste Management annual budget		0.5 Million USD
Total co-financing	**8.3 Million USD**	

DEPARTMENT OF ENVIRONMENTAL PROTECTION AND

Private Mail Bag 9063
Port Vila
REPUBLIC OF VANUATU
Email : dkalfatak@vanuatu.gov.vu

DEPARTMENT OF ENVIRONMENTAL PROTECTION AND CONSERVATION

Tel : (678) 25302 or 5333830

BUREAU DE LA PROTECTION ET DE LA CONSERVATION DE L'ENVIRONNEMENT

Sac Postal Privé 9063
Port-Vila
RÉPUBLIQUE DE
Courriel : dkalfatak@vanuatu.gov.vu

Drafter: Ms Ionie Bolenga
Phone: +678 5339409
Email: ibolenga@vanuatu.gov.vu
Ref:

Date: 10 September 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The Government of the Republic of Vanuatu through the Department of Environmental Protection & Conservation (DEPC) under the Ministry of Climate Change, Meteorology & Geo-Hazards, Energy, Environment and Disaster Management is pleased to inform you of its support to UNEP for the preparation of the above mentioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the Republic of Vanuatu.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Vanuatu. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,

REPUBLIQUE DE VANUATU
BUREAU DE LA PROTECTION DE L'ENVIRONNEMENT ET LA CONSERVATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION AND CONSERVATION
REPUBLIC OF VANUATU

Donna Kalfatak (Mrs)
Director

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
Environmental Protection Division		600,000
Office Space	200,000	
Office Utilities (Electricity, Water)	150,000	
Ongoing Advise & Support from the Department Executive	150,000	
Total co-financing	**1,100,000**	

Drafter: Sam Barratt
Phone:+447909836139
Email: sam.barratt@un.org
Ref:

Date:18 August 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Subject: Co-financing letter for the Medium-Sized Project entitled the GEF ISLANDS "Communication, Coordination and Knowledge Management Project"

Dear Ms. West,

The Youth, Education and Advocacy Unit is pleased to confirm its support for the GEF Islands "Communication, Coordination and Knowledge Management Project". There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the Tide Turners Plastic Challenge Badge, especially in regards to the implementation in the Paficic and Caribbean region. The aim is to reach approximately 200,000 participants, who would take part in the Tide Turners Plastic Challenge in circa 20 countries across the Caribbean and Pacific region during the period of 2020-2022.

To date, the Programme has already been rolled out in twenty four countries and engaged over 225,000 young people and with the additional support of the Scouts Earth Tribe digital platform, this is likely to scale even further. The Programme will be scaled up in 2020/2022 and match funding will be secured from UK and Scandinavian donors.

We regard this GEF project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in Small Island Developing States (SIDS) developing countries. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm to support the above mentioned project from 2020-2022 and look forward to further collaboration.

Yours sincerely,

Sam Barratt
Chief- Youth, Education and Advocacy Unit

Breakdown of co-financing

Component of co-financing	Grant US$	Investment Mobilized US$
Tide Turners implementation in the Caribbean region		
Funding from Defra to implement Tide Turners Challenge Phase 3	100,000	
Funding from Defra to implement Tide Turners Challenge Phase 2 in the Caribbean region	30,000	
Tide Turners implementation in the Paficic region		
Funding from Defra to implement Tide Turners Challenge Phase 3	100,000	
Norway funding for Asia for Phase 3 of Tide Turners Challenge Badge	80,000	
Total co-financing	**310,000**	

REPUBLIC OF THE MARSHALL ISLANDS
ENVIRONMENTAL PROTECTION AUTHORITY
P.O. Box 1322
Majuro, Marshall Islands 96960
Phone: (692) 625-3035/5203 * Fax: (692) 625-5202 * Email:
rmiepa@ntamar.net

September 9th, 2020

Ms. Kelly West
Director, GEF Coordination Office
United Nations Environment Programme
PO Box 30552
Nairobi, Kenya

Moriana Phillip
General Manager
RMI Environmental Protection Authority (RMIEPA)

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS "Pacific Regional Child Project"

Dear Ms West,

The Republic of the Marshall Islands (RMI) (through RMI Environmental Protection Authority) is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of the RMI.

We regard this GEF funded project as highly relevant for the implementation of the Stockholm Convention and the Minamata Convention, in RMI. In supporting this project, we thus express our commitment to the sound management of chemicals and waste, and to sustainable development.

Herewith, we confirm through this letter support to the abovementioned project.

We look forward to collaborating further during the execution of this important project.

Yours sincerely,
Moriana Phillip
General Manager
RMI EPA

REPUBLIC OF THE MARSHALL ISLANDS
ENVIRONMENTAL PROTECTION AUTHORITY
P.O. Box 1322
Majuro, Marshall Islands 96960
Phone: (692) 625-3035/5203 * Fax: (692) 625-5202 * Email:
rmiepa@ntamar.net

Breakdown of co-financing

Component of co-financing	**Grant US$**	**Investment Mobilized US$**
RMI Environmental Protection Authority In kind (General Manager, Chief of Waste and Division, Pollution officer, Outfield officer) will commit time to see this project is implemented		90,000
Total co-financing		**USD90,000**

APPENDIX 04 - IMPLEMENTATION ARRANGEMENTS

The following sections describe arrangements for programmatic execution. The proposed institutional arrangements for project execution are then described. The final section elaborates planned coordination with other initiatives.

i. Programme level coordination

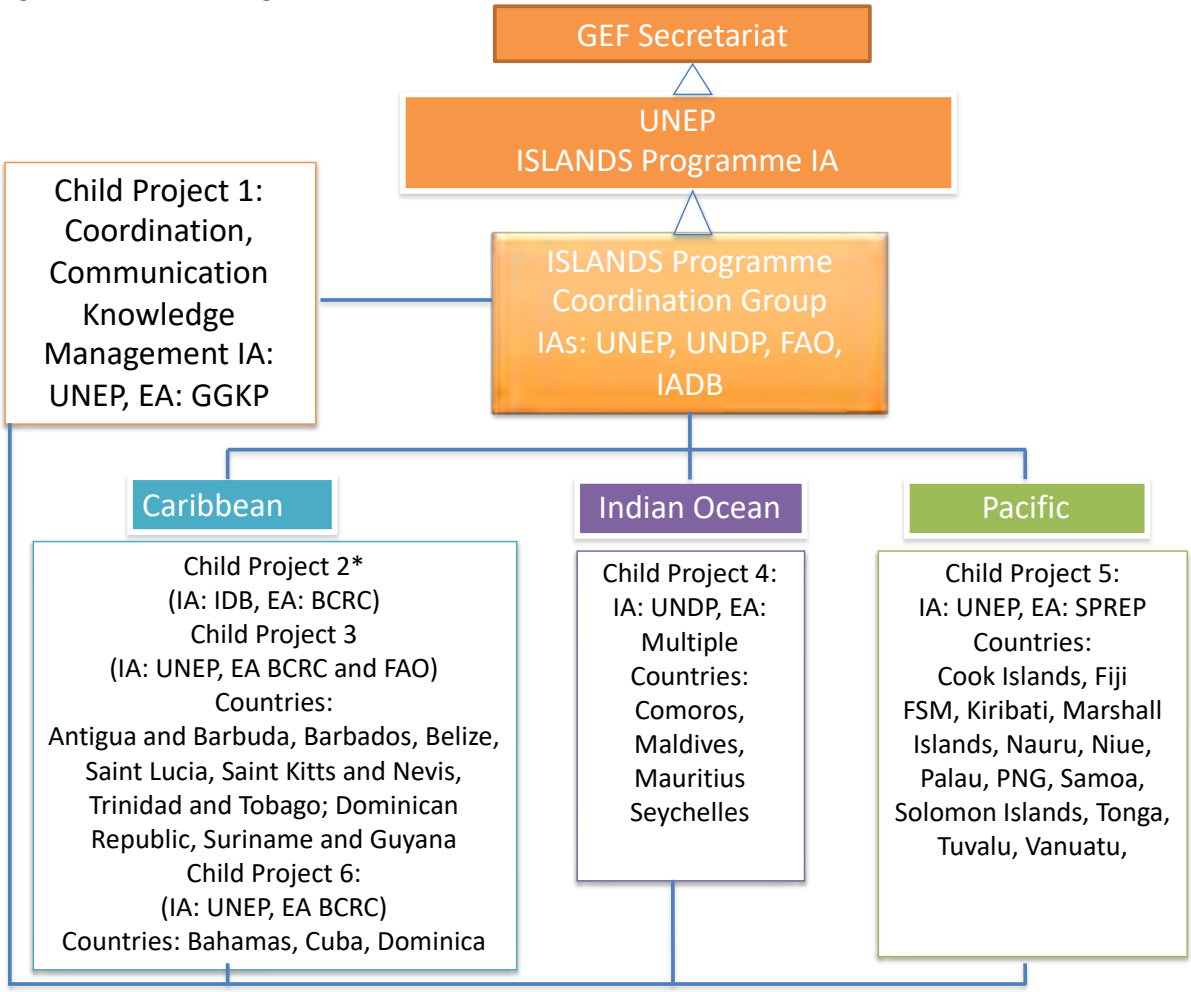
The GEF ISLANDS Programme is a multi-agency initiative that builds on the experience of several GEF Implementing Agencies (IAs) across the Caribbean, Indian Ocean and Pacific SIDS. UNEP is the lead agency, responsible for the overall Programme coordination and ensuring the results at national / regional level are fed into a system (this project) resulting in benefit to all regions. This role includes the monitoring of progress and reporting on the delivery of programmatic results as well as providing a platform for knowledge sharing and exchange of information to all project beneficiaries.

UNEP is the lead Implementing Agency for the Programme. As lead agency UNEP is overseeing the development of the child projects, and reports to GEFSEC on progress. UNEP will coordinate the Programme through regular meetings of a Programme Coordination Group (described graphically below) made up of FAO, GEF C&W Focal Area team, IADB and UNDP. As Lead Implementing Agency (IA) UNEP will provide all reports to the GEF Secretariat to allow for onward report to GEF Council.

UNEP's comparative advantage is its mandate to coordinate the work of the UN in the area of environment, and its experience as a successful and efficient IA specializing in regional and global activities. UNEP's expertise includes proof of concept, testing of ideas, and the best available science and knowledge to form the basis of GEF investments. UNEP also serves as the Secretariat to three of the MEAs (BRS, Minamata and SAICM), for which GEF is the/a financial mechanism. UNEP will take the lead in finalizing the programme level data flow and reporting to the GEF Secretariat as indicated in the organo-gram on the following page. The GEF Secretariat function remains the presentation of the data and results to GEF Council and member states.

The following diagram outlines the proposed structure of the ISLANDS Programme, including the Child projects, the implementation and execution modalities, as well as the relationship to the project.

Figure 7: ISLANDS Programme Structure



* Child project 2 includes the same countries as Child project 3. It should also be noted a third Caribbean child project is being prepared to include additional Caribbean SIDS.

The GEF ISLANDS Programme will be coordinated through a Programme Coordinating Group (PCG) which will consist of the GEF Secretariat and the Implementing and Executing Agencies for the Child Projects (UNEP, UNDP, SPREP, BCRC, GGKP, IADB, Indian Ocean national governments, and a government representative from both the Caribbean and Pacific regions). The PCG will meet face to face annually, taking advantage of existing events in the chemicals and wastes calendar such as Conferences of the Parties of the Basel, Minamata, Rotterdam and Stockholm Conventions and events linked to the Strategic Approach to International Chemicals Management (SAICM). This modality serves to reduce cost and provides the opportunity for further interaction with a wider network of project stakeholders from the beneficiary countries, private sector and civil society through additional parallel events. The approach also ensures close collaboration with the Conventions and SAICM Secretariats.

ii. Project institutional arrangements and coordination

This project will be implemented by UNEP and executed by SPREP. SPREP has a pivotal role in supporting Pacific Island SIDS in chemical and waste management and is a regional hub for coordination of regional activities. Currently chemicals and wastes activities funded by four donors are coordinated through the SPREP waste unit, with a combined value of over $40million (including this project).

As Executing Agency (EA) for the Pacific Child SPREP will convene annual Regional Project Steering Committee (PSC) meetings. While COVID-19 continues to preclude travel, these meetings will be held virtually. Once physical meetings are again possible PSC meetings will be scheduled back-to-back and in close coordination with the regional meetings for the other projects, to reduce travel costs and burden. PSC meetings may also be linked with Cleaner Pacific Roundtable and Waigani Convention meetings. This approach will serve to reduce travel and meeting related costs and ensure prudent use of donor funds.

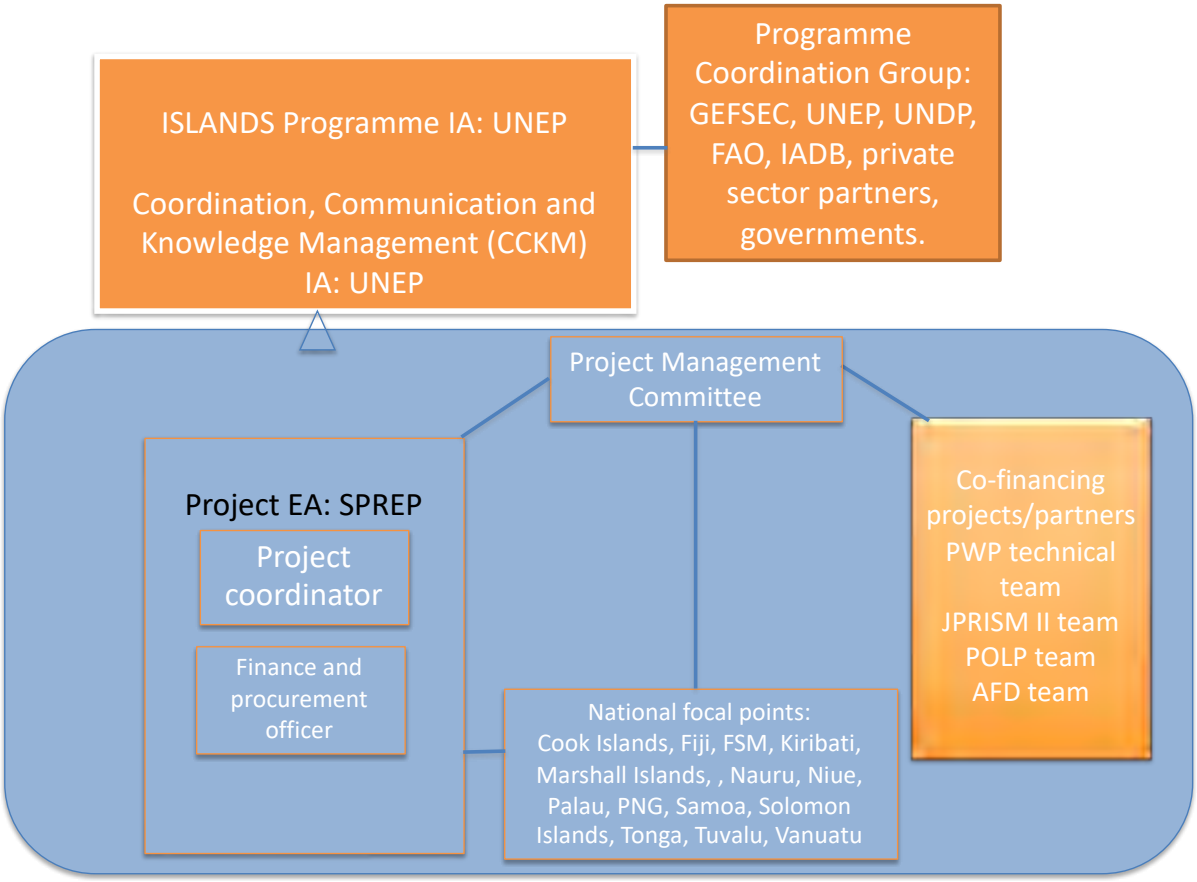
The PSC will include representatives from UNEP, SPREP, Pacific countries, Swire Shipping, other regional projects (including PWP, POLP and the AFD activities). The PSC will review progress of project activities as well as the workplan for the coming year. The PSC will also review the budget and approve any budget revisions proposed by the EA.

The project will be coordinated by the Project Coordinator, based at SPREP. The Project Coordinator will recruit a communications coordinator, a finance and procurement officer, and national technical consultants.

The project will coordinate actively with other key regional activities on chemicals and waste management currently being managed through SPREP. This includes the European funded PWP, the Japanese funded JPRISM II, the Australian Government funded POLP, and the soon to be executed French Government funded activity on waste management. Collaboration with these projects began in the preparatory phase and will continue as a key modality for execution ensuring avoidance of duplication, pooling of resources, and consultation on best practices and lessons learned. Representatives from these projects will be invited to Project Steering Committee meetings, and efforts made to hold these meetings both concurrently and/or back-to-back to ensure coordination is sustained and mainstreamed into project execution.

National technical consultants will be hired in the first year of the project in all project countries. The role of the technical consultant is to provide an in-country focal point for all country activities. These individuals will be housed within the respective environment ministries, but will report to the Project Coordinator at SPREP. This will provided an essential link to country officers, and a focal point for the coordination of all country activities.

Figure 6: Proposed project structure, staffing and relationships with other key regional projects



APPENDIX 05 - GENDER & SOCIAL PLAN

Pacific Child Project Gender Analysis

The following ISLANDS Pacific Child Project gender analysis follows the format of the GEF ISLANDS gender guidance note.

Gender Analysis	
Guiding Questions	**Responses**
A. What is the gender context?	
1) What are the relevant gender laws / policies at the regional and national level, respectively, for promoting gender equality in general? **2) What are the gender bodies at the country level (e.g., ministry) and what is their mission / latest action plan?**	**1) SPREP has a gender policy https://www.sprep.org/attachments/Publications/Corporate_Documents/SPREP-GenderPolicy-14Nov16.pdf . SPREP also has a focal point for (ii) a focal point for activities, projects, and general programming.** **5)** **6) In the UNDP Human Development Report 2019, of all the countries for which the Gender Inequality Index was calculated, Papua New Guinea had the lowest score in the Asia Pacific, whilst Fiji - the best scoring Pacific island country - was ranked only 78th globally. In every country across the Pacific, pervasive gender inequality remains a barrier to progress, justice and social stability and hinders the achievement of the SDGs.**
	2) Across the Pacific Island countries, women's political participation and leadership at national and local levels is among the lowest in the world and there are multiple barriers to women's economic participation and social empowerment. Violence against women is widespread, including high levels of intimate partner violence, with direct physical consequences for women, as well as widespread psychological harm and barriers to social and economic activity. These elements interact in mutually reinforcing cycles as, for example, risks of violence deter participation, whilst economic activities may increase risks of violence. **7)** **8) Women's Rights Organisations, exist at national and sub-national levels to facilitate broad consultation on national level activities. Working through**

	local coalitions is important to support ownership, tap into local understanding, facilitate development of local solutions and build the capacity of local development partners to implement those solutions. Working through coalitions of local stakeholders, and active networks of women, extends the strategies, capacity and resources available to address multilevel and multifaceted development problems. Significantly, coalitions and active networks of women can increase the opportunities for women to participate in decision-making at local, sub- national and national and regional levels. It increases the safety for women to participate, as well as the capacity and strength of their voice. **9)**
1) What are the key regional and national chemical and waste laws/policies relevant for this Child Project? **2) Which of these key laws / policies have specific provision on gender?** **10) (e.g., Any protection for (pregnant) women/ children? Are the threshold limits (e.g., exposure to certain chemicals) derived from the average male, or do they take women/children into account?)** **3) Are there any rights limitations for women that are relevant to the specific chemical / waste at issue (e.g., land rights, workers' rights, access to finance, economic independency (from husbands), literacy level)?**	1) **A. Cleaner Pacific 2025 is the key regional document related to waste management, pollution control and chemicals.** **11) B. Convention to Ban the importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement of Hazardous wastes within the South Pacific Region** **12) (Waigani Convention)** 2) **A. The Cleaner Pacific 2025 makes one provision for gender balance, in that: Capacity development programmes should strive for gender balance and should include technical as well as managerial aspects such as project/programme planning, financial management, and monitoring and evaluation. Waigani Convention makes no mention of gender, or women.** 3) **Not specifically.**
B. Who does what?	

B-1. Women / men / children's engagement with and exposure to chemicals / waste **1) How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)?** **13) (e.g. Who handles what substances and at what stage of the value chain? How is the labour divided between women/men?)** **2) What are the main causes for the different division of labor and for the extent of exposure to chemicals/waste between men and women, identified in the question above?** Note: Differences between men and women may be caused not only by gender-related norms/ practices, but also from other factors such as economic participation, land ownership, access to finance, education rights, ethnicity. **3) Are women / men / children exposed to chemicals/wastes mostly at work or also at home or secondarily?** (Response examples: Women are exposed secondarily to PCBs via cooking oil / washing workers' clothes. Women, men and children are exposed by using food/water containers containing PCBs.)	**1) In Pacific communities women are expected to fulfill roles of unpaid domestic work, including care of ill family members. In this way, chemical exposures and health effects (whether of men or women) can add to the existing and entrenched "time poverty" (i.e. the time required for non-productive or unpaid labour that limit women's opportunities to participate in remunerative economic activities), thus further entrenching gender inequality. In Pacific SIDS women are responsible for managing household waste, making them the primary users of waste management services.** **4)** **5) Recycling services are non existent, but in the ones that exist, such as Samoa, these are run by men.** **2) The structure of waste management in the Pacific reinforces normative gender roles. The current gendered nature of the waste sector is the product of attitudes and stereotypes of men and women. These gendered norms play out through the entire value chain of waste management.** **3) This varies depending on the Pacific country. Communities living close to dump sites, are exposed to chemicals and wastes in their home environment.**
C. Who has access, controls and decides what?	
C-1. Gender-segregated data **1) What sex-disaggregated data could child project collect?**	1) **Not available in the region.** 2) **Have you come across any sex-disaggregated data (concerning the chemicals / waste at issue) as you compile the baseline for the child project? Training has been funded in many Pacific projects. There is a training database hosted by JPRISM at SPREP, it may be possible to draw sex disaggregated data from the trainee list.**

C-2. Access to information **1) Do women and men have the same level of access to information / training on the health impact / safe alternatives / safe disposal (as workers / consumers / local residents)? What kind of information is provided and by whom?** **16) (e.g. Do companies operating waste segregation stations provide training on how to treat hazardous waste, including providing personal protection equipment?)** **2) What kind of information/training is missing?** Note: This will inform possible capacity/information gap for trainings to be included under each child project.	1) **The level of access to information on health and safety of chemicals and wastes is very low in the region overall. The few pieces of information that exist target men and women, but there is little information on if this have been effective.** 2) **There is a widespread acknowledgement in the region, that there is a lack of community education and understanding of the need for good waste management, and the resultant health benefits. Capacity building and community education is required to influence behavioural change.**
C-3. Decision-making **1) Who decides what kind of chemicals to be used in a specific process? If the person/group that decides is different from those who actually use the chemical, do they know and consider the negative health implications for women/men who will be most exposed to such chemical?** **17) (Response example: It is usually the husbands who decide what type of pesticide to use for the corps they are growing, but it is their wives who actually do the spraying and are most exposed to. The husbands tend to be unwilling to take trainings on the negative implications.)** **2) Who decides what kind of precautionary measures / safe alternatives / safe disposal to be applied? Do women have decision-making power?** (e.g. Are the alternatives affordable for women (e.g. POPS-free pesticides, mercury-free dental fillings)? Do women have access to financial tools to establish alternative businesses or equal access to health insurance? Who decides on what PCBs-containing sites are being cleaned up?)	1) **Waste management practices in the Pacific generally involve women managing waste inside the home, and men managing the waste when it leaves the house. This may mean taking the waste to the dump site, or localised burning, or to the curb, for collection.** 2) **Little information available on this. Less relevant in the Pacific, as we have not addressed agricultural chemicals.**
D. Who benefits and how to ensure?	
D-1. What is being done or needs to be done at the regional / national / local level **1) Are there any initiatives at the regional / national / local level that strives to address the identified gender issues/gaps, by whom and how effective are they? Are men and women equally (effectively) engaged?**	1) Australian Government has been active on this: Gender Equality and Women's Empowerment Strategy (2016), which is not focused on chemicals and waste, but on gender generally. It recognises the particular vulnerabilities caused by gender inequality, and the need to empower women and girls as leaders, implementers and decision-makers. It identifies three priorities, which reflect the key

<table>
<tr><td></td><td>challenges facing women and girls globally, but are particularly relevant in the Pacific:
1. Enhancing women's voice in decision-making, leadership and peace building.
2. Promoting women's economic empowerment.
3. Ending violence against women and girls.</td></tr>
<tr><td>D-2. What can / should be done in the child project
1) What actions/activities are necessary in the child project to help address the identified gender issues/gaps? Is there anything else the child project should/can do to ensure equal opportunities for women and men to participate in and equally benefit from the child project?
2) Are there women's organizations or other relevant organizations that the child project can/should partner with?
3) What are the gender-sensitive indicators[108] that can be adopted in the child project to monitor and assess the child project's impacts on gender? Please provide at least 3 indicators. (e.g. Number of organizations that have increased knowledge on gender, based on the gender activities implemented by the child project. 'Training feedback from the participants' could be set as Means of Verification.)
4) Are there any potential gender related risks associated with the proposed child project? What actions are needed to mitigate such risks?
18) Note: For the Indian Regional child project, some of the risks identified in the preliminary Social and Environmental Screening include reinforcement of discrimination against women and other forms of gender inequality.</td><td>1) Project activities needs to be inline with SPREP's gender policy. Project indicators should, where possible include a gender sub indicator, to ensure that gender disaggregated information is collected. The project should promote opportunities for women in areas of decision making, participation, training, and in economic opportunities (through private sector engagement).
2) Since 2018, Australia has also supported the Pacific Partnership to End Violence Against Women and Girls ($7.6 million, 2018-22). These established initiatives provide a resource that POLP can utilise to access expertise and facilitate appropriate consultation, whilst drawing lessons from experience in each focus country through these networks.
3) Proposed 3 indicators:
<table>
<tr><th rowspan="2">Indicator</th><th rowspan="2">Means of Verification</th><th rowspan="2">Baseline</th><th colspan="2">Target</th></tr>
<tr><th>Mid</th><th>End</th></tr>
<tr><td>No. of Pacific countries with communities consulted on sustainable financing measures in place, % of women consulted</td><td>Consultation reports</td><td>3
% of women unknown</td><td>10
50% women</td><td>14
50% women</td></tr>
<tr><td>No. of community education activities on waste management behaviour, % of women involved</td><td>Project reports</td><td>0</td><td>20
50% women</td><td>40
50% women</td></tr>
</table></td></tr>
</table>

[108] See UNDP (2017). MAINSTREAMING GENDER INTO UNDP-GEF PROJECTS ON CHEMICALS AND WASTE (pp. 10-11, Annex 2 and Annex 3) for a sample of potential indicators.

	No of youth participating in Tide Turners program, % girls	Tide Turner app data	200	5000 50% girls	20,000 50% girls

4) In the UNDP Human Development Report 2019, of all the countries for which the Gender Inequality Index was calculated, Papua New Guinea had the lowest score in the Asia Pacific, whilst Fiji - the best scoring Pacific island country - was ranked only 78th globally. In every country across the Pacific, pervasive gender inequality remains a barrier to progress, justice and social stability and hinders the achievement of the SDGs.

Gender Assessment and Action Plan

The following gender assessment and action plan is based on the outline provided by the Coordination, Communication and Knowledge Management project, to inform the harmonious development of all child projects. It is intended that at project inception the Coordination, Communication and Knowledge Management project will develop a programmatic gender action plan, using the gender analysis and assessments undertaken by each child project. The sections below are submitted as the Pacific contribution to a programmatic approach to gender.

1. What are the main gender gaps / issues to specific chemicals / waste that are relevant to the child project?

19) Despite regional and national policy progress on gender equality, most Pacific Island constitutions still do not grant women equality in substantive terms, whilst customary laws obstruct women's access to education, employment and the capacity to be heard in decision-making. There is also a disconnection between policy commitments on women's rights and equality and policy implementation in local contexts. The Pacific Ocean Litter Project (co-financing this project) recognises the need for a multi-pronged approach to gender equality to bridge gender gaps. This approach is in line with the SPREP Gender Policy and considered relevant to this child project and recognises as necessary, the following specific issues:

20)

- **Positive social norms change towards gender equality and women's agency.**
- **Improved equality of outcomes in education and health.**
- **Improved women's leadership and decision-making opportunities at regional, national, sub-national and community levels.**
- **Strengthened women's groups, male advocates for gender equality and coalitions for change.**
- **Increased economic opportunities for women.**
- **Reduced violence against women and expanded support services.**

2. What actions / activities are necessary in the child project to help address the identified gender issues/gaps?

21)

22) In the child project, activities will be executed at the national level. Each project country has a specific priority area of focus. A national coordinating committee will be established to coordinate and oversee activities in each country. These committees are necessary to ensure consultation, buy in, from all stakeholder groups. Men and women should participate equally in these groups and this will be monitored.

23)

24) Component 1 activities include review of legislation and support with enforcement. In several countries this will include training opportunities, and the project will require equal gender representation in all training activities envisaged. Activities under this component will also involve extensive stakeholder consultation. Activities undertaken to engage stakeholders will actively target local women's groups, NGOs, CSOs. These consultations will also glean important on gender and socioeconomic aspects of policy solutions (such as reducing use of single use plastics).

25)

26) Activities under Component 2 will include exporting legacy wastes including used oil, POPs, mercury containing products, and car interiors containing PBDEs. Project activities will ensure that consultations with stakeholders on management of legacy wastes includes consultation with women's groups and that women are aware of, and involved in, activities. Where possible small-scale surveys near legacy waste sites for collection of gender-relevant data and information will be undertaken.

27)

28) Activities under Component 3 involves establishing national systems for recycling. Stakeholders (including women's groups) will be consulted, and opportunities and risks to women clearly defined. It is recognised that a key to reducing residual landfill waste, is through increasing composting systems at the household level. Women are key partners in composting and activities around composting provide the opportunity to develop gender positive activities. It is also noted that in some Pacific countries (for example PNG, Fiji, Samoa) the most vulnerable groups in the waste management value chain are waste pickers living around dump-sites. It is essential that these groups (women and men) can get access to and benefit from any levies put in place as part of the project, and do not lose out economically from losing access to informal recyclers for their collected materials.

29)

30) **Component 4 on Knowledge Management and communications will include the development of a programmatic best practice in chemicals and wastes activities, that will be disseminated in participating countries and used to guide project the execution of national activities. Further, recognizing the responsibility of women in sorting and managing waste in the homes, as well as educating family members, targeted communication materials will be developed, and local women's NGOs will be used to assist in dissemination and education of women.**

31)

3. **Is there anything else the child project should/can do to ensure equal opportunities for women and men to participate in and equally benefit from the child project?**

32) **This project is being executed by SPREP. SPREP has a gender policy[109] and a focal point for for activities, projects, and general programming. According to SPREP's Gender Policy, SPREP aims to promote the integration of a gender perspective into SPREP- supported programmes and projects through: gender indicators integrated into SPREP project and programme logframes; and gender analysis undertaken when appropriate for fully appraised projects and programmes. The project will be executed in line with this policy, and in line with the ISLANDS programmatic guidance.**

33)

34) **Women's Rights Organisations, exist at national and sub-national levels to facilitate broad consultation on national level activities. For nationally executed activities, the project will work through local coalitions. This is important to support ownership, tap into local understanding, facilitate development of local solutions and build the capacity of local development partners to implement those solutions. Working through coalitions of local stakeholders, and active networks of women, extends the strategies, capacity and resources available to address multilevel and multifaceted development problems. Significantly, coalitions and active networks of women can increase the opportunities for women to participate in decision-making at local, sub- national and national and regional levels. It increases the safety for women to participate, as well as the capacity and strength of their voice.**

35)

4. **Are there women's organizations or other relevant organizations that the child project can/should partner with?**

36) **The Pacific Women Shaping Pacific Development (PWSPD) is an Australian Government funded project being implemented from 2012-2022. PWSPD aims to increase women's leadership, influence and economic empowerment as well as to shape efforts to reduce violence. It specifically supports development of a network of local, national and regional actors supporting gender equality and it supports innovative responses and lesson learning to build knowledge on what works. Since 2018, the Government of Australia has also supported the Pacific Partnership to End Violence Against Women and Girls ($7.6 million, 2018-22). These established initiatives provide a resource and network that the project can utilise to access expertise and facilitate appropriate consultation, whilst drawing lessons from experience in each focus country through these networks.**

37)

38) **Additionally, the following key current activities related to gender include: UN Women Markets For Change program directly focused on improving the conditions and rights of women in national and local markets; IFC and SICCI funded Waka Mere in the Solomon Islands; work completed through the cross-cutting components of the Market Development Facility and Strongim Bisnis; the New Zealand Ministry of Foreign Affairs and Trade funded Business Link Pacific; and INGO-delivered women's economic empowerment programming focussed on skills development and access to financial services. These aforementioned activities focus on promoting economic activities for women. This relates to project activities in e-waste recycling, plastics recycling, bulky waste recycling, and ELVs. The project will seek to consult and establish partnerships with relevant national and regional level activities to ensure a coherent approach to promoting economic opportunities for women in the region.**

39)

5. **What are the gender-sensitive indicators that can be adopted in the child project that will help monitor and assess the child project's impacts on gender?**

40)

41) **The following indicators are proposed.**

Indicator		Baseline	Target

[109] https://www.sprep.org/attachments/Publications/Corporate_Documents/SPREP-GenderPolicy-14Nov16.pdf

	Means of Verification		Mid	End
No. of Pacific countries with communities consulted on sustainable financing measures in place, % of women consulted	Consultation reports	3 % of women unknown	10 50% women	14 50% women
No. of community education activities on waste management behaviour, % of women involved	Project reports	0	20 50% women	40 50% women
No of youth participating in Tide Turners program, % girls	Tide Turner app data	200	5000 50% girls	20,000 50% girls

42)

43)

6. Are there any potential risks associated with the proposed child project? What actions are needed to mitigate such risks?

44)

45) The key risk related to gender in the project, is that despite being provided the opportunity to engage, due to cultural dynamics, women don't feel comfortable. This risk will be mitigated by creating a safe space for consultation on national activities, by consulting directly with women's groups, as well as women being represented in national committees.

APPENDIX 06 - STAKEHOLDER ENGAGEMENT PLAN OUTLINE

1. **Stakeholders, their relevant interests, and why they are included**

Table 14: General stakeholder classification

Stakeholders <u>affected</u> directly or indirectly by the outcomes of the Project implementation	**Stakeholders that <u>participate</u> in the project directly or indirectly**	**Stakeholders who can <u>influence</u> and decide the outcomes and the manner of the Project implementation or make decisions based on the outputs of the project**
International stakeholders		
	JPRISM-II project PacwastePlus project Pacific Ocean Litter Project (POLP) Swire Shipping	SPREP Government of Australia WHO GIZ
National stakeholders		
Cook Islands		
Cook Island residents Government Recyclers Shipping Company (ie. Taio Shipping)	Cook Islands General Transport (CIGT) Government: • **National Environment Services (NES)** • **Ministry of Finance (MFEM)** • **Infrastructure Cook Islands (ICI)** Recyclers: • **Cook Islands General Transport (CIGT)** NGO/Community Groups Pa Enua Island Council/Administration	Relevant Government Ministries: • **- National Environment Service** • **- Infrastructure Cook Islands** • **- Ministry of Health;** • **- Ministry of Agriculture** • **- Ministry of Finance and Economic Management** Pa Enua Island Councils/Island Government, i.e. Northern & Southern Group Islands Shipping Company, ie. Taio Shipping NGO's/Community Groups, ie. Te Ipukarea Society (TIS), Island Sustainability Alliance Cook Islands (ISACI) Recyclers, ie. Cook Islands General Transport Major Retailers (importers); CITC, Vonnias, Southseas International, CIPS/Jaycars etc. Island Communities
Fiji		
Residents of rural communities where project is working	Ministry of Environment	Government Ministries:

Residents of informal communities where project is working	Rural Local Authorities "Litter Free Fiji" Think Tank Community groups JICA European Union - PacWaste	• **Ministry of Environment** • **Ministry of Health and Medical Services/Central Board of Health** • **Ministry of Youth** • **Ministry of I-taukei Affairs** Rural Local Authorities Town and City Councils Conservation Officers Project communities Non-Governmental Organisations, Academic Institutions • **University of the South Pacific and Fiji National University** Public and Private businesses
Federated States of Micronesia		
FSM population in all States	Swire Moana Taka Partnership National and State Stakeholders from DECEM R&D TC&I Health Education FINANCE EPAs T&I/PW VITAL State Utilities.	Korean buyers of used oil FSM Public Utility Company KYOWA Shipping Legislators National and State Stakeholders from DECEM R&D TC&I Health Education FINANCE EPAs T&I/PW VITAL State Utilities.
Marshall Islands		
RMI population and the environment	RMI Customs Importers Chamber of Commerce Marshalls Energy Cooperation	RMI Customs Environment Protection Authority Office of Environment Planning and Policy Coordination Ministry of Finance Majuro Atoll Waste Company Majuro Atoll Local Government

Kiribati		
Kiribati population: • **Local communities** • **Schoolchildren** • **Women groups** • **Church members** • **Workers at the health care waste management system** • **Science school students and teachers**	Government ministries and state owned enterprises: • **Ministry of Internal Affairs (MIA),** • **Ministry of Infrastructure and Sustainable Energy MISE)** • **Ministry of Foreign Affairs and Immigration (MFAI)** • **Ministry of Health and Medical Services (MHMS)** • **Ministry of Education (MoE)** • **Ministry of Information, Communication, Transport, Tourism Development (MICTTD)** • **Ministry of Justice (MoJ)** • **Ministry of Commerce, Industry and Cooperatives (MCIC)** • **Ministry of Fisheries and Marine Resources Development (MFMRD)** • **Ministry of Employment and Human Resources Development (MEHRD)** • **Kiribati Customs Administration and Enforcement (KCAE)** • **Kiribati Chamber of Commerce and Industry (KCCI)**	Government Ministries and state-owned enterprises: • **MHMS** • **MIA** • **MoE** • **MoJ** • **MFMRD** • **MCIC** • **MELAD** • **MEHRD** • **MIA** • **MFAI** • **MICTTD** • **MISE** • **PUB** • **KOIL** • **KCAE** • **KGES** Civil Society including the KNCC and NGOs and private sector represented by KCCI and Kaoki Maange (recycling)

	• **Kiribati Green Energy Solutions (KGES)** • **Kiribati National Council of Churches (KNCC)** • **Public Utilities Board (PUB)** • **Kiribati Oil Company (KOIL)** Island Councils Local communities Youth organisations NZ funded Urban Development Programme	
Palau		
Communities who are living close to landfills and dumps Schools and government buildings at risk Mangroves, and marine protected areas.	Environmental Quality Protection Board Bureau of Public Health Division of Solid Waste Management Division of Environmental Health National Environmental Protection Council Balau National Hospital Palau International Coral Reef Center State Governments	Ministry of Health Ministry of Public Infrastructure, Industries and Commerce Palau Public Utilities Corporation Palau Chamber of Commerce General public
Papua New Guinea		
Communities living around DDT storage site in Nonga, East New Britain Communities living around PNG Power sites in Goroka, Yonki, Taraka, Kokopo, Rouna, Hohola and Moitaka PNG Power Limited PNG population: • **Men as users/collectors/disposers of used oil** • **Women working as environmental health officers**	PNG Customs Department of Justice and Attorney General. National Agriculture and Quarantine Inspection Authority (NAQIA) National Agriculture and Research Institute (NARI) National Institute of Standards and Industrial Technology University of PNG PNG University of Technology	PNG Power Limited (owners of the transformers and the 611,619L of potentially contaminated PCB oil) National Department of Health NGO's, provincial governments, municipalities Private sector (Total Waste Management Ltd) CEPA PNG Power Limited East New Britain Provincial Health Authority (DDT Stockpiles in Nonga, East New Britain) Provincial Governments ULLGs Academia

Nauru		
Whole of island community Local businesses	Japan International Cooperation Agency (JICA) - JPRISM European Union – PacWaste Plus Local recycling industry The general Nauru community The Nauru Government	Nauru Rehabilitation Corporation (NRC) – SOE National Waste Management Advisory Taskforce Waste collectors taking waste to landfill – some private companies Hotels Nauru Phosphate Cooperation – SOE Government agencies: • **Border Control (permit and coordination** • **Infrastructure department (coordinate and implement collection programmes)** • **NRC (recycling/disposal)** • **Ministers and island MPs**
Niue		
Government of Niue 14 village communities Villages of Alofi South for Makato and Vaiea Village for Vaiea site Private sector businesses Niue Tourism All schools on the island (ECE, NPS, NHS)	Department of Environment Ministry of Natural Resources Ministry of Social Services Ministry of Infrastructure Government of Niue Niue Chamber of Commerce Village Councils (VCs) and NGOs Project Management & Coordination Unit (PMCU) Niue Tourism	Cabinet Minister Ministry of Natural Resources (MNR) Department of Environment Project Management & Coordination Unit (PMCU) Village Councils Chamber of Commerce Ministry of Social Services Ministry of Infrastructure NGOs Government of Australia EU-SPREP PacWaste Global Environment Facility Ridge to Reef (IW R2R)
Samoa		
Samoa population	Ministry of Health Ministry of Finance Ministry of Commerce, Industry and Labour Ministry of Customs and Revenue Ministry of Women, Community and Social Development	Communities Waste Collection Contractors Landfill Operation Contractors Schools Recyclers

	Ministry of Education, Sports and Culture Office of the Attorney General Samoa Tourism Authority Samoa Chamber of Commerce Samoa Association of Exporters and Manufacturers Ministry of the Prime Minister and Cabinet Samoa Recycling and Waste Management Association	
Solomon Islands		
Solomon Islands communities Community recycling groups Business houses	The Japan International Cooperation Agency (JICA) through the JPRISM Project SPREP UNEP Swire Shipping	JPRISM Ministry of Environment, Climate Change, Disaster Management and Meteorology Solomon Islands Chamber of Commerce Solomon Telecom B-mobile Solomon Islands Waste Management & Recycling Association Ministry of Transport Customs Solomon Islands Port Authority
Tonga		
Government of Tonga Ha'apai and 'Eua communities Waste Authority Limited Recycling companies	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications Waste Authority Limited JICA/JPRISM II Project Team Ministry of Infrastructure Ministry of Health Ministry of Tourism Recycling companies Local Communities Supermarkets, vendors, local shops, local markets, bar and restaurants etc	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications Waste Authority Limited JICA Ministry of Infrastructure Ministry of Health Recycling companies The Government of Australia through the Tonga Solid Waste Management Project The Government of New Zealand The Government of Japan through the JICA/JPRISM Project

	GIO recycling company in both islands Japanese Embassy	
Tuvalu		
Whole country Outer island	EU UK and UK CCOA PacWaste Plus Project Department of waste management Department of environment Department of transport Department of marine and port services Department of health Customs office Dep of aviation – they clean the airstrip before the planes land	Department of Waste Management is the leading department Department of Environment Department of Health Ministry of Education Marine Department Fisheries Department Tuvalu national private sector organisation TANGO – involved in awareness raising Tuvalu Waste Recycling Association Tuvalu National Youth Council Tuvalu National Council of Women Fishermen on Funafuti Association Department of Business and Trade Tuvalu National Private Sector Customs office Marine Department Local Importers and Suppliers TANGO – on community behaviour Church leaders Island chiefs Women's groups
Vanuatu		
Vanuatu population	E-waste generators/entities with e-waste stores Government offices Business Houses (Offices) Shop's/Stores NGO's Schools Communities PacWaste PWP	Recycle Corp Office of the Government Chief Information Officer (OGCIO) Government IT department staff would have a long-term role in managing e-waste. Department of Energy

46)

GEF ISLANDS aims to collect and analyse stakeholder expectations and concerns as well as to taking appropriate responsive measures throughout the Programme in order to ensure that there is enough support for the project. The following table Classifies stakeholders by group, outlines the key expectations and concerns of each group and makes recommendations for engagement.

Table 15: Key stakeholders Expectations and Concern Analysis

Stakeholder group	Key expectations	Key concerns	Recommendations for engagement
National: National Ministries	That project activities will contribute to the	That project is well coordinated with activities occurring across ministries	Inclusion on national coordination committee
National Residents/communities living and working near project activities	That the project leads to a cleaner environment, ie that they will see and feel the benefits.	That opportunities for earning income currently derived from collecting and reselling waste will cease.	Member of national steering committee; regular consultation through national technical assistant
Nationally based private sector partners (PNG Power, recycling companies)	Recycling opportunities are improved. More access to recyclables	That the project can provide resources and assistance to overcoming current barriers to recycling.	Member of national steering committee; regular consultation through national technical assistant
National Church/Youth/Faith groups	That the project leads to a cleaner environment, ie that they will see and feel the benefits.	That the project provides opportunities for involvement.	Member of national steering committee
International private sector partners	That project activities related to recycling will facilitate involvement of private sector	That the project also supports countries in placing advanced disposal fees on vehicle imports to ensure future scrap vehicle recycling can be funded by levies.	Member of PSC
Intergovernmental organizations (SPREP)	To be kept informed of project activities	That project activities are in line with regional priorities	Member of PSC
International development partners/projects/activities (PWP, POLP, AFD)	That ISLANDS activities will be harmonized with other activities being executed In the region	That project activities are coordinated with other ongoing activities	Invited as observers to PSC meetings

2. **Stakeholder roles and responsibilities, and timing of the engagement throughout the project cycle:**

This section of the plan outlines stakeholder roles and responsibilities, and timing of the engagement throughout the project cycle, as well as detailing level of engagement during the project preparatory stage.

Table 16: Outline of regional and national stakeholders engaged in project execution

Stakeholder group	Engagement in project preparation	Engagement in child project
International stakeholders		
International development partners/projects/activities (PWP, POLP, AFD)	Consulted at donor meeting on 9 December 2019 (Brisbane, Australia). Virtual communications and consultations took place regularly throughout PPG phase.	PWP national activities will be closely aligned to reduce administrative burden on Pacific SIDS. PWP, AFD and POLP will participate PSC
Intergovernmental organizations (SPREP)	SPREP is executing the project, and executed the PPG.	SPREP will execute the project
International private sector partners (Swire Shipping)	Ongoing consultation throughout PPG phase.	Swire will be directly engaged in the end of life vehicle activities planned for Output 2.2
National stakeholders		
National: National Ministries	Consulted by national focal points throughout the PPG, as well as by consultant for the Cleaner Pacific 2025 mid term review	Members of national coordinating committees
National Residents/communities living and working near project activities	Consulted by national focal points throughout the PPG	Will be regularly consulted by national technical assistant.
Nationally based private sector partners (PNG Power, recycling companies)	Consulted by national focal points and SPREP throughout the PPG	Consulted by national focal points throughout the PPG
National Church/Youth/Faith groups	Consulted by national focal points throughout the PPG	Representatives of specific groups will be asked to join the National coordinating committee Will be regularly consulted by national technical assistant.

3. **The budget for stakeholder engagement:**

47) The budget for stakeholder engagement is included in the consultants budget line and totals $30,000 and is allocated under Output 4.4 (Project monitoring).

4. **Monitoring stakeholder engagement**

GEF ISLANDS will monitoring stakeholder engagement as part of the monitoring activities of the CCKM project. ISLANDS is employing a harmonized set of indicators for engagement of stakeholders. The indicators in Table 9 are those proposed by the child project and are expected to be considered by the CCKM project.

Table 17: Monitoring stakeholder engagement

Proposed parameter	Reporting responsibility
No. of stakeholders attending national coordinating committee meeting	National technical assistant to Project coordinator
No. of consultation meetings convened	National technical assistant to Project coordinator
No. of international stakeholders attending Project Steering Committee	Project coordinator

APPENDIX 07 - SRIF

Safeguard Risk Identification Form (SRIF)

Section 1: Project Overview

Identification	
Project Title	GEF ISLANDS —Implementing Sustainable Low- and Non-Chemical Development in Small Island Developing States. Pacific Child project
Managing Division	Economy Division
Type/Location	Regional
Region	Pacific
List Countries	Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu
Project Description	Under the Programming Directions for the 7th funding cycle of the Global Environment Facility (GEF 7), a specific allocation was made for Small Island Developing States (SIDS) for chemicals and waste management. The programme entitled ISLANDS – Implementing Sustainable Low and Non-Chemical Development in SIDS was approved by the GEF Council in June 2019. This global programme seeks to address the sound management of chemicals and waste through strengthening the capacity of sub-national, national and regional institutions, strengthening the enabling policy and regulatory framework in these countries and unlocking resources to implement sound management of chemicals and waste. The ISLANDS programmatic framework has been designed to ensure that lessons and knowledge from each of the child projects are captured and shared among SIDS globally. The aim is to facilitate the replication and scale-up of initiatives based on lessons learnt, the demonstration of best practices and fostering increased south-south cooperation. The ISLANDS programme will support 30 SIDS, including 14 Pacific countries. SIDS not included in the ISLANDS programme will be informed of the results of the programme. This project implemented by UNEP
Relevant Subprogrammes	—SP5

Estimated duration of project	60 months
Estimated cost of the project	$20 million
Name of the UNEP project manager responsible	Ludovic Bernaudat
Funding Source(s)	GEF Trust Fund
Executing/Implementing partner(s)	Executing Partner: Secretariat of the Pacific Regional Environment Programme
SRIF submission version	*If it is not the first time, mark the time of your previous submission* *Concept Review [ ]* *During Project development [ ]* *PRC [ ]* *Other _____*
Safeguard-related reports prepared so far *(Please attach the documents or provide the hyperlinks)*	• *Feasibility report [ ]* • *Gender Action Plan [x]* • *Stakeholder Engagement Plan [x]* • *Safeguard risk assessment or impact assessment [x]* • *ES Management Plan or Framework [ ]* • *Indigenous Peoples Plan [ ]* • *Cultural Heritage Plan [ ]* • *Others* _____

Section 2: Safeguards Risk Summary

A. Summary of the Safeguards Risk Triggered

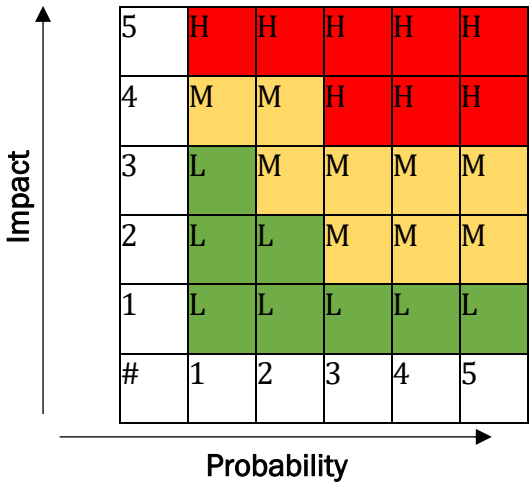
Safeguard Standards Triggered by the Project	Impact of Risk[110] (1-5)	Probability of Risk (1-5)	Significance of Risk (L, M, H) *Please refer to the matrix below*
SS 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management	1	1	L
SS 2: Climate Change and Disaster Risks	3	2	M
SS 3: Pollution Prevention and Resource Efficiency	4	2	M
SS 4: Community Health, Safety and Security	4	1	M
SS 5: Cultural Heritage	1	1	L
SS 6: Displacement and Involuntary Resettlement	1	1	L
SS 7: Indigenous Peoples	2	1	L
SS 8: Labor and working conditions	3	1	L

[110] Refer to UNEP Environmental and Social Sustainability Framework (ESSF): Implementation Guidance Note to assign values to the Impact of Risk and the Probability of Risk to determine the overall significance of Risk (Low, Moderate or High).

B. ESS Risk Level[111] -

Refer to the UNEP ESSF (Chapter IV) and the UNEP's ESSF Guidelines.

Low risk	☐
Moderate risk	X
High risk	☐
Additional information required	☐



C. Development of ESS Review Note and Screening Decision

Prepared by

Name: Melanie Ashton Date: 6 November 2020

Screening review by

Name: Date:

Signature

Cleared[112]

D. Safeguard Review Summary (by the safeguard team)

E. Safeguard Recommendations (by the safeguard team)

- No specific safeguard action required ☐

☐

[111] **Low risk**: Negative impacts minimal or negligible: no further study or impact management required.
Moderate risk: Potential negative impacts, but limited in scale, not unprecedented or irreversible and generally limited to programme/project area; impacts amenable to management using standard mitigation measures; limited environmental or social analysis may be required to develop a Environmental and Social Management Plan (ESMP). Straightforward application of good practice may be sufficient without additional study.
High risk: Potential for significant negative impacts (e.g. irreversible, unprecedented, cumulative, significant stakeholder concerns); Environmental and Social Impact Assessment (ESIA) (or Strategic Environmental and Social Assessment (SESA)) including a full impact assessment may be required, followed by an effective comprehensive safeguard management plan.

[112] This is signed only for the full projects latest by the PRC time.

- Take Good Practice approach[113]
- Carry out further assessments (e.g., site visits, experts' inputs, consult affected communities, etc.) ☐
- Carry out impact assessments (by relevant experts) in the risk areas and develop management framework/plan ☐
- Consult Safeguards Advisor early during the full project development phase ☐
- Other _____

Section 3: Safeguard Risk Checklist

Screening checklist	Y/N/ Maybe	Justification for the response (please provide answers to each question)
Guiding Principles (these questions should be considered during the project development phase)		
GP1 Has the project analyzed and stated those who are interested and may be affected positively or negatively around the project activities, approaches or results?	Y	Stakeholders, their respective roles and interests in the project have been identified in each of the project countries. A stakeholder engagement plan is included with the submission.
GP2 Has the project identified and engaged vulnerable, marginalized people, including disabled people, through the informed, inclusive, transparent and equal manner on potential positive or negative implication of the proposed approach and their roles in the project implementation?	Y	The project has approached women's groups and developed a Gender Action Plan. Stakeholders have also been identified in each of the 14 Pacific countries. These include vulnerable groups living close to landfill sites, and the communities residing close to the stocks of DDT in PNG. Communities residing close to the DDT have concerns about the long term contamination risk posed by the site. Sampling will be conducted post clean up and the results communicated to communities to ensure that the site is fit for use and that the community is aware of this. Communities living around landfills sites and making an informal living from collecting from these sites will be brought into the formal operation of sites.
GP3 Have local communities or individuals raised human rights or gender equality concerns regarding the	N	Local communities have been broadly supportive and enthusiastic to the planned project interventions.

[113] Good practice approach: For most low-moderate risk projects, good practice approach may be sufficient. In that case, no separate management plan is necessary. Instead, the project document demonstrates safeguard management approach in the project activities, budget, risks management, stakeholder engagement or/and monitoring segments of the project document to avoid or minimize the identified potential risks without preparing a separate safeguard management plan.

	project (e.g. during the stakeholder engagement process, grievance processes, public statements)?		
GP4	Does the proposed project consider gender-balanced representation in the design and implementation?	Y	Consideration has been given to gender-balanced representation in the design and implementation. Gender indicators included in the logframe.
GP5	Did the proposed project analyze relevant gender issues and develop a gender responsive project approach?	Y	Yes, and this work will be continued by the CCKM coordination project. The CCKM project uses the gender information from this child project and other ISLANDS child projects to develop a programmatic gender action plan to ensure the programme is delivered in a gender responsive manner.
GP6	Does the project include a project-specific grievance redress mechanism? If yes, state the specific location of such information.	Y	A grievance redress mechanism will be built into the ISLANDS programme website, which will include specific contact details (e-mail address and phone number) where persons can raise grievances.
GP7	Will or did the project disclose project information, including the safeguard documents? If yes, please list all the webpages where the information is (or will be) disclosed.	Y	All documents will be available on the Programme knowledge platform, managed through the CCKM project.
GP8	Were the stakeholders (including affected communities) informed of the projects and grievance redress mechanism? If yes, describe how they were informed.	Y	Stakeholders will be informed of the grievance redress mechanism situated on the ISLANDS programme website.
GP9	Does the project consider potential negative impacts from short-term net gain to the local communities or countries at the risk of generating long-term social or economic burden?[114]	Y	All activities have been designed for long-term social and economic benefit.
GP10	Does the project consider potential partial economic benefits while excluding marginalized or vulnerable groups, including women in poverty?	N	Vulnerable groups related to chemicals and waste management (e.g. informal recyclers, waste pickers) will be informed, trained and involved in project activities to ensure equal benefits and opportunities. More specifically, vulnerable groups will be approached as relevant stakeholders and collaborated with to ensure full involvement in demonstration activities. If their livelihoods are affected, for example through the formalisation of jobs, they will be provided training and capacity building to qualify for these jobs. In this way tangible benefits are expected beyond the execution timeline.
Safeguard Standard 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management			
Would the project potentially involve or lead to:			
1.1	conversion or degradation of habitats (including modified habitat, natural habitat and critical natural habitat), or losses and threats to biodiversity and/or ecosystems and ecosystem services?	N	

[114]For example, a project may consider investing incommercial shrimp farm by clearing the nearby mangrove forest to improve the livelihood of the coastal community. However, long term economic benefit from the shrip farm may be significantly lower than the mangroves if we consider full costs factoring safety from storms, soil protection, water quality, biodiversity and so on.

1.2	adverse impacts specifically to habitats that are legally protected, officially proposed for protection, or recognized as protected by traditional local communities and/or authoritative sources (e.g. National Park, Nature Conservancy, Indigenous Community Conserved Area, (ICCA); etc.)?	N	
1.3	conversion or degradation of habitats that are identified by authoritative sources for their high conservation and biodiversity value?	N	
1.4	activities that are not legally permitted or are inconsistent with any officially recognized management plans for the area?	N	
1.5	risks to endangered species (e.g. reduction, encroachment on habitat)?	N	
1.6	activities that may result in soil erosion, deterioration and/or land degradation?	N	
1.7	reduced quality or quantity of ground water or water in rivers, ponds, lakes, other wetlands?	N	The quality of water in rivers, ponds, lakes or other wetlands is expected to be improved in the long term due to the expected improvements in management of chemicals and waste. For example, decrease in size of landfills will lead to better drainage. Moreover, any waste management technologies used by, for or through the ISLANDS programme will not be water intensive.
1.8	reforestation, plantation development and/or forest harvesting?	N	
1.9	support for agricultural production, animal/fish production and harvesting	N	
1.10	introduction or utilization of any invasive alien species of flora and fauna, whether accidental or intentional?	N	
1.11	handling or utilization of genetically modified organisms?	N	
1.12	collection and utilization of genetic resources?	N	
Safeguard Standard 2: Climate Change and Disaster Risks			
Would the project potentially involve or lead to:			
2.1	improving resilience against potential climate change impact beyond the project intervention period?	Y	Poor waste management can lead to environmental degradation, which can increase the impacts of natural hazards. Improved waste management is expected to result in long-term increased resilience. Project activities include interventions to climate proof landfills – which will increase resilience against climate change beyond the intervention period.
2.2	areas subject to (natural) hazards such as earthquakes, floods, landslides, severe winds, storm surges, tsunami or volcanic eruptions?	Y	The Pacific region is prone to natural hazards, in particular cyclones, but also earthquakes, and tsunami. Landfill rehabilitation works, and other activities requiring construction and earth moving will be done outside of cyclone season.
2.3	outputs and outcomes sensitive or vulnerable to potential impacts of climate change (e.g. changes in precipitation, temperature, salinity, extreme events)?	Y	Project outputs are sensitive to the needs of all identified stakeholders and to the potential impacts of climate change. The role and input of stakeholders has been

		carefully considered in the stakeholder assessment. In terms of climate change, scheduling of outputs that may be impacted by extreme weather will be scheduled outside of cyclone season.
2.4 direct or indirect increases in vulnerability to climate change impacts or disasters now or in the future (also known as maladaptive practices)?	N	No, the project has been carefully designed to increase resilience and excludes maladaptive practices.
2.5 increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	N	The project is conversely expected to decrease greenhouse gas emissions through improved waste management, decreased open burning, and technical backstopping of healthcare waste facilities.
2.6 capture of greenhouse emissions, resource-efficient and low carbon development, other measures for mitigating climate change	N	
Safeguard Standard 3: Pollution Prevention and Resource Efficiency		
Would the project potentially involve or lead to:		
3.1 the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N	One of the ISLANDS Programme's goals is to prevent the release of pollutants to air, water and/or soil. Clean up of DDT and PCB contaminated oil in PNG, does pose some risk to the environment, but adequate mitigation measures are in place.
3.2 the generation of waste (both hazardous and non-hazardous)?	N	Hazardous waste will be managed under the project, but not generated. (for example, the project will address end of life vehicles which contain hazardous waste (flame retardants in the seats and dash). The project will complete a feasibility study in the first year of the project to assess the feasibility of managing the hazardous component in end of life cars. The activity will only be pursued if disposal of the hazardous components of vehicles can be done in line with the Basel and Stockholm Conventions.
3.3 the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	Y	The ISLANDS Programme will assist participating countries in managing the use of, storage and disposal of hazardous chemicals, using best available techniques and best environmental practices.
3.4 the use of chemicals or materials subject to international bans or phase-outs? (e.g. DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol, Minamata Convention, Basel Convention, Rotterdam Convention, Stockholm Convention)	N	The ISLANDS Programme will reinforce the capacity of countries to comply with the phase-out dates under the Minamata and Stockholm Conventions and prevent the release of chemicals to the environment. The project includes the collection, repackaging, shipping, and destruction of DDT and PCB waste.
3.5 the application of pesticides or fertilizers that may have a negative effect on the environment (including non-target species) or human health?	N	
3.6 significant consumption of energy, water, or other material inputs?	N	Projects implemented or supported by the ISLANDS Programme in participant countries are unlikely to consume or cause significant consumption of water, energy or

		other resources. However, significant energy may be used through the crushing of end of life vehicles. The significance of this consumption will be assessed during a project feasibility study to be completed in project year 1.
Safeguard Standard 4: Community Health, Safety and Security		
Would the project potentially involve or lead to:		
4.1 the design, construction, operation and/or decommissioning of structural elements such as new buildings or structures (including those accessed by the public)?	N	
4.2 air pollution, noise, vibration, traffic, physical hazards, water runoff?	N	The ISLANDS Programme will not fund the establishment of any infrastructure that could lead to air pollution, noise pollution, vibration, traffic or water runoff. Physical hazards such as due to the handling of hazardous wastes will be entirely mitigated through the provision of protective gear, training programmes, and regular monitoring that safety measures are being followed. The work on ELVs will involve dismantling of vehicles, but air pollution, noise, vibration, traffic, physical hazards, water runoff is not envisaged.
4.3 exposure to water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable or noncommunicable diseases?	N	
4.4 adverse impacts on natural resources and/or ecosystem services relevant to the communities' health and safety (e.g. food, surface water purification, natural buffers from flooding)?	N	
4.5 transport, storage use and/or disposal of hazardous or dangerous materials (e.g. fuel, explosives, other chemicals that may cause an emergency event)?	Y	In PNG DDT stockpiles, as well as transformer oil contaminated with PCBs, will be repackaged, transported to Port Moresby and then shipped to Australia for destruction.
4.6 engagement of security personnel to support project activities (e.g. protection of property or personnel, patrolling of protected areas)?	Y	Security personnel will be engaged in PNG.
4.7 an influx of workers to the project area or security personnel (e.g. police, military, other)?	N	
Safeguard Standard 5: Cultural Heritage		
Would the project potentially involve or lead to:		
5.1 activities adjacent to or within a Cultural Heritage site?	N	
5.2 adverse impacts to sites, structures or objects with historical, cultural, artistic, traditional or religious values or to intangible forms of cultural heritage (e.g. knowledge, innovations, practices)?	N	
5.3 utilization of Cultural Heritage for commercial or other purposes (e.g. use of objects, practices, traditional knowledge, tourism)?	N	
5.4 alterations to landscapes and natural features with cultural significance?	N	

5.5	significant land clearing, demolitions, excavations, flooding?	N	
5.6 identification and protection of cultural heritage sites or intangible forms of cultural heritage			
Safeguard Standard 6: Displacement and Involuntary Resettlement			
Would the project potentially involve or lead to:			
6.1	full or partial physical displacement or relocation of people (whether temporary or permanent)?	N	
6.2	economic displacement (e.g. loss of assets or access to assets affecting for example crops, businesses, income generation sources)?	N	
6.2	involuntary restrictions on land/water use that deny a community the use of resources to which they have traditional or recognizable use rights?	N	
6.3	risk of forced evictions?	N	
6.4	changes in land tenure arrangements, including communal and/or customary/traditional land tenure patterns (including temporary/permanent loss of land)?	N	
Safeguard Standard 7: Indigenous Peoples			
Would the project potentially involve or lead to:			
7.1	areas where indigenous peoples are present or uncontacted or isolated indigenous peoples inhabit or where it is believed these peoples may inhabit?	Y	The Pacific region is largely populated by Indigenous Pacific islanders.
7.2	activities located on lands and territories claimed by indigenous peoples?	N	No all national activities will take place on government, or privately owned land.
7.3	impacts to the human rights of indigenous peoples or to the lands, territories and resources claimed by them?	N	
7.4	the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	N	
7.5	adverse effects on the development priorities, decision making mechanisms, and forms of self-government of indigenous peoples as defined by them?	N	
7.6	risks to the traditional livelihoods, physical and cultural survival of indigenous peoples?	N	
7.7	impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	N	
Safeguard Standard 8: Labor and working conditions			
8.1	Will the proposed project involve hiring or contracting project staff ?	Y	The Executing Agency will be responsible for hiring project staff
If the answer to 8.1 is yes, would the project potentially involve or lead to:		N	
8.2	working conditions that do not meet national labour laws or international commitments (e.g. ILO conventions)?	N	
8.3	the use of forced labor and child labor?	N	
8.4	occupational health and safety risks (including violence and harassment)?	Y	The POPs clean up in PNG will result in some occupational health and safety risks. These will be fully elaborated in a detailed clean up plan, and all project staff will be trained in advance of the clean up.
8.5	the increase of local or regional unemployment?	N	

8.6 suppliers of goods and services who may have high risk of significant safety issues related to their own workers?	N	
8.7 unequal working opportunities and conditions for women and men	N	

APPENDIX 07 - SRIF COVID19 ADDITIONAL QUESTIONS_PACIFIC

UNEP's ESSF: Supplementary guidance to respond to COVID-19

In line with the UN Framework for the immediate socio-economic response to COVID-19 (April 2020), this paper provides additional safeguard measures to the recently approved UNEP Environmental and Social Sustainability Framework (ESSF) for UNEP's proper response during the COVID-19 and COVID-19 recovery phases. We encourage UNEP project managers to examine any changes in the project context as well as potential risks that may be exacerbated by the project activities using this tool. This document is to guide identify and manage potential environmental and social risks in projects in the context of COVID-19.[115]

CHECKLIST FOR IDENTIFYING AND MANAGING ENVIRONMENTAL AND SOCIAL RISKS IN PROJECTS IN CONTEXT OF COVID-19 PANDEMIC

Human Rights

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Is there a heightened risk of vulnerability of marginalized groups and individuals in project approach due to the COVID-19 outbreak (e.g. lack of access to resources, information, health services)?	Vulnerable groups related to chemicals and waste management (e.g. informal recyclers, waste pickers). At this stage the Pacific region (with the exception of PNG) has been largely COVID-19 free, having closed borders in early 2020. As such, Pacific populations, including vulnerable and marginalized groups are not directly impacted by COVID-19. All Pacific countries are however facing economic constraints, due to necessary investments in COVID-19 prevention, decline in remittances, and decline in tourism revenue. This is likely to increase the number of vulnerable people as a proportion of population.
Are there risks of discrimination and stigmatization against perceived virus carriers or other groups in project activities?	This is most likely in PNG, as the Pacific country most impacted by COVID-19. Non-discrimination policies will be reinforced in all project activities and the collection and sharing of accurate and accessible information regarding COVID-19 in project areas, especially regarding vulnerable individuals (e.g. elderly people, people with pre-conditions) and groups will be promoted. Simple language will be used and clinical terms avoided.
Have emergency declarations or other COVID-19 restrictions limited human rights (e.g. freedom of expression, access to information) in project areas?	Not so far. This situation will be monitored through project execution.

[115] This Guide is adapted from the draft "UN EMG Model Approach to Environmental and Social Standards for UN Programming-COVID19 Supplementary Guidance" for the UNEP projects.

Are there increased risks of privacy violations to project beneficiaries from COVID-19 response activities and surveillance?	Currently there is no evidence of increased risks of privacy violations to project beneficiaries from COVID-19 response activities and surveillance.
Does the COVID-19 outbreak present particular risks to indigenous peoples in project areas?	The Pacific population is over 90% indigenous. As such COVID-19 poses a particular and significant risk to indigenous peoples. However, with the exception of PNG, the region is currently COVID-19 free and not facing direct outbreaks.

Gender Equality and Women's Empowerment

Potential heightened risks to/from project due to COVID-19	48) Possible risk management measures and adjustments to project
Is there a risk that the virus outbreak and/or response regulations would increase gender inequality in access to project resources and benefits?	The ISLANDS Programme gender analysis will be reviewed and, if needed, updated to account for gender differentiated impacts of the virus and responses.
Is there a heightened risk of gender-based violence in project area due to COVID-19 response and regulations?	The ISLANDS Programme gender action plan will be reviewed and, if needed, updated to include prevention and response plans to minimize gender-based violence due to COVID-19 responses and regulations in collaboration with local institutions such as faith groups, women groups, schools, etc.

Stakeholder Engagement and Accountability/Operational and Procedural challenges

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Are there planned meetings risking spread of the virus?	All engagement with project stakeholders have been moved to virtual platforms. Stakeholders have been assisted to ensure continued access to information and communications regarding the ISLANDS Programme.
Do restrictions on group meetings limit or rule out certain project activities?	Project components and activities that require in-person group meetings have been postponed until further notice. It is expected that the ISLANDS Programme will be able to continue as planned when travel restrictions are eased without increased risk of spreading the virus.

Do virus-related restrictions limit ability to share information with stakeholders?	Potentially yes. The Pacific project is operating in 14 countries. The project coordinator will be recruited, but unable to travel. As such, much support will be required from country-based national technical assistants to consult and share information with stakeholders.
Do limitations on social interaction impede stakeholder access to GRM?	Stakeholders have continued access to GRM.
Is the GRM able to continue to operate (e.g. lock-down, staff absence, call center closure)?	The GRM is able to continue to operate.
Is there a heightened risk of retaliation against stakeholders who complain about project activities that may exacerbate virus risks?	No activity of the project will exacerbate virus risk, however the project will: • **ensure all local team members understand that there is zero tolerance for any retaliatory actions against project stakeholders** • **confirm that stakeholders are informed about Agency-level complaints mechanisms in addition to local GRM**
Will project be redesigned and/or postponed until the virus risk subsides?	All project deadlines were extended by six (6) months. The project approach has been reviewed to ensure Covid-19 risks and measures are fully integrated. In addition, a technical backstopping facility for. Healthcare waste management has been included in light of increased medical waste due to the pandemic.
Is it still possible to undertake social and environmental assessments in collaboration with stakeholders (e.g. restricted field visits, cancellation of household surveys, no public meetings, etc.)?	These will be undertaken by national technical assistants.
Does the spread of the virus limit the ability to monitor project risks and implementation of mitigation measures?	Primary data required to monitor risks will be collected by national technical assistants.

Risks and impacts related to environment, biodiversity, climate change and disasters

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Is there a risk of soil/water contamination from discarded PPE and use of disinfectants in project areas?	Yes. Community awareness campaigns will include a focus on discarded PPE.
Are partner governments relaxing environmental regulations and/or enforcement in the context of their COVID-19 response?	This has not been observed so far. Government counterparts have however signaled their need for additional support to manage CVID-19 measures.

Will impacts from the pandemic increase vulnerability to climate hazards in project areas?	Not observed at this stage.

Labor and Working Conditions/Community Health, Safety and Security

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Is there a risk that project-supported workers would increase their risk of virus exposure (e.g. project labor camps, construction sites, worker housing)?	No.
Do project activities involve use and disposal of potentially contaminated PPE or other health care waste?	Yes, disposable PPE will be used in the PNG clean up. All PPE will be repackaged with the POPs waste and shipped to Australia for destruction.
Is there a risk that use and storage of disinfectants and sanitizers may lead to health and safety risks?	Proper handling and storage of disinfectant chemicals, including prevention of fire hazards, leaks and contamination, will be ensured as required under project procedures.
Are project activities being carried out in areas where military and security personnel are being utilized to manage the COVID-19 response (e.g. public health emergency)?	Project activities are not being carried out in areas where military and security personnel are being utilized to manage the COVID-19 response. This situation will be monitored however, in the case of PNG.
Is there a potential for social unrest that may threaten project-supported workers?	Yes, social unrest is common in PNG. One area of the country was left un-inventoried due to civil unrest during project preparation.

APPENDIX 8 - RISK MITIGATION PLAN

Risk	Risk ranking	Proposed mitigation measures
COVID-19 risks		
Due to COVID-19 travel ban, Project Coordinator cannot travel to Samoa to begin post	High	Currently, there is very restricted travel in and out of Samoa. Consultations with the Government of Samoa indicate that this situation is set to continue well into 2021. As such, placement of an international Project Coordinator will be difficult. To mitigate this risk, the recruitment activities for the Project Coordinator will focus on New Zealand, the one country with flights to New Zealand. Administrative arrangements will be made with the Government of Samoa, in advance to ensure that travel is possible. If the successful applicant is from another country, additional consultation work will be required to clear travel (through the Government of New Zealand).
Restricted travel	High	The Pacific region has avoided many impacts of COVID-19 by restricting travel within and into the region since February 2020. It is likely these restrictions will continue into the foreseeable future. As such project travel for meetings, trainings, consultations, and technical assistance may not be possible. To ensure project activities can continue in an environment of constrained travel, the project will focus on establishing regular project meetings via Zoom. At the beginning of the project, countries will be offered internet upgrade to ensure they are able to participate in online meetings and training. The first year of the project will include recruitment of national technical officers in each country, to ensure a dedicated focal point is available to prepare for national activities, and convene national consultations. No international consultancies or technical assistance involving travel to countries is planned for 2021. This approach will be reviewed when the COVID-19 pandemic subsides.
Decreased local support due to shifted priorities	Low	National consultations have been (virtually convened) to assess country readiness, and adapted accordingly. A project technical assistant will be

		hired in each Pacific country to ensure that the project does not overburden Pacific counterparts.
Increase of new waste streams	Medium	It is noted that single use plastic use is increasing internationally as part of the response to COVID-19. This has the potential to offset the work of the project in decreasing waste. This will be monitored carefully during the project and corrective measures taken where necessary.
Negative impacts to SIDS economies (especially due to tourism and remittance reduction)	High	Consultations convened with country counterparts indicate that they are facing general economic downturns and increased unemployment. Development of in-country capacity will help to mitigate impacts, and generating new employment opportunities.
Climate change risks		
Rising sea levels	High	In many Pacific SIDS climate change is considered one of the greatest threats to the livelihoods, security and wellbeing of their people, particularly on low-lying atolls. Areas of the Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, and Tuvalu are only a few metres above present sea level and may face serious threat of permanent inundation from sea-level rise, this presents significant barriers to the sound management of chemicals and wastes. SIDS waste management facilities face threats of inundation. While the project cannot mitigate this risk in its entirety, activities to climate proof landfills have been prioritized by Tonga and will be the focus of Tonga's national activity.
Infrastructure damage due to increased cyclone frequency and severity	Medium	The impacts of climate change have been considered in the design of the project and will be closely monitored during execution. National activities involving landfill and recycling infrastructure will be executed in a climate sensitive way, ensuring that all structures are well cited, and climate-proofed.
Increase in disaster waste due to increased cyclone frequency	Medium	This is an ongoing issue in the Pacific region. While the project does not address the reduction of disaster waste directly, it aims to reduce the overall amount of waste being directed to landfill. Indirectly, this will ease the burden on landfill sites. The project is collaborating closely with PWP which is addressing disaster waste, and synergies between activities will be ensured.
Operational/delivery risks		

Political priorities, will and/or buy-in are not adequate for execution of key project activities	Medium	The institutionalisation of the project's activities will be encouraged. Pacific government stakeholders were engaged throughout the project development phase to ensure that national priorities are clearly reflected in the project design. Continuous communication and updates will be provided to the national focal point and key agencies to ensure sustained support. The presence of a technical assistance in each country will facilitate project coordination and communication, without overburdening national counterparts.
Executing Agency procurement processes not capable of expending project funds in a timely manner	High	The project is one of several large (>$10million) projects being executed by SPREP. Close consultation has been undertaken with the other large projects, PWP and POLP, to establish the procurement capability of SPREP. Both projects have been working closely with the SPREP executive to improve procurement procedures. This risk will be mitigated through ongoing cooperation with PWP and POLP, and joint consultation with the SPREP executive. In addition, UNEP will procure the services related to the PNG POPs disposal in the first year of the project, to ensure these proceeds without delay.
Centralized regional execution results in the project unable to achieve sufficient results at national level.	Medium	Extensive consultation was undertaken with Pacific focal points on this issue. It was noted that the centralised regional execution of previous projects resulted in little national ownership, or awareness of the project. This project is much larger than previous interventions, with significant national level activities in each country. As such it was agreed that all national activities will be coordinated by a national technical assistant to ensure a consistent concentrated national presence for the project in each of the participating countries.
Stockpiles of remaining POPs in PNG are unable to be located, and released to the environment	Low	To mitigate this risk, DDT stocks in PNG were safe-guarded during the project preparatory phase. The DDT stocks were secured in two shipping containers and are being monitored by the PNG ministry of environment. The collection, repackaging and transport of these stocks is scheduled for year 1 of the project to ensure that the chemicals are transported to Australia as quickly as possible for destruction. Given the possibility of continued restricted global travel, qualified PNG based companies have been identified and confirmed they can undertake this work.

Duplication of effort by donors/projects	Low	During the project preparatory phase, UNEP recognised the need for regional coordination, among the numerous donors/actors undertaking activities in the chemicals and waste space. In response a donor coordination briefing was convened in December in Australia. Donors/actors agreed to ongoing increased communication and coordination, to ensure activity designs are synergistic and do not overlap. This coordination continues, with frequent communications between donors/actors. In addition a regional focal point was established (within the PWP) to monitor the progress in each country on container deposit legislation, as this is acknowledged a precursor to improved recycling approaches in each country.
Private sector and/or community support and behavioural change are not adequate	Low	The private sector and CSOs/NGOs have been engaged throughout the project preparation phase and will continue to be engaged throughout the project's execution. Members will be included on National Working Groups to ensure that their needs are being met. Awareness raising campaigns will be developed and executed to engender additional support from these groups.
Some countries make little progress, due to not prioritising the project	Medium	The project includes 14 Pacific countries. It is highly likely that some countries will face delays in interventions due to competing priorities, or other reasons. To mitigate this risk each country will host a national technical assistant, based at the ministry of environment and responsible to the Project Coordinator (based at SPREP). The role of this individual will to maintain momentum of the activity (where possible) and to adapt activities (where necessary) in coordination with the country counterparts and the Project Coordinator.
Technical risks		
Recycling systems cannot be financed sustainably	High	High costs of transport and large geographic distances to global markets mean, recycling is not viable without additional funds. Successful initiatives in the Pacific involve the introduction of container deposit legislation. To ensure technical assistance provided by the project is sustainable, the project has confirmed that all Pacific countries prioritising activities on recycling are also working on container deposit legislation to sustain the cost of recycling. In addition, the Moana Taka partnership provides free shipping for recycling activities.

Inadequate data available to support activities	Medium	Historically, data collection within the region is not adequate. Where required information is not available, the project executers and partners will work with stakeholders to collect raw data and develop mechanisms to ensure that sustainable data collection mechanisms are implemented.
Social risks		
Continued disregard for the environmental and health impacts of existing waste management activities	Low	Awareness raising campaigns will be developed and conducted for government and private sectors as well as the public to engage key community authorities and vulnerable groups (e.g. youth, Indigenous communities).
Economic displacement of informal sector workers through formalisation of chemicals and waste management systems	Low	Communities/relevant experts and the informal sector will be engaged in the execution of the project's activities to ensure that developed and implemented strategies provide safe economic opportunities for informal recyclers. These workers will also benefit from training on best environmental practices to protect them from the negative health impacts associated with improper waste management.

APPENDIX 9: LIST OF FIGURES AND TABLES

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APPENDIX 10: ACRONYMS AND ABBREVIATIONS

ADB: Asian Development Bank
AFD: Agence Française de Développement
BAT: Best Available Technologies/Techniques
BEP: Best Environmental Practices
BRS: Basel, Rotterdam and Stockholm Conventions
C&W: Chemicals and Waste
CDL: Container Deposit Legislation
CO2e: Carbon dioxide equivalent
CoPs: communities of practice
COPs: conferences of the parties
CP2050: Cleaner Pacific 2025: Pacific Regional Pollution and Waste Management Strategy
CSO: Civil Society organization
DDT: Dichlorodiphenyltrichloroethane
DoE: Department of the Environment
EA: Executing Agency
EAs: Environmental Assessments
ECD: Environment and Conservation Department
ELV: End of Life Vehicles
EIA: environmental impact assessment
EIS: environmental impact statement
EPA: Environmental Protection Authority
EPR: Extended Producer Responsibility
EST: Environmentally Sound Technologies
FAO: Food and Agriculture Organization
FSM: Federated States of Micronesia
GDP: Gross Domestic Product
GEB: Global Environmental Benefits
GEF STAP: Global Environment Facility Scientific and Technical Advisory Panel
GEF TF: Global Environment Facility Trust Fund
GEF: Global Environment Facility
gTEQ: grams of toxic equivalent
HDPE: High Density Poly Ethylene
HHP: Highly Hazardous Pesticides
Hg: Mercury
IA: Implementing Agency
IADB: Inter-American Development Bank
ISLANDS: Implementing Sustainable Low and Non-Chemical Development in SIDS
IUCN: International Union for Conservation of Nature
JICA: Japan International Cooperation Agency
Kg: Kilograms
Km: Kilometers
LDC: Least Developed Countries
LDCF: Least Developed Countries Fund

M&E: Monitoring and Evaluation
MIA: Minamata Initial Assessment
MOOC: Massive Open Online Course
MSW: municipal solid waste
MTE: Mid-term evaluation
MTR: Mid-term review
NAP: National Action Programme
NAPA: National Action Plan for Adaptation
NATPLAN: National Marine Spill Contingency Plan
NIP: National Implementation Plan
ODS: Ozone Depleting Substances
PBDE: Polybrominated diphenyl ethers
PCB: polychlorinated biphenyl
PET: Polyethylene terephthalate
PFD: Program Framework Document
PNG: Papua New Guinea
PIR: Project Implementation Review
PMC: Project management Cost
POLP: Pacific Ocean Litter Project
POPs: Persistent Organic Pollutants
PRIF: Pacific Regional Infrastructure Facility
PSC: Project Steering Committee
PWSPD: Pacific Women Shaping Pacific Development
RMI: Republic of Marshall Islands
SAICM: Strategic Approach to International Chemicals Management
SAMOA: 2014 SIDS Accelerated Modalities of Action
SCCF: Special Climate Change Fund
SDG: Sustainable Development Goal
SHW: Solid and Hazardous Wastes
SIDS: Small Islands Developing States
SIsP: Sustainable Islands Platform
SME: Small and Medium Enterprises
SPREP: Secretariat of the Pacific Regional Environment Programme
TE: Terminal evaluation
TNA: Technology Needs Assessment
UNDP: United Nations Development Programme
UNEA: United Nations Environment Assembly
UNEP: United Nations Environment Programme
uPOPs: unintentional POPs
WCP: waste, chemicals and pollution

Cleaner Pacific 2025
Pacific Regional Waste and Pollution Management Strategy 2016–2025

MID-TERM REVIEW REPORT

31 July 2020

Version	Author	Date submitted	Description
1	Melanie Bradley	19/05/2020	Initial draft
2	Melanie Bradley	03/07/2020	Final draft
3	Melanie Bradley	31/07/2020	Final report, addressing feedback provided on final draft

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Acronyms / abbreviations

AS	American Samoa
CDP	Container deposit programme
CI	Cook Islands
CNMI	Commonwealth of the Northern Mariana Islands
CP2025	Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025
CPRT	Clean Pacific Roundtable
EPR	Extended Producer Responsibility
FJ	Fiji
FP	French Polynesia
FSM	Federated States of Micronesia
GU	Guam
IP	Implementation Plan
JICA	Japan International Cooperation Agency
KI	Kiribati
NA	Nauru
NC	New Caledonia
NI	Niue
PA	Palau
PICTs	Pacific island countries and territories
PNG	Papua New Guinea
RMI	Republic of the Marshall Islands
SA	Samoa
SDGs	Sustainable Development Goals
SI	Solomon Islands
SPREP	Secretariat of the Pacific Regional Environment Programme
SWM	Solid waste management
TK	Tokelau
TO	Tonga
TV	Tuvalu
UNEP	United Nations Environment Programme
UPOPs	Unintentional persistent organic pollutants
VU	Vanuatu
WF	Wallis and Futuna
WCP	Waste, chemicals and pollution

Executive summary

This report presents findings from the mid-term review of the Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025 (CP2025). The mid-term review was requested by the Secretariat of the Pacific Environment Programme (SPREP) as part of CP2025's monitoring and evaluation framework, and funded by the United Nations Environment Programme (UNEP).
The review examined progress made at regional and national levels under the 2016–2019 CP2025 Implementation Plan (IP 2016–2019). More specifically, the review:

- **Assessed implementation progress in terms of CP2025's twenty performance indicators and fifteen strategic actions, and evaluated their ongoing relevance;**
- **Examined the extent to which IP 2016–2019's 124 activities had been progressed or completed, and identified activities requiring further work;**
- **Evaluated progress towards achieving the strategic goals of CP2025, and relevant Sustainable Development Goals; and**
- **Identified recommendations to enhance the delivery and regional relevance of CP2025, and to inform a revised Implementation Plan for 2021–2025.**

Mid-term review assessments were completed, and findings collated, on a regional and national basis. Key findings and recommendations are highlighted below.

CP2025 implementation successes

At a regional level, seven (of twenty) CP2025 performance indicators were found to have exceeded or met their 2020 targets. The seven indicators that demonstrated good progress showed that from 2016 to 2019, the Pacific region achieved:

- **Reduced (average) municipal solid waste generation per capita**
  (2014 baseline and 2020 target of 1.3 kg/person/day; 1.2 kg/person/day estimated for 2020 based on most recent data available);

- **An increased number of container deposit programmes**
  (2014 baseline of 4 programmes, 2020 target of 7 programmes, 8 recorded for 2020 in FSM [Kosrae, Pohnpei, Yap], KI, PA, RMI, TV, WF);

- **An increased number of EPR programmes for used oil**
  (2014 baseline of 2 programmes, 2020 target of 3 programmes, 4 recorded for 2020 in NC, PA, SA, TV);

- **Increased (average) national waste collection coverage**
  (2014 baseline of 68%, 2020 target of 70%, 74% recorded for 2020);

- **An increased (average) waste recycling rate**
  (2014 baseline of 32%, 2020 target of 60%, 60% recorded for 2020);

- **An increased number of national environmental monitoring programmes**
  (2014 baseline of 3 programmes, 2020 target of 5 programmes, 11 recorded for 2020 in AS, CNMI, CI, FSM, FP, GU, PA, RMI, SA, SI, TV); and

- **An increased number of national chemicals and pollution inventories**
  (2014 baseline of 2 inventories, 2020 target of 3 inventories, 4 recorded for 2020 in FSM, KI, PNG, SA).

Based on these performance indicator results it was evident that some progress was made towards achieving all four CP2025 strategic goals: (1) prevent and minimise generation of wastes and pollution, (2) recover resources from wastes and pollution, (3) improve life-cycle management of residuals, and (4) improve monitoring of the receiving environment. However, with six (of twenty) performance indicators not meeting their 2020 targets (see below for further details), it is clear that further progress in some areas is required.
Pacific island countries benefited from leadership, technical support and capacity-building provided, or facilitated by, SPREP and JICA/J-PRISM I and II. Examples of some of the activities that were progressed at a national level with assistance from SPREP and/or JICA/J-PRISM include:

- **Development of waste/WCP (waste, chemicals, pollution) management strategies and plans – FSM (Chuuk, Kosrae, Pohnpei, Yap), KI (still in draft form), NA, PA, RMI (Kwajalein), SA, SI, TV, VU;**
- **Waste surveys/audits – FSM, PA, PNG, RMI, SA, SI, VU;**
- **Port waste reception facility gap analyses – FJ, SA, PNG, FP, NC, RMI;**
- **Container Deposit Programmes – FSM (Chuuk, Pohnpei - recommendations identified for improvement of existing CDP), RMI (establishment), SI, VU (feasibility studies);**
- **Establishment of national recycling associations – SA, SI, VU, FJ, TV;**
- **User-pays waste collection systems – FSM (Yap, implementation), SA (investigation/analysis), TO (implementation);**
- **Landfill design, operation and/or management training/workshops – FSM, PA, PNG, RMI, SI; and**
- **Disaster waste management training/workshops – FSM, PA, RMI, SA, SI, TO, TV, VU.**

In addition to the above, SPREP and JICA/J-PRISM published regional guidance covering topics such as development of solid waste management plans, waste surveys, landfill management, contract management (for private sector services), occupational health and safety, recycling, education and awareness-raising, in conjunction with local experts from FSM, FJ, PA, PNG, SI, TO, VU.
SPREP and JICA/J-PRISM also made significant progress in establishing regional partnerships and developing collaborative initiatives and coordination mechanisms through the Clean Pacific Roundtable and SPREP-led projects (e.g. PacWaste, GEFPAS). The good networks that have been established should be further utilised to promote the sharing of WCP management information and experiences, particularly with countries and territories that are lagging in CP2025 implementation.
Other notable successes were SPREP's publication of *Regulating Plastics in Pacific Island Countries: a guide for policymakers and legislative drafters*, and the *Pacific Regional Action Plan: Marine Litter 2018–2025*. Complementary to these publications, new or amended national laws addressing single-use plastics were introduced in FSM, FJ, GU, KI, NC, NI, PA, RMI and SA.
Some alignment was apparent between CP2025 implementation and the Sustainable Development Goals, with reasonable progress being made towards SDGs 11 (make cities and settlements inclusive, safe, resilient, sustainable), 12 (ensure sustainable consumption and production), and 14 (conserve and sustainably use the oceans, seas and marine resources), particularly in terms of increased national waste collection coverage (SDG 11), an increased regional recycling rate (SDG 12), and new national level laws and initiatives to address marine litter, particularly single-use plastics (SDG 14). However, there is a need to pursue greater alignment with other WCP-related SDGs, namely, 3 (ensure healthy lives and promote wellbeing) and 6 (ensure availability and sustainable management of water and sanitation) – see below for further details.

CP2025 implementation challenges and barriers

With the CP2025 mid-term review being heavily reliant on desktop research, and with there being limited direct input from countries and territories (partly due to COVID-19 travel restrictions, which prevented direct face-to-face engagement within the region), it was difficult to fully ascertain the CP2025 implementation challenges and barriers during the 2016–2019 period. Some key factors were identified, nonetheless, and these are summarised below.
Countries and territories without a WCP/waste management strategy or plan aligned with CP2025, typically made limited progress with CP2025 implementation. While these countries and territories may have pursued WCP initiatives, they were not necessarily linked to the strategic actions/activities of CP2025, and hence, they were difficult to identify and evaluate.
Another implementation barrier for some countries and territories was the absence of a national steering/coordinating committee for WCP management, to provide effective oversight and ensure that WCP management activities were regularly monitored and reported. In combination, WCP/waste management strategies or plans and national steering/coordinating committees are important for helping countries and territories to identify progress gaps and to prioritise resourcing, and they also encourage implementation accountability to national governments, regional partners and donors.
Limited dedicated WCP resources at a national level is an ongoing issue for most countries and territories, and this had implications for CP2025 implementation between 2016 and 2019. With

limited national level capacity, it is suspected that the focus was sometimes more on short-term donor-funded projects (e.g. PacWaste, GEFPAS, Ridge to Reef, INTEGRE), rather than on CP2025 more broadly.
Resourcing shortfalls for some countries were partly addressed through the technical support provided by SPREP and JICA/J-PRISM, and through financial support from donors such as UNEP, European Union, Australia, New Zealand, Japan and France. Countries and territories that did not receive dedicated support from the two main regional implementation partners, SPREP and JICA/J-PRISM, typically lagged in implementation.
Another challenge for countries and territories was related to the political nature of some activities, e.g. establishment of new legislation and/or mechanisms for Container Deposit Programmes and Extended Producer Responsibility schemes. Activities such as this cannot always be implemented quickly, even where clear technical guidance has been provided, as they tend to require high-level government deliberation and sometimes extensive consultation with the private sector, before implementation support can be secured.
Effective monitoring and reporting was a big challenge during the 2016 to 2019 implementation period, at both regional and national levels. SPREP indicated that the development of a monitoring and reporting system, as prescribed under the CP2025 monitoring and evaluation framework, was put on hold due to limited availability of human and financial resources. SPREP staff were juggling country assistance requests and project-related activities (including project-specific monitoring and reporting), and found it difficult to prioritise CP2025 monitoring and reporting. Without regional guidance from SPREP, there was no routine CP2025 monitoring and reporting at a national level. It should be noted, however, that Tuvalu and Vanuatu both completed regular monitoring and reporting against their national WCP strategies/plans.
In the absence of a formal monitoring and reporting mechanism for CP2025, neither SPREP nor the countries and territories were really held accountable for implementation between 2016 and 2019. In turn, this meant that there was no evidence-based means for identifying corrective actions that needed to be taken, or additional support mechanisms required, to improve CP2025 implementation during the first phase of the strategy. The lack of a monitoring and reporting system resulted in significant data gaps at the time of the CP2025 mid-term review, and also some of the available data being of poor quality due to the application of inconsistent monitoring/analysis methods across the region. Data confidence was deemed to be 'low' for almost half (eight) of the twenty performance indicators, and there was no/insufficient data for evaluating the performance of six indicators. Additionally, the CP2025 progress rating of some countries was impacted due to their lack of data for the CP2025 performance indicators (e.g. PA, PNG, RMI, SI, VU).
Limited resources and funding hampered the progression of a number of activities under IP 2016–2019. These included training for ODS capture and management, used oil management and biosecurity waste management; and a regional assessment of the status of liquid waste management. Liquid waste/wastewater management is not typically a priority area for SPREP, and activities in this area (e.g. infrastructure improvements) tend to require significant financial investment. There is, nonetheless, a recognised need to improve liquid waste/wastewater management as part of working towards the CP2025 vision of "A cleaner Pacific environment", but this area will require specific attention and support from donors to enable it to be progressed.

CP2025 implementation gaps and opportunities

At a regional level, six (of twenty) performance indicators did not meet their 2020 targets, these were:

- **No. of marine pollution incidents**
  (target of 0, 5 incidents recorded in FJ, NC, PNG [2], SI);

- **No. of port waste reception facilities**
  (target of 10, 5 facilities recorded in FJ, FP, NC, PNG, SA – no change from the 2014 baseline);

- **No. of PICTs with national, state or municipal composting programmes**
  (target of 17, 14 recorded in AS, FSM, FJ, FP, GU, NA, NI, PA, PNG, RMI, SA, SI, TV, VU);

- **No. of national EPR programmes for e-waste (target of 5, 2 programmes recorded in NC, SA);**
- **No. of PICTs with national, state or municipal user-pays systems for waste collection (target of 14, 13 user-pays systems recorded in AS, FSM, FJ, GU, KI, NA, NC, PA, PNG, RMI, SI, TO, VU); and**
- **Quantity of used oil stockpiles (target of 1480 m^3, 4866 m^3 recorded).**

The above suggests that there is further work to be done in the areas of marine pollution prevention and control; organic waste, e-waste and used oil management; and establishment of user-pays systems for waste collection.

Based on progress results from the national level CP2025 assessments, some of the broad areas requiring further work that were identified include:

- **Development/expansion of routine monitoring and reporting, e.g. for WCP management activities and the receiving environment – relevant to all countries and territories;**
- **Development/finalisation of integrated WCP strategies/policies and action plans aligned with CP2025 – particularly relevant to AS, CNMI, FJ, FP, KI (current draft very close to finalisation), NC, NI, PNG, RMI, TK, TO, WF, but also to FSM and VU, as their current strategies/plans end in 2020. It should also be noted that SI, TV and VU were the only countries that developed and endorsed integrated WCP strategies/policies between 2016 and 2019 (i.e. strategies/policies covering waste streams beyond solid waste, including hazardous wastes such as used oil, healthcare waste, chemicals, liquid waste, e-waste, asbestos). Where feasible, countries and territories should be encouraged to develop integrated WCP strategies/policies to ensure more complete alignment with the scope of CP2025;**
- **Development of practical and enforceable WCP legislation – particularly relevant to Nauru and Papua New Guinea;**
- **Development of public-private partnerships e.g. for container deposit, EPR and recycling programmes – particularly relevant to AS, CNMI, CI, FSM, FJ, GU, NA, NI, PA, PNG, RMI, TO, WF;**
- **Implementation of WCP prevention and reduction programmes – relevant to all countries and territories;**
- **Management of hazardous waste, including development of inventories – relevant to all countries and territories;**
- **Improvement of WCP management infrastructure, working towards sustainable operation and maintenance – particularly relevant to AS, CNMI, CI, FSM, FP, GU, KI, NC, NI, PA, RMI, SA, SI, TV, VU; and**
- **Development/implementation of WCP education and behavioural-change programmes – particularly relevant to FSM, SA, SI, TK, TV, VU.**

The importance of national WCP steering/coordinating committees was referred to under implementation challenges and barriers. Further consultation should take place with countries and territories (except with GU, PNG, SA, TV, who have active national committees), to confirm if committees are in place, if they need to be established, and if establishment assistance is required.

A number of specific activity gaps were identified as part of assessing progress against the 124 activities in IP 2016–2019. Key activities that should be considered for the second implementation phase of CP2025, especially in light of the CP2025 performance indicator results and the broad areas for further work referred to above, include: development of national disaster waste management plans; updating of national oil spill contingency plans; development of public-private partnerships to support waste management initiatives (e.g. EPR, container deposit, recycling); implementation of national measures to restrict and regulate the importation, handling, storage and sales of hazardous substances; evaluation and scaling up of organic waste recycling programmes; and development of WCP equipment and maintenance capacity.

Recognising the significant data gaps that exist across all countries and territories, and the low data confidence for eight (of twenty) CP2025 performance indicators, there is a clear need to support and prioritise CP2025 monitoring and reporting. This can be done through establishing mechanisms and guidelines for the collection, analysis and storage of relevant data (e.g. templates, databases); through standardising data collection and analysis methodologies across all countries and territories, as well as regional partners and donors (especially for indicators like municipal solid waste generation per capita, waste recycling rate, waste collection coverage); and through providing national level capacity-building for monitoring and reporting, where it is needed.

It is understood that SPREP and JICA/J-PRISM II are doing work to help countries and territories undertake regular and consistent monitoring and reporting – this should definitely be continued, and may benefit from additional donor support. Adopting proposed revisions for some of the performance indicators, baselines and targets; and closely reviewing the national WCP monitoring and reporting frameworks established by Tuvalu and Vanuatu, may also assist with establishing a more robust CP2025 monitoring and reporting framework.

In terms of CP2025 and linkages with WCP-related SDGs, further consideration needs to be given to addressing SDGs 3 (ensure healthy lives and promote wellbeing) and 6 (ensure availability and sustainable management of water and sanitation), in terms of implementation of relevant activities and also SDG-focused monitoring and reporting, to clearly demonstrate progress is being made. Evidence of progress is currently limited for SDGs 3 and 6, although relevant work is certainly being done (e.g. SDG 3: air quality studies in FJ, SI, NC; SDG 6: secondary wastewater treatment capacity in CNMI, FJ, FP, GU, NC, SA and regular water quality monitoring in AS, CNMI, CI, FSM, FP, GU, PA, RMI, SA, SI, TV).

IP 2016–2019 assessment, and recommendations for IP 2021–2025

IP 2016–2019 was ambitious in its scope (124 activities), and did not include a practical framework for progress monitoring and assessment (20 overarching performance indicators linked to the CP2025 strategic goals, plus 124 activity-linked KPIs not linked to the strategic goals). It is thus unsurprising that no progress was made with almost one-third (39 or 31%) of the activities listed in IP 2016–2019. Good progress was achieved for 30 activities (24%), and limited progress was achieved for 55 (44%) of activities. On the basis of these latter figures, 30 to 40 activities is deemed to be a reasonable estimate of the number of activities that can be feasibly implemented with full effect, within a four-year period.

It is strongly recommended that a streamlined approach be adopted for IP 2021–2025. The over-arching CP2025 performance indicators should be the primary means for assessing implementation progress, as they are clearly linked to CP2025's strategic goals and allow for focused and achievable performance evaluation at both regional and national levels. The effectiveness and validity of some of the current performance indicators is, however, reduced by unclear or incorrectly calculated baselines, data analysis variability, and limited data availability. Some indicators will benefit from revision to support more robust monitoring and reporting (see Table 3 in section 4.1.1 and Appendix 2 for further details and suggestions). Revised (or new) performance indicators must be clear and meaningful, with realistic targets.

IP 2021–2025 should focus on a limited number of high-priority activities that address key implementation gaps, as well as current priority issues for Pacific island countries and territories (i.e. activities which countries/territories are already focused on progressing, or which they are particularly keen to progress over the next few years). Some starting points for identifying high-priority activities are the activity gaps listed in Table 4, section 4.1.2, and the strategic actions requiring further work listed in Table 8, section 4.2.3, (also referred to in the previous section, implementation gaps and opportunities). It will be important to ensure that all activities are logically linked to CP2025's performance indicators and strategic goals, so they can effectively advance progress towards these. This linkage will also allow for more straightforward progress monitoring and assessment.

Given the complexity that exists across the region there will always be a degree of tension between developing a regional implementation plan with appropriately-detailed activities, but ensuring that

there is sufficient scope for activities to be tailored at a national level to address the specific needs of different countries and territories. A mix of prescriptive, detailed activities for a sub-set of Pacific island countries and territories, and broader activities applicable to all, with sufficient scope for national level tailoring, is likely to be required.

CP2025 strategic goals 1 (prevent and minimise generation of wastes and pollution), 2 (recover resources from wastes and pollutants), and 3 (improve life-cycle management of residuals) remain relevant and valid for IP 2021–2025. Strategic goal 4 (improve monitoring of the receiving environment) is limited in scope. Strategic goal 4 should be revised to "improve monitoring and reporting", to encompass monitoring and reporting for both WCP management activities and the receiving environment.

Background and objectives

The Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025 (CP2025) is a comprehensive, long-term strategy for waste management and pollution prevention and control in the Pacific islands region. It was developed in consultation with SPREP's twenty-one Pacific island members along with financial and technical support from the Japan International Cooperation Agency (JICA). CP2025 outlines four strategic goals and fifteen strategic actions to address priority waste and pollution issues in the region. SPREP and Pacific island countries and territories are responsible for the delivery of these actions, with deliverables articulated in the 2016–2019 CP2025 Implementation Plan (IP 2016–2019).

With the first implementation phase for CP2025 now ended, SPREP requested that a mid-term progress review be completed in line with CP2025's monitoring and evaluation framework. This mid-term review report thus addresses two main objectives, to:

1. **Verify and evaluate CP2025 implementation progress from 2016–2019; and**
2. **Identify necessary corrective actions and strategic recommendations for the second half of the CP2025 implementation period, 2021–2025, to form the basis of a revised Implementation Plan.**

Methodology

Overview

The CP2025 mid-term review involved 5 main activities:

1. **Desktop review of regional strategies and plans; national legislation, policies, strategies, plans and websites; technical, project, meeting and workshop reports; and international frameworks relevant to waste management and pollution control (refer to Appendix 6 for a list of documents reviewed);**
2. **Based on the desktop review, assessment of CP2025 implementation progress at a regional and national level,[116] and assessment of progress towards the Sustainable Development Goals (further details below);**
3. **Distribution of the regional assessments to SPREP, UNEP and JICA; and distribution of the national assessments to SPREP, UNEP and the twenty-one Pacific island countries and territories for review, validation and/or input of additional information;**
4. **Skype meetings with SPREP and UNEP to support the design and delivery of the mid-term review, and with government officials from Pacific island countries and territories to support data collection and validation (refer to Appendix 7 for a record of stakeholder consultation); and**
5. **Identification of implementation successes, challenges, gaps and opportunities; and strategic recommendations to enhance the delivery and regional relevance of CP2025, and to inform a revised Implementation Plan for 2021–2025.**

All consultation was conducted remotely due to the mid-term review being completed during the COVID-19 pandemic.

Regional progress assessment

The 2016–2019 Implementation Plan included two levels of performance assessment: (1) twenty overarching performance indicators linked to CP2025's four strategic goals, and (2) 124 key performance indicators (KPIs) linked to 124 activities (note, the KPIs did not correspond directly to the CP2025 strategic goals). To account for this complexity, the regional level progress assessment examined:

1. **The twenty performance indicators and four strategic goals in CP2025**
    - **the 2020 status of the performance indicators was assessed at a regional level, with reference to 2014 baseline data;**
    - **progress towards achieving the strategic goals was determined, based on the 2020 status of linked performance indicators; and**
    - **the relevance and suitability of the performance indicators and strategic goals was evaluated for the next CP2025 implementation period, 2021–2025.**

49)

2. **The fifteen strategic actions, 124 activities and 124 key performance indicators (KPIs) in IP 2016–2019**

[116] The regional and national level progress assessments focused on analysis of activities and achievements within the scope of IP 2016–2019.

- **The 124 activities were evaluated with reference to their KPIs, and given a rating of:**
  - **'good progress' – activity completed, or clear KPI-based evidence of progress, and/or ≥ half of the priority PICTs progressed the activity;**
  - **'limited progress' – activity progress was made but could not be easily assessed against the KPI, or < half of the priority PICTs progressed the activity; or**
  - **'no progress' – no evidence for activity progress reported by lead agencies, or no evidence found during the desktop review**
- **across the fifteen strategic actions, areas requiring further effort were identified, based on the activity assessments.**

National progress assessments

Individual progress assessments were completed for each of the twenty-one Pacific island countries and territories for the initial implementation phase of CP2025, 2016–2019. Assessment comprehensiveness varied between countries and territories depending on data and information available at the time of the CP2025 mid-term review (April–July 2020).

Each national level progress assessment examined:

1. **Waste, chemicals and pollution (WCP) legislation, policies, strategies, plans**
   - **the status of WCP legislation,[117] policies, strategies and plans at the commencement of CP2025 (2016) was compared with their 2020 status.**

50)

2. **The twenty performance indicators in CP2025**
   - **the 2020 status of the performance indicators was assessed at a national level, with reference to 2014 baseline data.**

51)

3. **The fifteen strategic actions and relevant, linked activities[118] in IP 2016–2019**
   - **activities progressed by countries and territories were documented for each of the fifteen strategic actions; and**
   - **based on the number of activities progressed/not progressed, the strategic actions were assigned a 'good progress', 'limited progress' or 'no progress' rating at a national level.**

Progress assessment results were then reviewed across 1 (WCP legislation, policies, strategies, plans), 2 (CP2025 performance indicators), and 3 (strategic actions and activities), and five activity areas requiring further work were identified for each country or territory. An overall CP2025 progress rating of 'good', 'fair' or 'limited' was also assigned to each country or territory (explained in Table 1).

52)

TABLE 2: RATINGS AND CRITERIA FOR DETERMINING CP2025 PROGRESS AT A NATIONAL LEVEL

Progress rating	Criteria
Good	≥ 5 (out of 20) performance indicators improved* AND Good and/or limited progress achieved for ≥ 8 (out of 15) strategic actions
Fair	≥ 5 (out of 20) performance indicators improved* AND Good and/or limited progress achieved for < 8 (out of 15) strategic actions OR < 5 (out of 20) performance indicators improved* AND

[117] Assessment of national legislation was preliminary, and involved briefly examining whether different waste, chemicals and pollution categories are listed or broadly referred to under national laws or regulations. A detailed analysis of definitions, specific legislative provisions, state and local laws, and the extent to which laws are being enforced, was beyond the scope of the CP2025 mid-term review.

[118] IP 2016–2019 listed multiple activities under each strategic action, with some activities to be led by PICTs and some to be led by SPREP and its regional partners. The national level progress assessments focused on PICT-led activities only. The number of relevant, linked activities under each strategic action varied between PICTs, with some activities prioritised for all PICTs and others prioritised for a subset of PICTs. In a few instances some PICTs completed activities beyond their priority list. These non-priority activities were recorded, to capture all CP2025 implementation progress.

	Good and/or limited progress achieved for ≥ 8 (out of 15) strategic actions
Limited	< 5 (out of 20) performance indicators improved* AND Good and/or limited progress achieved for < 8 (out of 15) strategic actions

*The low assessment threshold for performance indicators accounts for the data gaps that still exist across all PICTs.

Sustainable Development Goals (SDGs) assessment

Following the regional and national level CP2025 progress assessments, progress towards the SDGs was assessed, based on a review of pertinent CP2025 performance indicators and relevant activities progressed under IP 2016–2019.

Data limitations

The latest and most comprehensive data available, were collated and analysed for the CP2025 mid-term review. Some of the data and information originated from primary sources, but secondary sources were also used.[119] Limitations with the data include: varying methodologies for data collection and analysis; datasets from different time periods; partial or no data available for some of the indicators; inconsistent coverage of urban and rural areas; outdated data (especially in the case of national websites); and difficulties determining if some project-based activities/initiatives have continued, if they were ultimately successful, and what outcomes were achieved.

Notations have been used throughout this report for transparent data collation and analysis. In some cases it is difficult to draw definitive conclusions about CP2025 progress, given the data limitations. Despite this, the report collates information from a range of sources across the region, provides a comprehensive assessment of CP2025 progress to date, and identifies clear recommendations for moving forward with CP2025 implementation. One of the recommendations (detailed below) relates to the need for standardised monitoring and reporting at both national and regional levels. This recommendation, if addressed, should help to overcome some of the data limitations outlined here. It is understood that both SPREP and JICA are currently developing methods and building capacity to facilitate improved data collection, monitoring and reporting at national and regional levels.

[119] https://www.library.unsw.edu.au/study/information-resources/primary-and-secondary-sources

Results and discussion

Regional progress assessment

Twenty performance indicators and four strategic goals in CP2025

Detailed information for, and analyses of, the CP2025 performance indicators is provided in Appendix 2, including notes on data availability and data confidence, and also recommendations for strengthening the indicators to support robust tracking of CP2025 performance across time.
Appendix 1 collates performance indicator data across the twenty-one Pacific island countries and territories. The data are summarised at a regional level in Table 2, below.
During assessment of the performance indicator data it was found that:

- **Calculation/determination of two of the 2014 indicator baselines was unclear, so the baselines and their associated 2020, 2025 targets were recalculated using a clearly defined method;**
- **One additional 2014 indicator baseline and its associated 2020, 2025 targets needed to be recalculated using a revised method to allow for "like for like" comparisons with 2020 data;**
- **Calculation of one 2014 baseline was incorrect, so it was revised; and**
- **Three of the indicators were difficult to evaluate due to data limitations, uncertainties or ambiguities, so the indicators were rephrased to allow for meaningful analyses.**

The revised indicators, baselines and targets are referred to throughout this report, where appropriate. Table 2 provides a regional level overview of progress between 2014 and 2020, with regard to the four strategic goals and twenty performance indicators from CP2025. In summary:

- **Strategic goal 1, *Prevent and minimise generation of wastes and pollution and their associated impacts*: 1 indicator exceeded the 2020 target (municipal solid waste generation per capita);[120] and 2 indicators did not meet their targets.**
- **Strategic goal 2, *Recover resources from waste and pollutants*: 2 indicators exceeded their 2020 targets (container deposit programmes, EPR programmes for used oil); 1 indicator met the target (waste recycling rate); and 2 indicators did not meet their targets.**
- **Strategic goal 3, *Improve life-cycle management of residuals*: 1 indicator exceeded the 2020 target (national waste collection coverage); 2 indicators did not meet their targets; 6 indicators had no or insufficient data; and a new baseline was established for 1 indicator.**
- **Strategic goal 4, *Improve monitoring of the receiving environment*: 2 indicators exceeded the 2020 target (water or environmental quality monitoring).**

Overall, progress has been made towards achieving all four strategic goals, and in particular, strategic goal 4, with both indicators exceeding their targets. There is, however, considerable work to be done overall, given only 7 of 20 performance indicators exceeded or met their 2020 targets. Efforts need to be made to improve data collection for the indicators related to strategic goal 3 – this is likely to be assisted by revising some of the indicators, as per recommendations detailed in Appendix 2 and discussed further, below.

[120] In the case of the performance indicator, municipal solid waste generation per capita, "exceeding the target" means that the 2020 actual value was actually lower than the 2020 target value. Ideally, MSW (kg/person/day) should be decreasing over time.

TABLE 3: PERFORMANCE INDICATORS AND TARGETS FOR CP2025

VISION	A cleaner Pacific environment
MISSION	To implement practical and sustainable solutions for the prevention and management of waste and pollution in the Pacific

STRATEGIC GOALS	PERFORMANCE INDICATORS[1] Exceeded target / Met target / Did not meet target / No / insufficient data / New baseline	2014 baseline	2020 target	2020 actual	2025 target	Data confidence[6]
1. Prevent and minimise generation of wastes and pollution and their associated impacts	Per capita generation of municipal solid waste (kg/person/day)	1.3	1.3	1.2	1.2[A]	Low
	No. of marine pollution incidents	6	0	5[a]	0	Low
	No. of port waste reception facilities	5	10	5[b]	10[A]	High
2. Recover resources from wastes and pollutants	Waste recycling rate (=amount recycled, reused, returned/amount recyclable) (%)	32[A]	60	60	75	Low
	No. of PICTs with national, state or municipal composting programmes[2]	15[A]	17[A]	14[c]	18[A]	Medium
	No. of national or state container deposit programmes	4	7	8[d]	10	High
	No. of national Extended Producer Responsibility programmes for used oil	2	3	4[e]	10	Medium
	No. of national Extended Producer Responsibility programmes for e-waste	1	5	2[f]	8	Medium
3. Improve life-cycle management of residuals	No. of PICTs with national, state or municipal user-pays systems for waste collection[2]	9	14	13[g]	21	High
	Waste collection coverage (% of national population)[3]	68[A]	70[A]	74	75[A]	Medium
	Waste capture rate (= amount collected/amount generated) (%)	Insuff. data	Est. baseline & targets	46	50[A]	Low
	No. of temporary, unregulated and open dumps[4]	> 250 / 333[B]	237 / 316[B]	Insuff. data	225 / 300[B]	Low
	Quantity of asbestos stockpiles[4, 5] (m^2)	> 187,891	159,700	Insuff. data	131,500	Low
	Quantity of healthcare waste stockpiles (tonnes)	> 76	< 20	ND	0	NA, updated data unavailable
	Quantity of e-waste stockpiles (tonnes)	Insuff. data	Est. baseline & targets	Insuff. data	Est. baseline	Low
	Quantity of used oil stockpiles (m^3)	2,961[A]	1,480	4,886	1,480[A]	Medium
	Quantity of pharmaceutical and chemical stockpiles (tonnes)[4]	Insuff. data	Est. baseline & targets	ND	Est. baseline & targets	NA, no data
	Urban sewage treated to secondary standards (%)[4]	65	Est. after regional assessment	ND	Est. after regional assessment	NA, no data
4. Improve monitoring of the receiving environment	No. of PICTs with water or environmental quality monitoring and reporting programmes[2]	~ 3	5	11[h]	14[A]	Medium
	No. of national chemicals and pollution inventories[4]	2	3	4[i]	6	Low

1 = performance indicators are colour-coded based on whether the 2020 target was exceeded, met, or not met; there was no/insufficient data for target assessment; or a new baseline was established in 2020; 2 = phrasing revised for the performance indicator; 3 = only national waste collection coverage is reported here, but Appendix 1 also has data for urban waste collection coverage – 88% coverage in 2020, which is below the target of 100%; 4 = it is recommended that this indicator be changed/removed from the next CP2025 implementation plan, due to data uncertainties or limitations (see Appendix 2 for details); 5 = it is inaccurate to use the term "stockpiles" for asbestos in the Pacific, as it is still very much a part of houses and buildings, and in some instances, occurs as large amounts of broken debris on the ground; 6 = data confidence is based on data availability and underlying data variability, refer to Appendix 2 for details; a = marine pollution incidents recorded for FJ (1), NC (1), PNG (2), SI (1); b = port waste reception facilities in FJ, FP, NC, PNG, SA; c = composting programmes identified in AS, FSM, FJ, FP, GU, NA, NI, PA, PNG, RMI, SA, SI, TV and VU; d = operational CDPs identified in FSM (Kosrae, Pohnpei, Yap), KI, PA, RMI, TV and WF; e = used oil EPR programmes identified in NC, PA, SA and TV; f = e-waste EPR programmes identified in NC and SA; g = user-pays waste collection systems identified in AS, FSM, FJ, GU, KI, NA, NC, PA, PNG, RMI, SI, TO and VU; h = monitoring programmes identified in AS, CNMI, CI, FSM, FP, GU, PA, RMI, SA, SI and TV; i = chemicals/pollution inventories identified in FSM, KI, PNG and SA; NA = not applicable; ND = no data; A = revised baseline or target; B = CP2025 reports two different sets of figures for the 2014 baseline and the 2020, 2025 targets.

Data confidence was evaluated for all performance indicators, based on data availability across all countries and territories, and an assessment of underlying data variability. Data confidence was deemed to be 'low', 'medium' and 'high' for 8, 6 and 3 indicators, respectively. Data confidence could not be determined for 3 indicators due to data limitations. Further work is required to improve data confidence, through (1) supporting and prioritising monitoring and reporting for WCP management (i.e. data collection, analysis and secure storage), across all Pacific island countries and territories; and (2) standardising data collection/analysis methodologies across countries and territories, regional partners and donors (especially for indicators like municipal solid waste generation per capita, waste recycling rate, waste collection coverage).

A detailed review of the performance indicators (Appendix 2), identified five indicators with considerable data limitations, i.e. incomplete or no data available, or uncertainties about data accuracy and calculation of baselines. Based on these findings, proposed performance indicator changes are summarised in Table 3 for the 2021–2025 Implementation Plan.

In line with the proposed changes to the performance indicators associated with strategic goal 4, it is proposed that the goal be revised to, "improve monitoring and reporting", so that it encompasses monitoring and reporting for the environment and also for WCP management activities. Strategic goals 1, 2 and 3 remain relevant and valid and do not require revision.

TABLE 4: PROPOSED CHANGES TO CP2025 PERFORMANCE INDICATORS

Original indicator (linked strategic goal)	Revised indicator (linked strategic goal)	Justification
No. of temporary, unregulated and open dumps (SG 3)	No. of PICTs with regularly monitored and maintained, climate-proof waste disposal facilities (SG 3)	Uncertain 2014 baseline and incomplete 2020 dataset, with questionable data accuracy. Revised indicator will reveal how PICTs are progressing with improving or maintaining their SWM infrastructure facilities. It should be supported by a clear explanation and a set of criteria to facilitate consistent monitoring and reporting across all PICTs.
Quantity of asbestos stockpiles, m^2 (SG 3)	No. of national strategies for safe and effective asbestos management and remediation (SG 3)	Asbestos in the Pacific is mostly part of houses and buildings, or occurs as broken debris – stockpiles do not typically exist. Determination of the 2014 baseline is highly uncertain and cannot be easily compared with more recent data for quantities of asbestos removed from countries. Revised indicator is based on recommendations from the PacWaste asbestos surveys and will indicate how PICTs are progressing with asbestos management.
Quantity of pharmaceutical and chemical stockpiles, tonnes	No revision, remove from Implementation Plan	No data available for 2014 or 2020. Pharmaceutical waste is a category of healthcare waste, so it is effectively included under the indicator, "Quantity of healthcare waste stockpiles".
Urban sewage treated to secondary standards, % (SG 3)	No. of PICTs providing secondary or better wastewater treatment (SG 3)	It is unclear how the 2014 baseline was determined (no reference provided in CP2025). The Pacific Water and Wastewater Association does collate data for percentage of sewage treated to primary and secondary standards across PICTs, but reporting is inconsistent and does not appear to be entirely accurate. Revised indicator will reflect wastewater management capacity and quality, and infrastructure upgrades over time.
No. of national chemicals and pollution inventories (SG 3)	No. of PICTs with WCP monitoring and reporting programmes (SG 4)	It is unclear how the 2014 baseline was determined. Broader, more comprehensive WCP monitoring and reporting programmes should be implemented in line with the regional WCP monitoring system being developed by SPREP and partners. A broader programme could encompass WCP services, infrastructure, stockpiles, waste generation rates, recycling, compliance monitoring and enforcement activities.
–	No. of endorsed and current national strategies/policies for waste management, with monitoring and reporting frameworks (SG 4)	This is a new indicator. CP2025 and the IP 2016–2019 do not include an indicator that reflects the development and endorsement of national strategy/policy frameworks.

Fifteen strategic actions, 124 activities and 124 KPIs in IP 2016–2019

Appendix 3 details known progress for all fifteen strategic actions, 124 activities and 124 KPIs in IP 2016–2019. Table 4 provides a regional level summary of activity progress and gaps, based on the information in Appendix 3.

At a regional level it was found that good progress was achieved for 30 activities (24%), limited progress was achieved for 55 activities (44%), and there was no progress with 39 activities (31%). For 11 activities that were not progressed, SPREP indicated that there were no resources or funding to

support activity implementation (refer to Table 4, activities highlighted in blue). Arguably, many of these activities were not resourced or funded because they were not identified as being high priorities for the region, or for the 2016–2019 implementation period; or they were not practical to pursue, e.g. preparation of regional guidance for polluter-pays programmes, waste-to-energy systems, and WCP communication/education, may not provide the level of detail necessary or include appropriate contextualisation for effective implementation at a national level (which should be the ultimate end-goal).

Overall, some degree of progress was achieved across all strategic actions specified in IP 2016–2019, however, based on the activity assessments only strategic action 13 was effectively achieved: *SPREP, PICTs, and partners shall establish a regional Clean Pacific Roundtable (CPRT) to coordinate and facilitate waste management and pollution control dialogue and networking in the region*. A detailed analysis of CPRT outcomes has not been completed, but it is nonetheless evident that the CPRT has been an effective mechanism for bringing together countries and territories, regional partners and donors to discuss and examine progress with CP2025 implementation, and to share experiences with WCP management more broadly.

Least progress was made with strategic action 5: *PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes*. This strategic action encompassed 14 wide-ranging activities, addressing a range of issues from polluter-pays programmes, to durable white goods, imported used products, perishable goods, UPOPs, fishing gear, chemicals and hazardous substances. Like other strategic actions with a high number of associated activities (e.g. strategic actions 1, 2, 9 and 11), it is arguable that the list of activities could have been reduced through focusing on priority issues. In addition, a number of activities seemed to be unnecessarily split, and this added to the activity total (e.g. 5.2 Review regional guidance to identify suitable options for national implementation of polluter-pays programmes; 5.3 Undertake a national cost-benefit analysis of options to implement polluter-pays programmes; 5.4 Prepare a Cabinet paper on implementation of the recommendations of the cost-benefit analysis). Another issue is that some activities were unclear, with uncertainty surrounding their scope and the priority outcome(s) to be pursued (e.g. 5.12 establish a taskforce of stakeholders from the public and private sectors and civil society to develop and implement voluntary WCP reduction schemes in the private sector).

Looking across IP 2016–2019 with its total of 124 activities, it is apparent that the plan was over-ambitious from the outset, and it is unsurprising that no progress was made with almost one-third of the listed activities. The Implementation Plan for the next phase of CP2025 should be based on the activity gaps that have been identified through the review of IP 2016–2019 (see Table 4), but it needs to focus on issues that are high-priorities for the region, to ensure the plan is feasible and can effectively direct and utilise limited resources. Based on the activity gaps listed in Table 4, some issues and areas for further work that may be considered, include:

- **Regular, consistent monitoring and reporting at regional and national levels for WCP management activities, waste generation, hazardous waste, contaminated sites, WCP stockpiles, and the status of the receiving environment;**
- **Regional assessments by SPREP of marine pollution risk, the status of liquid waste management, and air pollution management;**
- **Development of national disaster waste management plans;**
- **Updating of national oil-spill contingency plans;**
- **Development/finalisation of integrated WCP strategies/policies and action plans for remaining countries/territories;**
- **Further development of public-private partnerships to support waste management initiatives e.g. EPR, container deposit and recycling;**
- **Implementation of national measures to restrict and regulate the importation, handling, storage and sales of hazardous substances;**
- **Evaluation and scaling up of organic waste recycling at a national level;**

- **Implementation of national policies and legislation to support collection, removal and disposal of legacy wastes;**
- **Development of WCP equipment and maintenance capacity within Pacific island countries and territories;**
- **Improvement of national WCP infrastructure and services (e.g. for chemicals and hazardous waste, liquid waste, biosecurity waste, waste collection services), incorporating sustainable financing measures;**
- **Regional assessment by SPREP of soil, water and air quality to identify specific areas for strategic monitoring intervention;**
- **Regional and national training/capacity development (e.g. ODS, mercury, used oil, biosecurity waste, disaster waste management; compliance monitoring, enforcement, prosecution; delivery of WCP education and awareness-raising); and**
- **Establishment of national WCP steering committees to support coordination and monitoring of WCP activities across responsible agencies.**

TABLE 5: REGIONAL LEVEL SUMMARY OF ACTIVITY PROGRESS AND GAPS IN THE DELIVERY OF IP 2016–2019[121]

Theme[122]	Strategic actions and activity summary (good, limited, no progress)[123]	Examples of activity progress[124]	Activity gaps[9, 125]
Strengthen institutional capacity	1. SPREP, PICTs and partners shall undertake regular WCP data collection and management (including storage, interpretation, dissemination and sharing) 3) 4) Good progress = 3 activities 5) Limited progress = 6 activities 6) No progress = 4 activities	• WCP assessment & inventory methods developed/published by SPREP, JICA, PRIF • Training on chemicals management and inventory development delivered to 441 individuals across 14 of 21 PICTs (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU) • Oil spill capabilities for all countries assessed in a regional score card • WCP assessments completed by 7 of 21 PICTs (CNMI, FSM, FJ, PA, RMI, SA, TV) • Data collection, monitoring and reporting programmes for either the receiving environment and/or WCP management activities implemented by 12 of 21 PICTs (AS, CNMI, CI, FP, FSM, FJ, GU, PA, PNG, RMI, SI and TV)	• Regular, consistent monitoring and reporting at regional and national levels for WCP management activities, waste generation, hazardous waste (including chemical stockpiles), and the receiving environment • Development and maintenance of a regional database by SPREP, including data for WCP management activities and the receiving environment • Regional assessments by SPREP of marine pollution risk, the status of liquid waste management, and air pollution management • Completion of port waste reception facility gap analyses (currently completed for 6 of 21 PICTs - Suva (FJ), Lautoka (FJ), Apia (SA), Port Moresby (PNG), Papeete (FP), Noumea (NC), Majuro (RMI)
	2. PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation, and strengthen institutional arrangements to support and promote best-practice WCP management Good progress = 2 activities Limited progress = 8 activities No progress = 4 activities	• 6 model guidelines/regulations prepared for the region addressing solid waste management, healthcare waste, e-waste, used oil, UPOPs, plastics • Institutional arrangement reviews for WCP management completed by 10 of 21 PICTs (CI, FSM, KI, PA, PNG, RMI, SA, SI, TV, VU) • New waste/WCP management policies, strategies, plans developed by 12 of 21 PICTs (CI, FSM, FJ, KI, NA, PA, PNG, RMI, SA, SI, TV, VU) • New WCP legislation introduced, or WCP legislation amended in 15 of 21 PICTs (AS, CNMI, FSM, FJ, FP, GU, KI, NC, NI, PA, RMI, SA, TV, VU, WF)	• Preparation of a regional template by SPREP to guide the development of national pollution prevention strategies (NATPOLs) • Development of national disaster waste management plans • Updating of national oil-spill contingency plans • Development and implementation of national licencing or certification programmes for WCP management service providers • Development/finalisation of an integrated WCP strategy/policy and action plan by AS, CNMI, FJ, FP, KI, NC, NI, PNG, RMI, TK, TO, WF
Promote public-private partnerships	3. SPREP, PICTs, and partners shall develop new public–private partnerships, including through strengthened frameworks Good progress = 1 activity	• Preparation of regional guidance by SPREP and JICA/J-PRISM II to support and enhance private sector participation in WCP management activities • Partnerships developed with private sector organisations to support WCP management by 9 of 21 PICTs (CI, FJ, FSM, RMI, SA, SI, TK, TV, VU)	• Further development of public-private partnerships to support waste management initiatives in PICTs e.g. EPR, container deposit and recycling. Potential PICTs to focus on include AS, CNMI, CI, FSM, FJ, GU, NA, NI, PA, PNG, RMI, TO, WF

[121] Refer to Appendix 3 for further details on progress achievements, progress gaps, and data sources, including details of the specific activities progressed under each of the fifteen strategic actions.
[122] The strategic actions were grouped under themes in CP2025. During the mid-term review it was determined that analyses were more meaningful at the level of strategic actions and activities, rather than themes.
[123] Good progress: activity completed, or clear KPI-based evidence of progress, and/or ≥ half of the priority PICTs have progressed the activity; limited progress: activity progress has been made but cannot be easily assessed against the KPI, or < half of the priority PICTs have progressed the activity; no progress: no evidence for activity progress reported by lead agencies, or no evidence found during the desktop review.
[124] The progress examples and gaps are based on the activities listed under each strategic action in IP 2016–2019. Activity gaps are informed by 'limited' or 'no progress' activities.
[125] The activities highlighted in blue were not progressed between 2016 and 2019 due to resources being unavailable to support activity implementation.

Theme[122]	Strategic actions and activity summary (good, limited, no progress)[123]	Examples of activity progress[124]	Activity gaps[9, 125]
	Limited progress = 4 activities No progress = 1 activity	• MoU signed between China Navigation Company (CNCo) and SPREP, known as the "Moana Taka Partnership", allowing for CNCo vessels to carry containers of recyclable waste from eligible Pacific island ports, pro bono	
Implement sustainable best practices in WCP management	4. SPREP, PICTs and partners shall implement best-practice occupational health and safety measures for formal and informal workers in the WCP management sectors Good progress = 1 activity Limited progress = 1 activity No progress = 1 activity	• Regional guidance for asbestos and healthcare waste completed and disseminated to 14 PICs during the PacWaste project (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU)[126]	• Implementation of national monitoring regimes for asbestos-containing and radioactivity-emitting materials
	5. PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes Good progress = 2 activities Limited progress = 3 activities No progress = 9 activities	• Draft Regional Scrap Metal Management Strategy developed by SPREP • New measures/initiatives to reduce waste arising from imported used products implemented by 13 of 21 PICTs (CNMI, CI, FSM, FJ, GU, NC, NI, PA, RMI, SA, SI, TV, VU) • At least 15 different forms of assistance provided by SPREP to PICs with UPOPs management, including investigation of used oil management issues, chemical management training, e-waste reviews, technical support/resourcing for national education and awareness-raising campaigns, baseline surveys of annual pesticide container importation rates	• Preparation of regional guidance by SPREP on options to implement polluter-pays programmes for sustainable WCP management • Preparation of regional guidance by SPREP on importation standards for durable energy-efficient products • Implementation of national measures to restrict and regulate importation, handling, storage and sales of hazardous substances
	6. PICTs, supported by SPREP and partners, shall implement resource-recovery programmes Good progress = 1 activity Limited progress = 5 activities No progress = 1 activity	• Organic waste recycling initiatives progressed by 6 of 21 PICTs (GU, NI, PA, PNG, TV, VU) • WCP/recycling education/awareness programmes delivered in schools by 11 of 21 PICTs (AS, CNMI, FJ, KI, PA, RMI, SA, SI, TV, VU and WF)	• Evaluation of existing resource-recovery initiatives by SPREP, with development of recommendations for improvements and potential replication across the region • Completion of a cost-benefit study of regional options for waste-to-energy systems • Implementation of practical EPR programmes at a national level • Evaluation and scaling up of organic waste recycling at a national level
	7. PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices Good progress = 1 activity	• Healthcare and asbestos waste surveys completed during the PacWaste project for 14 PICs (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU) • > 27,183 m^2 of asbestos removed from 78 sites, across 11 PICs during the PacWaste project (CI, FSM, FJ, KI, NA, NI, RMI, SA, SI, TO, VU) • 686 tonnes of waste (e.g. scrap metal, plastics, used oil, paper/cardboard) exported from PICs (FJ, PNG, RMI, SA) for treatment	• Compilation and maintenance of national datasets on verified contaminated sites and WCP stockpiles • Implementation of national policies and legislation to support collection, removal and disposal of legacy wastes

[126] PICs are referred to (rather than PICTs), for activities focused specifically on Pacific island countries.

Theme[122]	Strategic actions and activity summary (good, limited, no progress)[123]	Examples of activity progress[124]	Activity gaps[9, 125]
	Limited progress = 2 activities No progress = 1 activity	and recycling in suitable ports in the Asia-Pacific region through the Moana Taka Partnership • 17 incinerators installed and commissioned during the PacWaste project for disposal of healthcare waste stockpiles in 10 PICs (CI, FSM, FJ, KI, NA, NI, SI, TO, TV, VU); 1 incinerator repaired in RMI	
	8. PICTs, supported by SPREP and partners, will expand user-pay WCP collection services Limited progress = 3 activities 7) No progress = 1 activity	• Options for user-pays waste collection services implemented by 3 of 21 PICTs (FSM – Kosrae, RMI, TO) and investigated by 4 of 21 PICTs (FSM – Yap, PA, SA, TV)	• Investigation of options for user-pays waste collection services by remaining priority PICTs (as identified in IP 2016–2019) – FP, NI, PNG
	9. PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance Good progress = 4 activities Limited progress = 6 activities No progress = 4 activities	• Guidance on landfill management, 3R + Return disseminated by JICA/J-PRISM and SPREP • WCP assets assessed by 6 of 21 PICTs during the development of waste management strategies (FSM, PA, RMI, SA, TV, VU) • 13 dumps and landfills improved across 11 of 21 PICTs (CNMI, FSM, NC, PA, PNG, RMI, SA, SI, TO, TV, VU) • See healthcare waste incinerators example under strategic action 7	• Development of WCP equipment and maintenance capacity in PICTs • Identification and dissemination of market information for recyclable commodities, and appropriate transboundary facilities for hazardous wastes • Construction of national secure storage facilities for chemicals and hazardous waste management • Improvement of WCP infrastructure and services (e.g. for chemicals and hazardous waste, liquid waste, biosecurity waste), incorporating sustainable financing measures
	10. PICTs, supported by SPREP and partners, shall implement best-practice environmental monitoring and reporting programmes Good progress = 1 activity Limited progress = 2 activities No progress = 1 activity	• Environmental monitoring (water quality) implemented by 11 of 21 PICTs (AS, CNMI, CI, FSM, FP, GU, PA, RMI, SA, SI, TV) • Chemicals inventory training delivered for 14 PICs (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU) • Landfill operation and management training, incorporating monitoring and reporting, delivered for 6 of 21 PICTs (FJ, PNG, SA, SI, TV, VU)	• Regional assessment of soil, water and air quality (status, trends, monitoring capacity) to identify specific areas for strategic monitoring intervention • Expansion of national level environmental monitoring and reporting (including waste disposal site, waste and chemical stockpile, marine-debris monitoring)
Develop human capacity	11. SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders Good progress = 6 activities Limited progress = 6 activities No progress = 4 activities	• More than 450 individuals trained in-country by USP, in national, regional and international obligations under the Stockholm, Rotterdam, Basel and Waigani Conventions • Training delivered for PICs representatives on the London Dumping Convention/Protocol, MARPOL Annex V, Cape Town Agreement of 2012 • Asbestos handling training delivered for 10 of 21 PICTs during the PacWaste project (CI, FSM, FJ, KI, NA, NI, SA, SI, TO, VA) • More than 600 personnel from 32 hospitals and other agencies trained across 11 of 21 PICTs (SA, TO, VA, FJ, FSM, NA, PA, RMI, CI, PNG, SI) during the PacWaste project	• ODS capture and management training • Mercury management training • Used oil management training • Biosecurity waste management training • Disaster waste management training • Training on litigation, enforcement, compliance, monitoring and prosecution of WCP legislation

Theme[122]	Strategic actions and activity summary (good, limited, no progress)[123]	Examples of activity progress[124]	Activity gaps[9, 125]
Improve dissemination of outcomes and experiences in WCP management	12. SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural change programmes Good progress = 2 activities Limited progress = 4 activities No progress = 4 activities	• WCP communication and awareness-raising undertaken by 8 of 21 PICTs (CI, FSM, KI, NI, PA, RMI, SA, TV) • WCP best practice case studies developed by JICA/J-PRISM and SPREP with input from FJ, FSM, PA, PNG, SI, TO, VU • Community-based marine litter demonstration projects supported by SPREP in FJ, SA, SI	• Training for WCP departments in the development and delivery of WCP awareness materials and programmes • Development and dissemination of a model regional WCP communication plan • Development and dissemination of regional WCP education tool kits for primary, secondary and tertiary schools, and the private sector
Promote regional and national cooperation	13. SPREP, PICTs, and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution control dialogue and networking in the region Good progress = 4 activities Limited progress = 1 activity	• Two CPRTs successfully convened in 2016 (96 participants) and 2018 (170 participants) • All PICTs except CNMI, NC, NI and WF attended the 2016 CPRT, and all PICTs except CNMI attended the 2018 CPRT	• Resource allocation at a national level to support CPRT attendance costs
	14. SPREP, PICTs, and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities Good progress = 2 activities Limited progress = 3 activities No progress = 3 activities	• 17 of 21 PICTs hosted, coordinated or participated in WCP forums to promote experience-sharing and dissemination of best practices (AS, CNMI, FSM, FJ, GU, KI, NA, NC, PA, PNG, RMI, SA, SI, TO, TV, VU, WF) • Recycling associations established in SA, SI, TV, FJ and VU; and a Recycling Technical Working Group formed through the CPRT	• Establishment of national WCP steering committees to support coordination and monitoring of WCP activities across responsible agencies • Engagement with other regional organisations in WCP-related areas such as water and sanitation, transport, energy, disaster risk reduction, agriculture, tourism
	15. SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the *Integrated Regional Waste Management and Pollution Control Strategy 2016–2025* Limited progress = 1 activity No progress = 1 activity	• Regional monitoring form for solid waste management data developed by JICA (J-PRISM II), aligned with the performance indicators of J-PRISM II and CP2025, to support annual, national level monitoring and reporting in 9 PICs (FSM, FJ, PA, PNG, RMI, SA, SI, TO, VU)	• Preparation of annual national reports of WCP activities and outcomes, by PICTs (to be submitted to SPREP) • Preparation of annual regional reports of WCP activities and outcomes, by SPREP

National progress assessments

Key findings are reported below for the national level progress assessments detailed in Appendix 4 (note that some progress achievements and gaps for countries and territories are included above, in the regional level assessment).

Across the twenty-one Pacific island countries and territories, three achieved a 'good' progress rating for CP2025 implementation, eight achieved a 'fair' rating, and ten were assigned a 'limited' rating (Table 5). Ratings were based on an analysis of performance across the CP2025 performance indicators, and the fifteen strategic actions and linked activities in IP 2016–2019 (see section 3.3). The Federated States of Micronesia, Samoa and Tuvalu all made significant progress. Tuvalu's progress was particularly easy to measure and evaluate thanks to the monitoring and reporting that is now well-established under the *Tuvalu Integrated Waste Management Policy and Action Plan 2017–2026*.

TABLE 6: OVERALL CP2025 PROGRESS RATINGS FOR PACIFIC ISLAND COUNTRIES AND TERRITORIES

CP2025 progress rating	Achieved by
Good	FSM, SA, TV
Fair	CI, FJ, PA, PNG, RMI, SI, TO, VU
Limited	AS, CNMI, FP, GU, KI, NA, NC, NI, TK, WF

Waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

During the 2016–2019 implementation period, Tuvalu and Vanuatu were the only countries that developed an integrated national policy/strategy with an implementation plan and supporting legislation, for WCP management. The Solomon Islands developed an integrated WCP strategy and implementation plan, but no new legislation. Nauru, Palau and Samoa developed and endorsed new national strategies or plans, but they were mainly focused on solid waste.

The Cook Islands, Federated States of Micronesia and Guam had existing, endorsed and current national policies or strategies, focused primarily on solid waste. Fiji and Kiribati are known to have draft waste management strategies prepared, with the Kiribati strategy being close to finalisation and endorsement.[127]

Most countries and territories were found to have legislation in place addressing various WCP categories (e.g. solid waste, healthcare waste, liquid waste, chemicals, air pollution, plastics, container deposit and litter), however, Nauru and Papua New Guinea were identified as lacking an effective regulatory framework for solid waste. Nauru was also found to be lacking legislation across all WCP categories except for litter.

Between 2016 and 2019 the Federated States of Micronesia, Fiji, Guam, Kiribati, New Caledonia, Niue, Palau, Republic of the Marshall Islands and Samoa introduced new laws addressing single-use plastics.

Twenty performance indicators in CP2025

Table 6 provides a high-level summary of the performance indicator assessments across all countries and territories, based on comparing the 2014 baseline data with 2020 data, where available. The best performers in terms of performance indicator improvements, and/or maintenance of good performance indicator status, were:

- **Tuvalu (composting, container deposit programme, EPR for used oil and water quality monitoring operational; increased national waste collection coverage; decreased number of open dumps and used oil stockpile);**
- **Federated States of Micronesia (increased number of state container deposit programmes; increased national waste collection coverage; asbestos removed; decreased used oil stockpile; water quality monitoring, composting and user-pays waste collection operational);**

[127] It should be noted that the strategies/plans for the Federated States of Micronesia and Vanuatu reach the end of their implementation period in 2020, so they will need to be reviewed and re-developed to ensure there is appropriate national level guidance in place for the second implementation phase of CP2025.

- **Samoa (port waste reception facilities maintained; increased recycling rate; EPR programmes operational for used oil and e-waste; asbestos removed; used oil stockpile reduced to zero);**
- **Palau (EPR programme for used oil, user-pays waste collection, water quality monitoring, composting and container deposit programme operational; urban waste collection coverage maintained at 100%);**
- **Republic of the Marshall Islands (user-pays waste collection, container deposit programme and composting operational; increased urban waste collection coverage; asbestos removed);**
- **Vanuatu (increased waste collection coverage; asbestos removed; composting and user-pays waste collection operational; zero used oil stockpile maintained).**

Significant data gaps exist across all countries and territories, but particularly for the Commonwealth of the Northern Mariana Islands, French Polynesia, New Caledonia, Tokelau, Tonga, and Wallis and Futuna, who each had ≥ 15 performance indicators where no data was available, or progress was undetermined due to data being available for one year only. It should be noted, however, that these countries and territories did not provide direct input to the mid-term review, so this may partially explain their significant data gaps.

TABLE 7: SUMMARY OF CP2025 PERFORMANCE INDICATOR ASSESSMENTS ACROSS PACIFIC ISLAND COUNTRIES AND TERRITORIES, BASED ON COMPARING 2014 BASELINE AND 2020 DATA

Pacific island countries and territories	No. performance indicators improved	No. performance indicators unchanged/stable (No. of unchanged indicators reflecting positive progress)*	No. performance indicators deteriorated	No. of performance indicators, progress undetermined^	No. of performance indicators, no data available
American Samoa	2	6 (2)		4	8
Commonwealth of the Northern Mariana Islands	1	3		5	11
Cook Islands	2	7		6	5
Federated States of Micronesia	5	6 (2)		7	2
Fiji	1	5 (3)		10	4
French Polynesia	1	3 (2)		10	6
Guam		6 (4)		5	9
Kiribati	2	6 (2)	1	7	4
Nauru	3	6	1	3	7
New Caledonia		5 (4)		8	7
Niue	1	8 (2)	1	3	7
Palau	3	4 (3)	1	9	3
Papua New Guinea	1	8 (2)		7	4
Republic of the Marshall Islands	4	3 (1)	2	6	5
Samoa	5	4 (2)	1	3	7
Solomon Islands	3	5 (1)	1	6	5
Tokelau		4 (1)		9	7
Tonga	1	4 (1)		8	7
Tuvalu	7	4		7	2
Vanuatu	2	8 (3)	1	5	4
Wallis and Futuna	1	1		8	10

* In some cases unchanged/stable indicators actually reflect positive progress e.g. if an environmental monitoring, composting, container deposit or EPR programme was operating in 2014 and remains operational in 2020 (see Appendix 4 for further details).
^ Progress undetermined due to data being available for one year only.

Fifteen strategic actions and relevant, linked activities in IP 2016–2019

Table 7 summarises progress made by Pacific island countries and territories across the fifteen strategic actions, based on the number of linked activities that were progressed under each strategic action (see Appendix 4 for detailed activity lists). Key findings:

- **Tuvalu, Samoa and Papua New Guinea made relatively strong advancement with CP2025 implementation, achieving 'good progress' for 11, 9 and 8 strategic actions respectively; and**
- **French Polynesia, Kiribati, Nauru, New Caledonia, Niue, Tokelau, and Wallis and Futuna made the least advancement with progressing activities under the strategic actions.**

TABLE 8: SUMMARY OF FIFTEEN STRATEGIC ACTIONS AND ACTIVITY PROGRESS ACROSS PACIFIC ISLAND COUNTRIES AND TERRITORIES

Pacific island countries and territories	**No. strategic actions, 'good progress' (≥ half of linked** activities progressed)	No. strategic actions, **'limited progress'** (< half of linked activities progressed)	No. strategic actions, **'no progress'** (no linked activities progressed)
American Samoa	3 (resource recovery, environmental monitoring, CPRT participation)	4	8
CNMI*	2 (WCP data collection and management, environmental monitoring)	5	7
Cook Islands*	3 (development of WCP policies, environmental monitoring, CPRT participation)	5	6
Federated States of Micronesia*	5 (WCP data collection and management, WCP strategies and legislation development, environmental monitoring, human capacity development, CPRT participation)	5	4
Fiji*	2 (resource recovery, CPRT participation)	6	6
French Polynesia	2 (environmental monitoring, CPRT participation)	3	10
Guam*	3 (environmental monitoring, CPRT participation, national/regional cooperation)	4	7
Kiribati*	2 (CPRT participation, resource recovery)	5	7
Nauru*	1 (CPRT participation)	4	9
New Caledonia	1 (CPRT participation)	6	8
Niue	1 (CPRT participation)	5	9
Palau*	5 (WCP data collection and management, resource recovery, environmental monitoring, human capacity development, CPRT participation)	6	3
Papua New Guinea	8 (WCP data collection and management, WCP plans development, WCP stockpile management, environmental monitoring, human capacity development, WCP education, CPRT participation, national/regional cooperation)	2	5
Republic of the Marshall Islands*	5 (WCP data collection and management, resource recovery, environmental monitoring, human capacity development, CPRT participation)	6	3
Samoa	9 (WCP data collection and management, WCP strategies and legislation development, public-private partnerships, resource recovery, user-pays waste collection, environmental monitoring, human capacity development, CPRT participation, national/regional cooperation)	2	4
Solomon Islands	5 (WCP data collection and management, public-private partnerships, environmental monitoring, human capacity development, CPRT participation)	6	4
Tokelau*	1 (CPRT participation)	2	11
Tonga	5 (WCP plans development, user-pays waste collection, environmental monitoring, human capacity development, CPRT participation)	3	7
Tuvalu	11 (WCP data collection and management, WCP plans and legislation development, best practice OH&S, resource recovery, improvement of WCP infrastructure, environmental monitoring, human capacity development, WCP education, CPRT participation, CP2025 monitoring)	3	1
Vanuatu*	5 (WCP strategies and legislation development, resource recovery, human capacity development, CPRT participation, CP2025 monitoring)	5	4
Wallis and Futuna*	1 (CPRT participation)	4	9

* Activities under strategic action 8 were not applicable to this country/territory.

The ‘top five’ strategic actions requiring further work were identified for each country or territory, based on overall CP2025 progress assessment results. Table 8 summarises this strategic action gap analysis, with eight main strategic actions being identified across all countries and territories. Strategic action 2 is split in the table to emphasise the different activities that need to be pursued by specific countries and territories. As might be expected, the strategic actions identified at a national level reflect the actions/activities identified in the regional level assessment of progress gaps (see section 4.1.2). Note that strategic actions 1, 5, 7 and 10 were identified as areas that should be further progressed by most countries and territories, and it is actually recommended that they be further progressed by all, as they cover important aspects of CP2025 implementation.

TABLE 9: STRATEGIC ACTIONS IDENTIFIED AS REQUIRING FURTHER WORK FOR THE SECOND PHASE OF CP2025 (2021–2025), BASED ON COUNTRY AND TERRITORY PROGRESS ASSESSMENTS

Strategic actions[128]	**Identified for PICTs**
SA 1 & SA 10. Development/expansion of routine monitoring and reporting (e.g. for WCP management activities and the receiving environment)	AS, CI, FJ, FP, GU, KI, NA, NC, NI, PA, PNG, SA, SI, TK, TO, TV, VU, WF
SA 2. Development/finalisation of an integrated WCP strategy/policy and action plan that is aligned with CP2025, and includes a monitoring and reporting framework	AS, CNMI, FJ, FP, KI, NC, NI, PNG, RMI, TK, TO, WF
SA 2. Development of practical and enforceable WCP legislation	NA, PNG
SA 3. Development of public-private partnerships (e.g. for container deposit, EPR and recycling programmes)	AS, CNMI, CI, FSM, FJ, GU, NA, NI, PA, PNG, RMI, TO, WF
SA 5. Implementation of WCP prevention and reduction programmes	AS, CNMI, CI, FSM, FJ, FP, GU, KI, NA, NC, PA, PNG, RMI, SA, SI, TK, TO, TV, VU, WF
SA 7. Management of hazardous waste, including development of inventories	CNMI, CI, FSM, FJ, FP, GU, KI, NA, NC, NI, PA, RMI, SA, SI, TK, TO, TV, VU, WF
SA 9. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance	AS, CNMI, CI, FSM, FP, GU, KI, NC, NI, PA, RMI, SA, SI, TV, VU
SA 12. Development/implementation of WCP education and behavioural-change programmes	FSM, SA, SI, TK, TV, VU

Sustainable Development Goals assessment

Table 9 summarises progress towards achieving WCP-related Sustainable Development Goals (SDGs). At a regional level, limited data are available to measure progress against the SDG indicators. Evidence of progress is particularly limited for SDGs 3 and 6, although some progress has arguably been made. Clearer evidence of progress is available for SDGs 11, 12 and 14, particularly in terms of increased national waste collection coverage (SDG 11), an increased regional recycling rate (SDG 12), and new national level laws and initiatives to address marine litter (SDG 14).

[128] The ‘top five’ strategic actions requiring further work were identified for each country or territory. Strategic actions are generically described in this table based on wording in IP 2016–2019, but phrasing is modified within individual country and territory progress assessments, depending on the specific areas that require further work (see Appendix 4).

TABLE 10: SUMMARY OF SUSTAINABLE DEVELOPMENT GOALS PROGRESS

SDG	Target	Indicators	Progress summary[129]
Goal 3: Ensure healthy lives and promote well-being for all at all ages	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) 3.9.3 Mortality rate attributed to unintentional poisoning	3.9.1: Preparation of an air pollution regional assessment report was specified in IP 2016–2019, but the activity was not completed. Air quality studies have been progressed, but only in FJ, SI, NC[130] 3.9.2: Not directly addressed through CP2025 3.9.3: Not directly addressed, but at least 15 forms of assistance in UPOPs management were delivered, including chemicals training for 441 individuals across 14 of 21 PICTs (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU). See Appendix 3, activities 1.1 and 5.8, for details and data sources.
Goal 6: Ensure availability and sustainable management of water and sanitation for all	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1 Proportion of wastewater safely treated 6.3.2 Proportion of bodies of water with good ambient water quality	6.3.1: 6 of 21 PICTs (CNMI, FJ, FP, GU, NC, SA) have some secondary wastewater treatment capacity.[131] See Appendix 4 for details and data sources. 6.3.2: Water quality monitoring done by 11 of 21 PICTs (AS, CNMI, CI, FSM, FP, GU, PA, RMI, SA, SI, TV). Results regularly updated online by AS, CNMI, and GU, but data are not readily available/published for other PICTs. See Appendix 4 for details and data sources.
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities	11.6.1: The regional waste capture rate was estimated to be 46%, based on the unweighted average of capture rate data from 7 of 21 PICTs (FSM, KI, PA, PNG, RMI, SI, VU). Insufficient data were available in 2014 to establish a baseline, so it is unknown if the waste capture rate has improved. Unweighted regional averages for waste collection coverage were determined to be 88% (urban) and 74% (national) in 2020. Urban waste collection coverage remains unchanged from 2014 (88%), but national waste collection coverage has improved since 2014, when it was estimated to be 68%. Urban waste collection coverage data were available for 10 of 21 PICTs (FJ, GU, NI, PA, PNG, RMI, SI, TV, VU). National waste collection coverage data was available for 7 of 21 PICTs (FSM, GU, NC, NI, SA, TK, TV, VU). See Appendix 4 for details and data sources. 11.6.2: See comments under 3.9.1.

[129] Some 2014 baseline data reported in this column have been revised from the CP2025 figures – refer to Appendix 2 for details/justification for the revisions.

[130] https://www.challeng.unsw.edu.au/challeng-pillars/humanitarian-engineering/global-impact-news/measuring-air-quality-south-pacific
Isley C.F. and Taylor M.P. (2018) Air quality management in the Pacific islands: A review of past performance and implications for future directions, Environmental Science & Policy, Volume 84, pg 26-33,
https://doi.org/10.1016/j.envsci.2018.02.013

[131] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
http://guamwaterworks.org/operations-maintenance/

SDG	Target	Indicators	Progress summary[129]
		11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	
Goal 12: Ensure sustainable consumption and production patterns	12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 Global food loss index	12.3.1: Not directly addressed through CP2025, but household-level organic waste generation was measured as part of waste audits (e.g. FSM, PA, SA, TO, VU), and it was noted that kitchen waste is typically used as livestock feed.
	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement 12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment	12.4.1: National Implementation Plans (NIPs) for the Stockholm Convention have been submitted by 13 PICs (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, TO, TV, VU), but KI, PNG, SA and VU are the only countries with up-to-date NIPs (i.e. their NIPs account for all COP amendments). See Appendix 4, national level CP2025 progress assessments, for details and data sources. 12.4.2 Improved hazardous waste management was supported by the PacWaste project (asbestos, healthcare waste, e-waste, used lead acid batteries). Updated stockpile data are generally unavailable, although the PacWaste project did record amounts of asbestos removed from targeted countries.[132] See Appendix 4, national level CP2025 progress assessments, for details and data sources. Available data indicate that the regional used oil stockpile increased from 2,961 m^3 to 4,881 m^3 between 2014 and 2018, despite used oil management assistance being provided to FJ, FSM, KI, NI, RMI and VU during the GEFPAS project, and 200 m^3 of used oil being exported from Wallis and Futuna during the INTEGRE project. See Appendix 3, activities 5.8 and 7.3, for details and data sources.
	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled	12.5.1: National recycling rates were typically calculated on the basis of number of containers/items redeemed through CDPs. The regional recycling rate has improved from 47% (2014) to 60% (2020). The 2020 figure was calculated as the unweighted average of recycling rates across 6 of 21 PICTs (FSM, GU, KI, NC, PA, SA). See Appendix 4 for details and data sources.
Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development	14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	14.1.1 Index of coastal eutrophication and floating plastic debris density	14.1.1: In 2018 SPREP published the Pacific Regional Action Plan: Marine Litter 2018-2025.[133] SPREP has also supported initiatives in Pacific island countries to raise awareness of the marine litter issue: • FJ –plastic-free rugby tournament (RAKA 7s) • SA – Greening of the (Pacific) Games initiative, involving litter clean-ups and banning of single-use plastics from Games venues, transport services and accommodation • SI – Matanikau River marine debris demonstration project, including installation of new waste bins See Appendix 3, activity 12.9, for details and data sources.

[132] It is inaccurate to use the term "stockpiles" for asbestos in the Pacific, as it is still very much a part of houses and buildings, and in some instances, occurs as large amounts of broken debris on the ground (John O'Grady pers. comm. 3 June 2020).

[133] SPREP (2018) Pacific Regional Action Plan: Marine Litter 2018-2025, https://www.sprep.org/attachments/Circulars/prap_marine_litter.pdf

SDG	Target	Indicators	Progress summary[129]
			Between 2016–2019 FSM, FJ, GU, KI, NC, NI, PA, RMI and SA introduced new laws addressing single-use plastics.

Conclusions and recommendations

Cleaner Pacific 2025 provides a broad framework and guidance for addressing the significant challenge of sustainable waste management and pollution control across the Pacific region. The CP2025 mid-term review has identified a number of implementation successes, but also barriers and challenges, and gaps and opportunities that can be addressed during the second implementation phase of the strategy. Key conclusions and recommendations are summarised below.

CP2025 implementation successes

At a regional level, seven (of twenty) CP2025 performance indicators were found to have exceeded or met their 2020 targets. The seven indicators that demonstrated good progress showed that from 2016 to 2019, the Pacific region achieved:

- **Reduced (average) municipal solid waste generation per capita (2014 baseline of 1.3 kg/person/day; 1.2 kg/person/day estimated for 2020);**
- **An increased number of container deposit programmes (2014 baseline of 4 programmes, 8 recorded for 2020);**
- **An increased number of EPR programmes for used oil (2014 baseline of 2 programmes, 4 recorded for 2020);**
- **Increased (average) national waste collection coverage (2014 baseline of 68%, 74% recorded for 2020);**
- **An increased (average) waste recycling rate (2014 baseline of 32%, 60% recorded for 2020);**
- **An increased number of national environmental monitoring programmes (2014 baseline of 3 programmes, 11 recorded for 2020); and**
- **An increased number of national chemicals and pollution inventories (2014 baseline of 2 inventories, 4 recorded for 2020).**

Based on these performance indicator results it was evident that some progress was made towards achieving all four CP2025 strategic goals: (1) prevent and minimise generation of wastes and pollution, (2) recover resources from wastes and pollution, (3) improve life-cycle management of residuals, and (4) improve monitoring of the receiving environment. However, with six (of twenty) performance indicators not meeting their 2020 targets (see below for further details), it is clear that further progress in some areas is required.

Pacific island countries benefited from leadership, technical support and capacity-building provided, or facilitated by, SPREP and JICA/J-PRISM I and II, in areas such as development of waste/WCP management strategies and plans; waste surveys/audits; port waste reception facility gap analyses; Container Deposit Programmes; establishment of national recycling associations; user-pays waste collection systems; landfill design, operation and/or management training/workshops; and disaster waste management training/workshops.

SPREP and JICA/J-PRISM also made significant progress in establishing regional partnerships and developing collaborative initiatives and coordination mechanisms through the Clean Pacific Roundtable and SPREP-led projects (e.g. PacWaste, GEFPAS). The good networks that have been established should be further utilised to promote the sharing of WCP management information and experiences, particularly with countries and territories that are lagging in CP2025 implementation.

Other notable successes were SPREP's publication of *Regulating Plastics in Pacific Island Countries: a guide for policymakers and legislative drafters*, and the *Pacific Regional Action Plan: Marine Litter 2018–2025*. Complementary to these publications, new or amended national laws addressing single-use plastics were introduced in FSM, FJ, GU, KI, NC, NI, PA, RMI and SA.

Some alignment was apparent between CP2025 implementation and the Sustainable Development Goals, with reasonable progress being made towards SDGs 11 (make cities and settlements inclusive, safe, resilient, sustainable), 12 (ensure sustainable consumption and production), and 14 (conserve and

sustainably use the oceans, seas and marine resources), particularly in terms of increased national waste collection coverage (SDG 11), an increased regional recycling rate (SDG 12), and new national level laws and initiatives to address marine litter, particularly single-use plastics (SDG 14).

CP2025 implementation challenges and barriers

Countries and territories without a WCP/waste management strategy or plan aligned with CP2025, typically made limited progress with CP2025 implementation. While these countries and territories may have pursued WCP initiatives, they were not necessarily linked to the strategic actions/activities of CP2025, and hence, they were difficult to identify and evaluate.

Another implementation barrier for some countries and territories was the absence of a national steering/coordinating committee for WCP management, to provide effective oversight and ensure that WCP management activities were regularly monitored and reported. In combination, WCP/waste management strategies or plans and national steering/coordinating committees are important for helping countries and territories to identify progress gaps and to prioritise resourcing, and they also encourage implementation accountability to national governments, regional partners and donors.

Limited dedicated WCP resources at a national level is an ongoing issue for most countries and territories, and this had implications for CP2025 implementation between 2016 and 2019. With limited national level capacity, it is suspected that the focus was sometimes more on short-term donor-funded projects (e.g. PacWaste, GEFPAS, Ridge to Reef, INTEGRE), rather than on CP2025 more broadly.

Resourcing shortfalls for some countries were partly addressed through the technical support provided by SPREP and JICA/J-PRISM, and through financial support from donors such as UNEP, European Union, Australia, New Zealand, Japan and France. Countries and territories that did not receive dedicated support from the two main regional implementation partners, SPREP and JICA/J-PRISM, typically lagged in implementation.

Another challenge for countries and territories was related to the political nature of some activities, e.g. establishment of new legislation and/or mechanisms for CDP and EPR systems. Activities such as this cannot always be implemented quickly, even where clear technical guidance has been provided, as they tend to require high-level government deliberation and sometimes extensive consultation with the private sector, before implementation support can be secured.

It is clear that effective monitoring and reporting was a big challenge during the 2016 to 2019 implementation period, at both regional and national levels, largely due to limited availability of human and financial resources. SPREP staff were juggling country assistance requests and project-related activities (including project-specific monitoring and reporting), and found it difficult to prioritise CP2025 monitoring and reporting. Without regional guidance from SPREP, there was no routine CP2025 monitoring and reporting at a national level. It should be noted, however, that Tuvalu and Vanuatu both completed regular monitoring and reporting against their national WCP strategies/plans.

In the absence of a formal monitoring and reporting mechanism for CP2025, neither SPREP nor the countries and territories were really held accountable for implementation between 2016 and 2019. In turn, this meant that there was no evidence-based means for identifying corrective actions that needed to be taken, or additional support mechanisms required, to improve CP2025 implementation during the first phase of the strategy. The lack of a monitoring and reporting system resulted in significant data gaps at the time of the CP2025 mid-term review, and also some of the available data being of poor quality due to the application of inconsistent monitoring methods across the region. Data confidence was deemed to be ‘low’ for almost half (eight) of the twenty performance indicators, and there was no/insufficient data for evaluating the performance of six indicators.

Limited resources and funding hampered the progression of a number of activities under IP 2016–2019 e.g. ODS capture and management, used oil management and biosecurity waste management; and a regional assessment of the status of liquid waste management. Liquid waste/wastewater management is not typically a priority area for SPREP, and many activities in this area (e.g. infrastructure improvements) tend to require significant financial investment. There is, nonetheless, a recognised need to improve liquid waste/wastewater management as part of working towards the

CP2025 vision of "A cleaner Pacific environment", but this area will require specific attention and support from donors to enable it to be progressed.

CP2025 implementation gaps and opportunities

At a regional level, six (of twenty) performance indicators did not meet their 2020 targets, these were:

- **No. of marine pollution incidents (target of 0, 5 incidents recorded);**
- **No. of port waste reception facilities (target of 10, 5 facilities recorded);**
- **No. of PICTs with national, state or municipal composting programmes (target of 17, 14 recorded);**
- **No. of national EPR programmes for e-waste (target of 5, 2 programmes recorded);**
- **No. of PICTs with national, state or municipal user-pays systems for waste collection (target of 14, 13 user-pays systems recorded); and**
- **Quantity of used oil stockpiles (target of 1480 m^3, 4866 m^3 recorded).**

The above suggests that there is further work to be done in the areas of marine pollution prevention and control; organic waste, e-waste and used oil management; and establishment of user-pays systems for waste collection.

Based on progress results from the national level CP2025 assessments, some of the broad areas requiring further work that were identified include:

- **Development/expansion of routine monitoring and reporting, e.g. for WCP management activities and the receiving environment – relevant to all countries and territories;**
- **Development/finalisation of integrated WCP strategies/policies and action plans aligned with CP2025 – particularly relevant to AS, CNMI, FJ, FP, KI (current draft very close to finalisation), NC, NI, PNG, RMI, TK, TO, WF, but also to FSM and VU, as their current strategies/plans end in 2020;**
- **Development of practical and enforceable WCP legislation – particularly relevant to Nauru and Papua New Guinea;**
- **Development of public-private partnerships (e.g. for container deposit, EPR and recycling programmes) – particularly relevant to AS, CNMI, CI, FSM, FJ, GU, NA, NI, PA, PNG, RMI, TO, WF;**
- **Implementation of WCP prevention and reduction programmes – relevant to all countries and territories;**
- **Management of hazardous waste, including development of inventories – relevant to all countries and territories;**
- **Improvement of WCP management infrastructure, working towards sustainable operation and maintenance – particularly relevant to AS, CNMI, CI, FSM, FP, GU, KI, NC, NI, PA, RMI, SA, SI, TV, VU; and**
- **Development/implementation of WCP education and behavioural-change programmes – particularly relevant to FSM, SA, SI, TK, TV, VU.**

The importance of national WCP steering/coordinating committees was referred to under implementation challenges and barriers. Further consultation should take place with countries and territories (except with GU, PNG, SA, TV, who have active national committees), to confirm if committees are in place, if they need to be established, and if establishment assistance is required.

A number of specific activity gaps were identified as part of assessing progress against the 124 activities in IP 2016–2019. Key activities that should be considered for the second implementation phase of CP2025, especially in light of the CP2025 performance indicator results and the broad areas

for further work referred to above, include: development of national disaster waste management plans; updating of national oil spill contingency plans; development of public-private partnerships to support waste management initiatives (e.g. EPR, container deposit, recycling); implementation of national measures to restrict and regulate the importation, handling, storage and sales of hazardous substances; evaluation and scaling up of organic waste recycling programmes; and development of WCP equipment and maintenance capacity.

Recognising the significant data gaps that exist across all countries and territories, and the low data confidence for eight (of twenty) CP2025 performance indicators, there is a clear need to support and prioritise CP2025 monitoring and reporting. This can be done through establishing mechanisms and guidelines for the collection, analysis and storage of relevant data (e.g. templates, databases); through standardising data collection and analysis methodologies across all countries and territories, as well as regional partners and donors (especially for indicators like municipal solid waste generation per capita, waste recycling rate, waste collection coverage); and through providing national level capacity-building for monitoring and reporting, where it is needed. It is understood that SPREP and JICA/J-PRISM II are doing work to help countries and territories undertake regular and consistent monitoring and reporting – this should definitely be continued, and may benefit from additional donor support.

In terms of CP2025 and linkages with WCP-related SDGs, further consideration needs to be given to addressing SDGs 3 (ensure healthy lives and promote wellbeing) and 6 (ensure availability and sustainable management of water and sanitation), in terms of implementation of relevant activities and also SDG-focused monitoring and reporting, to clearly demonstrate progress is being made. Evidence of progress is currently limited for SDGs 3 and 6, although relevant work is certainly being done (e.g. SDG 3: air quality studies in FJ, SI, NC; SDG 6: regular water quality monitoring in AS, CNMI, CI, FSM, FP, GU, PA, RMI, SA, SI, TV).

IP 2016–2019 assessment, and recommendations for IP 2021–2025

IP 2016–2019 was ambitious in its scope (124 activities), and did not include a practical framework for progress monitoring and assessment (20 overarching performance indicators linked to the CP2025 strategic goals, plus 124 activity-linked KPIs not linked to the strategic goals). It is thus unsurprising that no progress was made with almost one-third (39 or 31%) of the activities listed in IP 2016–2019. Good progress was achieved for 30 activities (24%), and limited progress was achieved for 55 (44%) of activities. On the basis of these latter figures, 30 to 40 activities is deemed to be a reasonable estimate of the number of activities that can be feasibly implemented with full effect, within a four-year period.

It is strongly recommended that a streamlined approach be adopted for IP 2021–2025. The over-arching CP2025 performance indicators should be the primary means for assessing implementation progress, as they are clearly linked to CP2025's strategic goals and allow for focused and achievable performance evaluation at both regional and national levels. The effectiveness and validity of some of the current performance indicators is, however, reduced by unclear or incorrectly calculated baselines, data analysis variability, and limited data availability. Some indicators will benefit from revision to support more robust monitoring and reporting (see Table 3 in section 4.1.1 and Appendix 2 for further details and suggestions). Revised (or new) performance indicators must be clear and meaningful, with realistic targets.

IP 2021–2025 should focus on a limited number of high-priority activities that address key implementation gaps, as well as current priority issues for Pacific island countries and territories (i.e. activities which countries/territories are already focused on progressing, or which they are particularly keen to progress over the next few years). Some starting points for identifying high-priority activities are the activity gaps listed in Table 4, section 4.1.2, and the strategic actions requiring further work listed in Table 8, section 4.2.3, (also referred to in the previous section, implementation gaps and opportunities). It will be important to ensure that all activities are logically linked to CP2025's performance indicators and strategic goals, so they can effectively advance progress towards these. This linkage will also allow for more straightforward progress monitoring and assessment.

Given the complexity that exists across the region there will always be a degree of tension between developing a regional implementation plan with appropriately-detailed activities, but ensuring that

there is sufficient scope for activities to be tailored at a national level to address the specific needs of different countries and territories. A mix of prescriptive, detailed activities for a sub-set of Pacific island countries and territories, and broader activities applicable to all, with sufficient scope for national level tailoring, is likely to be required.

CP2025 strategic goals 1 (prevent and minimise generation of wastes and pollution), 2 (recover resources from wastes and pollutants), and 3 (improve life-cycle management of residuals) remain relevant and valid for IP 2021–2025. Strategic goal 4 (improve monitoring of the receiving environment) is limited in scope. Strategic goal 4 should be revised to "improve monitoring and reporting", to encompass monitoring and reporting for both WCP management activities and the receiving environment.

Appendices

Appendix 1: CP2025 performance indicators, complete dataset

- **The table below collates performance indicator data across the twenty-one Pacific island countries and territories.**
- **Refer to Appendices 2 and 4 for additional background information and data sources.**
- **Yellow-highlighted cells = no data available; ND = no data; PW = PacWaste project**

				2020 PICTs data																			
CP2025 Performance Indicators	2014 baseline	2020 target	2020 (actual or estimate)	American Samoa	Commonwealth of the Northern Mariana Islands	Cook Islands	FSM	Fiji	French Polynesia	Guam	Kiribati	Nauru	New Caledonia	Niue	Palau	Papua New Guinea	Republic of the Marshall Islands	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wallis and Futuna
Per capita generation of municipal solid waste (kg/person/day)	1.3	1.3	1.2	0.94	2.6	1.14	1.12	0.63	1.36	2.39	0.86	1.3	1.07	1.14	2	1.1	1.3	1.06	0.88	0.69	1.4	0.49	1.46	0.69
No. of marine pollution incidents	6 (2 PICTs)	0	5				0	1					1			2			1			0		
No. of port waste reception facilities	5	10	5	0	0	0	0	1	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0
Waste recycling rate (= amt recycled, reused, returned / amount recyclable) (%)	47%	60%	60				68			39	89		41		78			44						
No. of national or municipal composting programmes	18	30	14	1	0		1	1	1	1		1		1	1	1	1	1	1	0		1	1	
No. of national or state container deposit programmes	4 (KI, PA, Kosrae, Yap)	7	8	0	0	0	3	0	0	0	1	0	0	0	1	0	1	0	0			1	0	1
No. of national EPR programmes for used oil	2 (NC, FP)	3	4			0	0	0			0	0	1	0	1	0		1	0		0	1	0	
No. of national EPR programmes for e-waste	1 (NC)	5	2			0	0				0	0	1	0		0		1				0	0	
No. of national or state user-pays systems for waste collection	9	14	13	1		0	1	1		1	1	1	1	0	1	1	1	0	1		1	0	1	
Waste collection coverage (% of urban population)	88	100	88					100		100			75	100	100	67	91		51			100	100	
Waste collection coverage (% of national population)	68	70	74				29			100				100				61		99		80	50	
Waste capture rate (= amount collected / amount generated) (%)	Insufficient data	Establish baseline & targets	46				18				76				24	55	56		41				50	
No. of temporary, unregulated and open dumps	2 figures in CP2025, > 250 / 333	2 figures in CP2025, 237 / 316	Insuff. data		2 (open dumps)	10 (open dumps)					2 (open dumps)	1 (open dump)			7 (open dumps)	> 21 (open dumps)						8 (open dumps)		
Quantity of asbestos stockpiles (m2)	> 187,891 m^2	159,700 m^2	Insuff. data			3,310 removed during PW project	53 removed during PW project	6,250 removed during PW project			280 removed during PW project	3,400 removed during PW project		3 x 20 ft container removed during PW project			160 removed during PW project	100 removed during PW project	500 removed during PW project		6,880 removed during PW project		6,250 removed during PW project	
Quantity of healthcare waste stockpiles (tonnes)	> 76 tonnes	< 20 tonnes	ND																					
Quantity of e-waste stockpiles (tonnes)	Insufficient data	Establish baseline & targets	Insuff. data																			4.54		
Quantity of used oil stockpiles (m^3)	2,960 m^3	1,480 m^3	4885.9				937				64	100		10	1,135	4.5	2,633	0			0	2.4	0	
Quantity of pharmaceutical and chemical stockpiles (tonnes)	Insufficient data	Establish baseline & targets	ND																					
Urban sewage treated to secondary standards (%)	65%	Establish after regional assessment	ND for PICTs with secondary treatment	0		0	0				0	0		0	0	0	0		0	0	0	0	0	
No. of water and environmental quality monitoring programmes	~ 3 (AS, CI, GU)	5	11	1	1	1	1		1	1					1	0	1	1	1			1		
No. of national chemicals and pollution inventories	2 (SA, PA)	3	4				1				1					1		1						

Appendix 2: CP2025 performance indicators, detailed review

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
Per capita generation of municipal solid waste (kg/person/day)	1.3	1.3	1.2	1.3 (1.2)	Data available for: 5/21 PICTs (2014); 21/21 PICTs (2020). Data confidence: low. Data/indicator considerations and recommendations: • Globally, this is a standard indicator[135] for tracking waste generation trends nationally and regionally. MSW is typically defined as residential (household), commercial, and institutional waste, or residential and commercial waste. Industrial, medical, hazardous, electronic, and construction and demolition waste are usually reported separately. • The 2014 regional baseline is an average value for urban MSW (kg/p/day) for 5 PICTs only [Tutuila Island (American Samoa), Nadi & Lautoka (Fiji), Majuro (RMI), Luganville (Vanuatu)], with data years ranging from 2008 to 2014. The 2020 regional average reflects a mix of urban only and urban plus rural estimates for MSW generation (kg/p/day),[136] with data years ranging from 2011 to 2018, and varying methods used for determining MSW generation per capita as per sources and notes included in Appendix 4. Some MSW (kg/p/day) estimates were derived from secondary sources, which makes validation difficult. • Despite low data confidence, this is an important indicator as it reflects consumption patterns across the region and has wide-ranging implications for national waste management systems, infrastructure and budgets; environmental and community health; demand for natural resources; and greenhouse gas emissions (from the waste sector, but also during the production and transportation/distribution of goods). • JICA has published guidance on the methodology that it has applied with countries across the region, to determine per capita generation of municipal solid waste.[137] Another waste audit methodology has been published by PRIF.[138] It is recommended that a standardised data collection/analysis methodology be decided upon and used consistently by PICTs/partners/donors, so as to increase data confidence. • Aim to improve data collection through the establishment of WCP audit/monitoring systems in PICTs. It is noted that JICA, through J-PRISM II, has developed a regional monitoring form for solid waste management data, which has been distributed to FSM, FJ, PA, PNG, RMI, SA, SI, TO, VU.[139]	Yes
No. of marine pollution incidents	6 (2 PICTs)	0	5	0	Data available for: 2/21 PICTs (2014) – unpublished WMPC documents refer to incidents in FP (1) and PA (5), with ND available for other PICTs; 6/21 PICTs (2020), with incidents reported for FJ (1), NC (1), PNG (2), SI (1).	Yes

[134] Calculated on the basis of new data collated during the CP2025 mid-term review. No weightings were applied for the calculation of regional averages (i.e. for per capita generation of municipal solid waste, waste recycling rate, waste collection coverage etc.).
[135] http://datatopics.worldbank.org/what-a-waste/
[136] Estimates identified for Samoa and Tonga account for household waste generation only, so they are under-estimates of daily municipal solid waste generation per capita.
[137] JICA and SPREP (2018) Practical Guide to Solid Waste Management in Pacific Island Countries and Territories, https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf
[138] Wander A. (2019) Waste Audit Methodology: A Common Approach. A step-by-step manual for conducting comprehensive waste audits in SIDs. Pacific Region Infrastructure Facility (PRIF), Sydney, https://www.theprif.org/documents/regional/waste-management/waste-audit-methodology-common-approach
[139] Yoshida A., Regional Cooperation/Project Coordinator, J-PRISM II, pers. comm., 5 June 2020

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
					Data confidence: low. Data/indicator considerations and recommendations: • To date, limited data have been reported for verified marine pollution incidents. Consideration should be given to ways of encouraging improved reporting from PICTs to SPREP. If improved reporting is unlikely, then this indicator may need to be removed from the next implementation plan. • Aim to improve data collection through establishment of WCP audit/monitoring systems in PICTs.	
No. of port waste reception facilities	5	10	5	20 (10)	Data available for: 21/21 PICTs (2014); 21/21 PICTs (2020). Data confidence: high. Data/indicator considerations and recommendations: • The measure is based on whether the facility (port) is included in the Pacific Regional Reception Facilities Plan 2015 (PRRFP 2015). The current PRFFP 2015 has 5 facilities listed, in FJ, FP, NC, PNG, SA. • It is recommended that the 2025 target be revised downwards, given there was no progress between 2014 and 2020.	Yes, but revise the 2025 target
Waste recycling rate (= amount recycled, reused, returned/amount recyclable) (%)	47 (32)	60	60	75	Data available for: 6/21 PICTs (2014); 6/21 PICTs (2020). Data confidence: low. Data/indicator considerations and recommendations: • The 2014 baseline (47%) was calculated across six PICTs on the basis of total tonnes of recyclable waste exported or recycled/reused locally. Recyclable waste tonnages were not available in 2020 but recycling rate estimates (%) were available for six PICTs. The 2020 recycling rate was thus calculated as the average recycling rate across six PICTs – this is deemed to be a reasonable approach for estimating the regional recycling rate, given the data available. • If the 2014 baseline is recalculated in the same way as the 2020 estimate it drops to 32%. It is recommended that this value be used as the baseline to allow for like-for-like comparison at the mid-way point of CP2025. • The recalculated 2014 baseline is ~30% less than the tonnages-based baseline, but it is not recommended that the 2020 and 2025 targets be adjusted, as they seem reasonable based on the rate calculated across 6 PICTs for 2020. • Different PICTs account for different waste recycling streams, depending on the recycling programmes they have operational. • Recycling rates can be determined on a weight or number of containers/items basis. For the 2014 baseline, all rates were determined on a weight basis. For 2020, the recycling rate calculation method was not always specified, which means there is likely to be underlying data variability. • Sometimes recycling rates are calculated during waste audits as: (amount recycled, reused, returned/amount of waste generated) x 100, which leads to lower rates. Any countries that had a recycling rate based on this formula were excluded from the analysis, to ensure data consistency.	Yes, but use recalculated baseline

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
					• Additional PICTs may start tracking their progress against this indicator upon commencement of new container deposit/EPR programmes or through the strengthening of existing programmes, and this will help to increase data confidence. • Aim to improve data collection through establishment of WCP audit/monitoring systems in PICTs.	
No. of national or municipal composting programmes No. of PICTs with national, state or municipal composting programmes	18 (15)	30 (17)	14	40 (18)	Data available for: 21/21 PICTs (2014); 16/21 PICTs (2020). Data confidence: medium. Data/indicator considerations and recommendations: • CP2025 (pg 22, Table 6) identifies a total of 27 composting programmes across 15 PICTs, but the 2014 baseline figure reported for this indicator is 18. It is unclear which particular composting programmes were included in the baseline count. It is recommended that the indicator phrasing be revised to "No. of PICTs with national, state or municipal composting programmes", to allow for more consistent measures and assessments across years, at both national and regional levels. The baseline figure should be revised to 15 in line with the revised indicator phrasing, and the 2020 and 2025 targets can be revised to 17 (~10% improvement on the baseline) and 18 (~20% improvement on the baseline), respectively. • 2020 composting programme information was unavailable for all PICTs, and there is uncertainty about the current status of some programmes. • Aim to improve data collection through establishment of WCP audit/monitoring systems in PICTs.	No, revise the indicator description, baseline and targets
No. of national or state container deposit programmes	4 (KI, PA, Kosrae, Yap)	7	8	10	Data available for: unreported (2014), but it is assumed the baseline reflects a region-wide assessment given the status of CDPs is well-publicised/reported; 19/21 PICTs (2020). Data confidence: high. Data/indicator considerations and recommendations: N/A.	Yes
No. of national EPR programmes for used oil	2 (NC, FP)	3	4	10	Data available for: unreported (2014); 15/21 PICTs (2020). Data confidence: medium. Data/indicator considerations and recommendations: • The 2020 figure only includes programmes that are based on government initiative, involvement and/or support. EPR programmes were not accounted for if they were solely private-sector driven and of limited scope.	Yes
No. of national EPR programmes for e-waste	1 (NC)	5	2	8	Data available for: unreported (2014); 10/21 PICTs (2020) Data confidence: medium. Data/indicator considerations and recommendations: • Aim to improve data collection through establishment of WCP audit/monitoring systems in PICTs.	Yes

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
No. of national or state user-pays systems for waste collection No. of PICTs with national, state or municipal user-pays systems for waste collection	9	14	13	21	Data available for: 18/21 PICTs (2014); 17/21 PICTs (2020). Data confidence: high. Data/indicator considerations and recommendations: • The 2014 baseline did not account for multiple user-pays systems within individual PICTs (e.g. within FSM, Fiji), it simply included a PICT as '1' in the baseline count if one or more user-pays systems were operational. It is recommended that the indicator phrasing be revised to "No. of PICTs with national, state or municipal user-pays systems for waste collection". The new phrasing reduces ambiguity; provides for a simpler, less error-prone assessment; and reflects the fact that in some PICTs, numerous states or municipalities charge separate waste collection fees. • The 2020 and 2025 targets do not require revision.	No, revise the indicator description
Waste collection coverage (% of population)	88 (urban) [68 (national)]	100 (urban) [70 (national)]	88 (urban) 74 (national)	100 (urban) 60 (national) [75 (national)]	Data available for: 18/21 PICTs (2014); 10/21 PICTs (urban 2020), 7/21 PICTs (national 2020). Data confidence: medium. Data/indicator considerations and recommendations: • CP2025 reports two different estimates for the 2014 baseline for (average) national waste collection coverage – 35% (pg 6 and pg 43) and 47% (pg 23, pg 66). To reconcile these differences the source data in Table E2 (pg 65) was examined and the baseline was calculated as the average of collection service access rates across 18 PICTs – it was determined to be 68%, which is significantly higher than either 35% or 47%. This calculation approach is reasonable given all recent collection coverage data is reported as % of population. Accordingly, it is recommended the baseline and targets for national waste collection coverage be revised as follows: o 68% – revised baseline, o 70% – new 2020 target (~ 3% improvement on corrected 2014 baseline), and o 75% – new 2025 target (~ 10% improvement on corrected 2014 baseline). • The source data in Table E2 (pg 65) was also examined to check the 2014 baseline for (average) urban waste collection coverage, reported as 88% throughout CP2025. It was calculated as 89.5%, not too dissimilar to 88%, and the difference could possibly be due to rounding. On this basis it is recommended the baseline and targets for urban waste collection coverage be retained as they are. • Waste collection coverage data are reported according to multiple definitions (e.g. population served, geographic area covered, collection route driven), which means there is some underlying data variability. • Aim to improve and standardise data collection through establishment of a WCP audit/monitoring systems in PICTs.	Yes, but revise the baseline and 2020, 2025 targets for national waste collection coverage
Waste capture rate (= amount collected/ amount generated) (%)	Insufficient data	Establish baseline & targets	46	50	Data available for: 0/21 PICTs (2014); 7/21 PICTs (2020). Data confidence: low. Data/indicator considerations and recommendations: • 50% is recommended as the 2025 target, which is (approximately) a 10% improvement on the 2020 baseline (46%).	Yes, use 2020 data to establish a baseline and set a 2025 target

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
					• Limited data currently available, and it is based on varying methodologies. Aim to improve and standardise data collection through establishment of WCP audit/monitoring systems in PICTs.	
No. of temporary, unregulated and open dumps No. of PICTs with well-managed, climate-proofed waste disposal facilities	> 250 / 333	237 / 316 (tba)	Insufficient data	225 / 300 (tba)	Data available for: 15/21 PICTs (2014); 7/21 PICTs (2020). Data confidence: low. Data/indicator considerations and recommendations: • CP2025 reports two different sets of figures for the 2014 baseline and the 2020, 2025 targets: o > 250 for the 2014 baseline, and targets of 237 (2020) and 225 (2025) (pg 6) o > 333 for the 2014 baseline, and targets of 316 (2020) and 300 (2025) (pg 43). According to the source data in Table 8 (pg 24), the regional total for temporary unregulated dumps plus authorised open dumps is > 429 (= >333 + > 96), which is greater than both of the baselines reported above. • The 2020 dataset is incomplete, with data available for open dumps only. Data accuracy is also uncertain in some cases. • It is recommended that the performance indicator be revised to: "No. of PICTs with well-managed, climate-proofed waste disposal facilities". The revised indicator will provide an indication of how countries are progressing with improving or maintaining their solid waste management infrastructure/facilities. The 2020 baseline and a 2025 target need to be determined for the new indicator. The new indicator should also be supported by a clear explanation and a set of criteria, to support consistent monitoring and reporting across all PICTs.	No, revise the indicator and establish a new baseline and 2025 target
Quantity of asbestos stockpiles (m^2) No. of national strategies for safe and effective asbestos management and remediation	> 187,891 (NA)	159,700 (1)	Insufficient data (1)	131,500 (5)	Data available for: 13/21 PICTs (2014); 11/21 PICTs – asbestos quantities removed during the PacWaste project (2020). Data confidence: low. Data/indicator considerations and recommendations: • The 2014 PacWaste project asbestos surveys were focused on developing an inventory of the distribution of asbestos containing materials (ACMs) in thirteen PICs, assessing the risks posed to human health, and identifying remediation options.[140] The surveys were limited in scope and focused on ACMs in public buildings, residences and any other obvious sources. They did not include a comprehensive survey of commercial and industrial buildings, except in Nauru.[141] • With reference to data from the 2014 PacWaste asbestos surveys, pg 28 of the CP2025 Strategy reports that > 285,784 square metres and 267 cubic metres of ACMs are estimated to be distributed across the Pacific, and then pg 29 (Table 10) presents a different regional estimate for quantities of confirmed ACMs – 187, 891 m^2, which is then used as the 2014 baseline for "Quantity of asbestos stockpiles" (>187, 891 m^2). The pg 29 estimate may refer to public buildings only, rather than public buildings and residences, but this is not clearly indicated. Either way, it is difficult to see how the quantities in Table 10 were arrived at, as they are not entirely aligned with estimates presented in the PacWaste project survey reports prepared for each PIC.[142] Another issue is that it is inaccurate to use the term "stockpiles" for asbestos in the Pacific, as	No, revise the indicator and establish a new baseline and 2025 target

[140] https://www.sprep.org/pacwaste/resources/reports
[141] John O'Grady pers. comm. 30 May 2020.
[142] This discrepancy has been checked with, and confirmed by, John O'Grady.

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
					it is still very much a part of houses and buildings, and in some instances, occurs as large amounts of broken debris on the ground.[143] • In terms of more recent data, information is available from PacWaste project reports for quantities of asbestos removed from Pacific island countries after the initial surveys, however, this data cannot be easily compared with or assessed against the ambiguous 2014 baseline. • In summary, it is not feasible to evaluate progress in terms of the CP2025 performance indicator: "Quantity of asbestos stockpiles". • At the mid-term point of the CP2025 Strategy it is recommended that the asbestos performance indicator be revised to: "No. of national strategies for safe and effective asbestos management and remediation". The revised indicator is a coarser measure yet it is relatively easy to evaluate; it is based on recommendations from the PacWaste asbestos surveys;[144] and it will provide an indication of how countries are progressing with asbestos management. Currently, Niue is the only country known to have an asbestos management strategy in place (out of the thirteen PICs included in the PacWaste project).[145] The status of asbestos management in the Pacific territories is unknown and needs to be determined. • The recommended 2025 target is 5 (national strategies developed for safe and effective asbestos management and remediation).	
Quantity of healthcare waste stockpiles (tonnes)	> 76	< 20	ND	0	Data available for: 12/21 PICTs (2014); 0/21 PICTs (2020). Data confidence: N/A, updated data unavailable. Data/indicator considerations and recommendations: • Baseline data were established during the PacWaste project, however, updated data are unavailable. • It is recommended that this indicator be retained as a means of assessing whether the hospital incinerators installed during the PacWaste project are functional, and being effectively used. • Aim to improve healthcare waste stockpile monitoring through establishment of WCP audit/monitoring systems in PICTs.	Yes
Quantity of e-waste stockpiles (tonnes)	Insufficient data	Establish baseline & targets	Insufficient data	Establish baseline	Data available for: 0/21 PICTs (2014); 1/21 PICTs (2020). Data confidence: low. Data/indicator considerations and recommendations: • No baseline data and insufficient 2020 data. • It is recommended that this indicator be retained as there is an increasing focus on e-waste management across the region.	Yes

[143] John O'Grady pers. comm. 3 June 2020.
[144] O'Grady J. (2018) Regional Distribution and Status of Asbestos-Contaminated Construction Materials and Best Practice Options for its Management in Pacific Island Countries. Status Report Prepared for the Secretariat of the Pacific Regional Environment Programme (SPREP), unpublished.
[145] Ibid.

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
					• Aim to improve e-waste stockpile monitoring through establishment of WCP audit/monitoring systems in PICTs, and establish a baseline by 2025.	
Quantity of used oil stockpiles (m^3)	2,956 (2,961)	1,480	4,886	0 (1,480)	Data available for: 17/21 PICTs (2014); 11/21 PICTs (2020). Data confidence: medium. Data/indicator considerations and recommendations: • The 2020 data is based on 2018 stockpile estimates for a limited number of PICTs. Data is, however, available for most of the PICTs that recorded large stockpiles in 2014, which means the more recent data provides a relatively good indication of how stockpiles are tracking, despite being incomplete. • In CP2025 (pg 30, Table 11), 2013/14 national stockpile estimates for Nauru and Tuvalu are 30,000 L (30 m^3) and 14,500 L (14.5 m^3) respectively, but according to another source[146] they were estimated as being 46,000 L (46 m^3) and 2,500 L (2.5 m^3), respectively. The latter figures are likely to be more accurate as they align better with the 2018 stockpile estimates. It is recommended that the 2014 national baselines be adjusted to 46,000 L (Nauru) and 2,500 L (Tuvalu), and that the regional baseline be similarly adjusted. • SPREP WMPC has suggested that a target of 'zero' for 2025 is probably unreasonable, and recommended that it be revised to the 2020 target of 1,480".[147] • Aim to improve used oil stockpile monitoring through establishment of WCP audit/monitoring systems in PICTs.	Yes, but correct/ revise 2014 baselines for Nauru and Tuvalu, and revise the 2025 target
Quantity of pharmaceutical and chemical stockpiles (tonnes)	Insufficient data	Establish baseline & targets	ND	Establish baseline & targets	Data available for: 0/21 PICTs (2014); 0/21 PICTs (2020). Data confidence: N/A Data/indicator considerations and recommendations: • Given there is no baseline or 2020 data, it is recommended that this indicator be removed from IP 2021–2025. • Pharmaceutical stockpiles should be included as part of healthcare waste stockpiles.	No, remove
Urban sewage treated to secondary standards (%) No. of PICTs providing secondary or	65%	Establish after regional assessment	6 (new baseline)	7	Data available for: unreported (2014); 14/21 PICTs (2020), but ND available for PICTs with secondary treatment capacity. Data confidence: N/A Data/indicator considerations and recommendations: • It is unclear how the 2014 baseline was determined, as a reference was not provided in CP2025. • It is noted that the majority of Pacific wastewater systems were built during 1970-1990, with only relatively small investments made after 2000. As a result, many systems require urgent upgrades.[148] For easier monitoring and reporting	No, revise the indicator and establish a new baseline and 2025 target

[146] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports

[147] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

[148] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

Performance indicators	2014 baselines (revisions in red)	2020 targets (revisions in red)	2020 actuals[134]	2025 targets (revisions in red)	Comments	Retain **indicator "as is" in IP** 2021-2025?
better wastewater treatment					it is recommended that the indicator be revised to: "No. of PICTs providing secondary or better wastewater treatment". This is a coarser measure yet still provides an indication of wastewater management capacity and quality, as well as infrastructure upgrades over time. The 2020 baseline for the new indicator is 6 (CNMI, FJ, FP, GU, NC, SA all have some secondary treatment capacity).[12, 149] • The recommended 2025 target is 7 (PICTs providing secondary or better wastewater treatment).	
No. of water and environmental quality monitoring programmes No. of PICTs with water or environmental quality monitoring and reporting programmes	~ 3 (AS, CI, GU)	5	11	7 (14)	Data available for: at least 3/21 PICTs (2014); 12/21 PICTs (2020) Data confidence: medium. Data/indicator considerations and recommendations: • The 2014 baseline did not seem to account for multiple monitoring programmes within individual PICTs, it simply included a PICT as '1' in the baseline count if at least one monitoring programme was operational. Accordingly, it is recommended that the indicator phrasing be revised to: "No. of PICTs with water or environmental quality monitoring and reporting programmes". The new phrasing reduces ambiguity and provides for a simpler, less error-prone assessment. • It is recommended that the 2025 target be revised to 14, given the revised indicator description. • Some monitoring programmes identified during the mid-term review were project-based (e.g. Ridge to Reef national projects), so there is uncertainty about their current status/continuation. • This indicator could be refined for the next regional WCP strategy, to reflect the parameters of the proposed regional monitoring system.	No, revise the indicator description and 2025 target
No. of national chemicals and pollution inventories No. of PICTs with WCP monitoring and reporting programmes	2 (SA, PA)	3	4	6 (tba)	Data available for: at least 2/21 PICTs (2014); 4/21 PICTs (2020). Data confidence: low. Data/indicator considerations and recommendations: • It is unclear how the 2014 baseline was determined, as a reference was not provided in CP2025. • Ideally, broader WCP monitoring and reporting programmes should be implemented in line with the proposed regional monitoring system. It is recommended that the indicator be revised to: "No. of PICTs with WCP monitoring and reporting programmes (including WCP services, infrastructure, stockpiles, generation rates, recycling, compliance and enforcement). The 2020 baseline and a 2025 target need to be determined for the new indicator. • Aim to improve data collection through establishment of WCP audit/monitoring systems in PICTs.	No, revise the indicator and establish a new 2020 baseline and 2025 target

[149] http://guamwaterworks.org/operations-maintenance/

Appendix 3: Implementation Plan 2016–2019, assessment of activities and KPIs

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
A. Strengthen institutional capacity					
1. SPREP, PICTs and partners shall undertake regular WCP data collection and management (including storage, interpretation, dissemination and sharing).	1.1. Develop, disseminate and provide training in WCP assessment and inventory methods, particularly for solid waste, chemicals, hazardous waste (such as e-waste), and healthcare waste	SPREP (Secretariat)	All	No. of assessment methods developed No. of persons trained in assessment	3 methods developed and development of 1 ongoing: • Waste survey methodology published by JICA/J-PRISM and SPREP[151] • Waste audit methodology published by PRIF[152] • Regional monitoring form for solid waste management data developed by JICA – J-PRISM II, aligned with the performance indicators of J-PRISM II and CP2025, to support and enhance national monitoring and reporting in 9 PICs (FSM, FJ, PA, PNG, RMI, SA, SI, TO, VU).[153] The form was distributed to PICs in early 2020 • Regional monitoring system for waste management and the receiving environment under development by SPREP[154] 441 individuals received chemicals training across 14 of 21 PICTs:[155] • CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU • Training delivered by USP through the GEFPAS UPOPs project, covering chemicals inventory development and sound management 7 of 21 PICTs (CI, KI, PA, RMI, SI, TO and VU) received training on safe e-waste extraction and processing during the PacWaste project (no. of individuals trained unknown)[156] 10 staff trained in TV on waste assessment[157]

[150] Good progress: activity completed, or clear KPI-based evidence of progress, and/or ≥ half of the priority PICTs progressed the activity; limited progress: activity progress was made but cannot be easily assessed against the KPI, or < half of the priority PICTs have progressed the activity; no progress: no evidence for activity progress reported by lead agencies, or no evidence found during the desktop review

[151] JICA and SPREP (2018) Practical Guide to Solid Waste Management in Pacific Island Countries and Territories, https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf

[152] Wander A. (2019) Waste Audit Methodology: A Common Approach. A step-by-step manual for conducting comprehensive waste audits in SIDs. Pacific Region Infrastructure Facility, Sydney, https://www.theprif.org/documents/regional/waste-management/waste-audit-methodology-common-approach

[153] Yoshida A., Regional Cooperation/Project Coordinator, J-PRISM II, pers. comm., 5 June 2020

[154] SPREP WMPC Programme (2020) CP2025 Implementation Plan – Reporting Spreadsheet, unpublished

[155] No author (2017) Mid-term review of the GEF ID 4066: Pacific POPs Release Reduction Through Improved Management of Solid and Hazardous Waste, A project funded by the GEF, implemented by UNEP and executed by SPREP, Findings and Recommendations, unpublished

[156] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished

[157] Sagapolutele F., Assistant Chief Advisor, J-PRISM II, pers. comm., 26 June 2020

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
	1.2. Develop and maintain a regional WCP database including water quality and relevant environmental data to support informed decision-making	SPREP (Sec)/ SPC	All	Completed database available for data input	Draft indicators developed by SPREP as part of a regional monitoring system for waste management and the receiving environment[158]
	1.3. Develop regional country-profile templates to disseminate information on the status and priorities for WCP, including marine pollution and marine litter	SPREP (Sec)	All	Country profile templates for WCP developed and disseminated	No progress – pending completion and endorsement of the regional waste monitoring system
	1.4. Complete comprehensive country profiles on the status and priorities for WCP, including marine pollution and marine litter	WCP departments	All	No. of country profiles submitted to SPREP (Sec)	No progress, dependent on 1.3
	1.5. Assess capability of national marine and terrestrial oil spill response and salvage resources, and integrate results into the regional WCP database	SPREP (Sec)	All	No. of national capability assessments completed	Review of oil spill capabilities for all countries assessed in a regional score card. Detailed assessment of oil spill response capability completed for 6 of 21 PICTs (KI, NA, PNG, SI, TV, VU)[159]

[158] SPREP WMPC Programme (2020) CP2025 Implementation Plan – Reporting Spreadsheet, unpublished
[159] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

Strategic Actions	Activities[150] Good progress Limited progress No progress	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	1.6. Complete national WCP assessments of, and inventories for, solid waste, hazardous chemicals and hazardous waste, including e-waste and healthcare waste	WCP departments	All	No. of national WCP assessments completed	10 of 21 PICTs completed assessments of varying geographic scope and/or data coverage: • CNMI – data recorded for amount of MSW and recyclables collected and processed • FSM (all states), PA, RMI (Kwajalein), SA – waste amount and composition, waste disposal, and recycling surveys completed with the support of JICA/J-PRISM II • FJ – Solid Waste Management Tracking System implemented by Lautoka City Council • PNG (Goroka), SI (Tulagi), VU (Port Vila) – waste audits conducted with the support of JICA/J-PRISM II • SA – inventories completed as part of the Minamata Initial Assessment on Mercury and the updating of the National Implementation Plan on POPs • TV – data recorded for used oil shipped to Fiji [Refer to PICTs' progress assessments for sources][160]
	1.7. Complete a regional marine pollution risk assessment to prioritise potential point source pollution risk	SPREP (Sec)	All	Regional marine-pollution risk assessment completed	No progress
	1.8. Prepare a regional strategic assessment of the status of liquid-waste management to identify priority areas for intervention	SPREP (Sec)/SPC	All	Liquid-waste regional assessment report completed	No progress – no funding available
	1.9. Prepare a regional strategic assessment of air-pollution management to identify priority areas for intervention	SPREP (Sec)	All	Air pollution regional assessment report completed	Report not prepared, but relevant air quality studies conducted[161]

[160] Sources are not provided where more than 1 PICT is listed for a KPI assessment – refer to individual PICTs' progress assessments for sources and details

[161] https://www.challeng.unsw.edu.au/challeng-pillars/humanitarian-engineering/global-impact-news/measuring-air-quality-south-pacific
Isley C.F. and Taylor M.P. (2018) Air quality management in the Pacific islands: A review of past performance and implications for future directions, Environmental Science & Policy, Volume 84, pg 26-33, https://doi.org/10.1016/j.envsci.2018.02.013

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	1.10. Develop and disseminate a research agenda to promote practical research in WCP issues and to develop appropriate environmental standards	SPREP (Sec)	All	Research agenda published and disseminated	Research agenda not published but PacWaste Plus has established a Research Advisory group and research is being progressed to (1) consolidate literature on impacts of managed landfills compared to dumps, (2) develop a waste intervention decision support tool, and (3) review small scale waste infrastructure opportunities. Ongoing waste-related research is also being pursued through the University of Newcastle's PhD scholarships program with SPREP's WMPC Programme[162]
	1.11. Assess greenhouse-gas footprint of WCP activities (e.g., emissions from WCP collection, disposal and port operations)	WCP departments	CI, RMI, PA, TV, SI, NC, FSM	No. of greenhouse-gas assessments completed	1 assessment completed for a non-priority PICT: • TK – greenhouse gas emissions estimated for the waste sector and reported as part of New Zealand's greenhouse gas emissions inventory[163] No regional funding available to support this activity
	1.12. Undertake port-waste reception facility gap analyses in accordance with IMO procedures	SPREP (Sec)	All	No. of port-waste reception facility gap analyses completed	Gap analyses completed for 6 of 21 PICTs: • Suva (FJ), Lautoka (FJ), Apia (SA), Port Moresby (PNG), Papeete (FP), Noumea (NC), Majuro (RMI)[164]
	1.13. Implement routine data collection in the following priority areas: coastal and marine water quality status; ecological surveys of lagoon environments; percentage of population with routine waste management collection services; per capita waste diversion rates from landfill; waste composition; and per capita waste generation rates	WCP departments	All	No. of data collection programmes implemented	13 of 21 PICTs implemented data collection: • AS, CNMI, CI, FP, FSM, FJ, GU, PA, PNG, RMI, SA, SI and TV have all implemented data collection, monitoring and reporting programmes for either the receiving environment and/or WCP management activities. Programmes are led by different departments/agencies, not necessarily WCP departments, and some are project-based so they may not be long-term. [Refer to PICTs' progress assessments for details and sources]

[162] SPREP WMPC Programme (2020) CP2025 Implementation Plan – Reporting Spreadsheet, unpublished
[163] Ministry for the Environment, New Zealand Government (2020) New Zealand's Greenhouse Gas Inventory 1990–2018, Vol. 1, Chapter 8 https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/new-zealands-greenhouse-gas-inventory-1990-2018-vol-1.pdf
[164] SPREP WMPC Programme (2020) CP2025 Implementation Plan – Reporting Spreadsheet, unpublished

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
2. PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation, and strengthen institutional arrangements to support and promote best-practice WCP management.	2.1. Conduct a cost-benefit analysis of PICTs becoming Parties to relevant conventions and protocols	Ministries in charge of MEA ratification	Non-Parties; FSM for removal of wrecks	Cost-benefit analysis disseminated to PICTs	No progress
	2.2. Develop model integrated policies with supporting legislation for solid waste (including 3R + Return), healthcare waste, hazardous waste (including e-waste, used oil and radioactive waste), and chemicals management	SPREP (Sec)	All	No. of model policies and supporting legislation completed	6 model guidelines/regulations prepared: • Guidance for development of Solid Waste Management Plans published by JICA/J-PRISM and SPREP[165] • Regional Healthcare Waste Management Policy developed during the PacWaste project[166] • Model e-waste regulation developed through the GEFPAS project[167] • Draft model used oil regulations developed through the GEFPAS project[168] • Drafting instructions for a law to regulate UPOPs developed through the GEFPAS project[169] • Regional guidelines for regulating plastics produced by SPREP with the Environmental Defenders Office NSW[170]
	2.3. Update regional port-waste reception facilities plans	SPREP (Sec)	All	No. of regional port-waste reception plans updated	No progress with this activity, but refer to related progress under activity 1.12
	2.4. Prepare a regional template to guide development of national pollution prevention strategies (NATPOLs)	SPREP (Sec)	All	Regional template disseminated	No progress

[165] JICA and SPREP (2018) Practical Guide to Solid Waste Management in Pacific Island Countries and Territories, https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf
[166] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished
[167] Haynes D., Leney A. and O'Grady J. (2018) Report 4: Review of E-waste Related Activities in the Pacific Islands, https://www.sprep.org/gefpaspops/gefpas-reports
[168] Powell G. B. (2019) Consultancy for the review of used oil regulations. Final report – re-drafted model regulations, https://www.sprep.org/gefpaspops/gefpas-reports
[169] Powell G. B. (2019) Consultancy for the completion of drafting instructions for model legislation for UPOPs project. Final report – revised drafting instructions, https://www.sprep.org/gefpaspops/gefpas-reports
[170] SPREP (2018) Regulating Plastics in Pacific Island Countries: a guide for policymakers and legislative drafters, https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/5992/attachments/original/1540865644/Regulating_Plastics_in_Pacific_Island_Countries_SPREP_and_EDO_oct_2018.pdf?1540865644

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	2.5. Develop a regional insurance arrangement (including associated model regulations) for vessels not covered by existing IMO liability and compensation regimes	SPREP (Sec)	All	Regional insurance arrangement developed No. of subscriptions to regional insurance arrangement	Unable to measure progress against the KPIs, but SPREP is finalising arrangements for all 21 PICTs to become members of Oil Spill Response Limited (OSRL) which will provide additional response capability to PACPLAN (Pacific Islands Marine Spill Contingency Plan)[171] No progress
	2.6. Develop a regional insurance arrangement for transboundary movement of hazardous wastes under the Waigani and Basel Conventions	SPREP (Sec)	All Parties	Regional insurance arrangement developed No. of PICT subscriptions to regional insurance	The Moana Taka Partnership is exploring options for a regional insurance arrangement for the transboundary movement of hazardous waste[172] No progress
	2.7. Review institutional arrangements for WCP management with a view to improving WCP service delivery, private sector engagement and cost recovery	WCP departments	CI, PNG, SA, SI, TV	No. of national institutional reviews completed	5 priority and 5 non-priority PICTs completed institutional reviews: • PNG – with support from JICA/J-PRISM II, reviewed institutional arrangements for waste management and reached agreement among all relevant ministries about implementation responsibilities at provincial and local government levels • CI, FSM, KI, PA, RMI (Kwajalein), SA, SI, TV, VU – institutional arrangements reviewed and recommendations for improvement developed, as part of new waste management strategies/policies [Refer to PICTs' progress assessments for details and sources]

[171] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[172] Ibid.

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	2.8. Develop integrated national policies with supporting legislation and implementation strategies for WCP management to include solid waste, 3R + Return, hazardous waste (including healthcare waste, e-waste and used oil) and chemicals	WCP departments	All	No. of integrated national policies with supporting legislation and strategies developed and endorsed	2 of 21 PICTs effectively addressed the KPI: • TV: Integrated Waste Policy and Action Plan developed and aligned with CP2025; UPOPs National Action Plan developed; Waste Management Act 2017, Waste Management (Litter and Waste Control) Regulation 2018, Waste Management (Prohibition on the Importation of Single-Use Plastic) Regulation 2019 and Waste Management (Levy Deposit) Regulation 2019 enacted • VU: National Waste Management and Pollution Control Strategy and Implementation Plan 2016-2020 revised and aligned with CP2025; UPOPs National Action Plan developed; NIP submitted to the Stockholm Convention Secretariat; three orders made under the *Waste Management Act No. 24 of 2014* for single use plastics, littering and licensing of private waste operators 19 of 21 PICTs developed various WCP policies, strategies, plans and/or legislation: • New waste management policies, strategies, plans developed by CI (sanitation/wastewater management, single-use plastics), FSM (Chuuk, Kosrae, Pohnpei, Yap – solid waste management [SWM]), FJ (Suva City Council SWM); KI (National Implementation Plan [NIP], Stockholm Convention), NA (SWM), PA (SWM), PNG (Port Moresby SWM; Kokopo-Vunamami local govt; NIP, Stockholm Convention), RMI (Kwajalein Atoll SWM), SA (WM, water and sanitation, NIP Stockholm Convention), SI (national waste management and pollution control [WMPC], Honiara City Council SWM), TO (Combined Utilities Business Plan, incl. waste) • New WCP legislation introduced, or WCP legislation amended in AS (litter enforcement), CNMI (air pollution control), FSM (single-use plastics), FJ (plastic bags), FP (marine pollution), GU (plastic bags), KI (single-use plastics, toxic and hazardous substances, dumping/littering), NC (air quality, single-use plastics), NI (plastic bags), PA (plastic bags), RMI (single-use plastics, container deposit programme), SA (single-use plastics), WF (imported beverages tax) [Refer to PICTs' progress assessments for details and sources]

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	2.9. Develop or update, endorse and implement healthcare-waste management plans for each healthcare facility	Healthcare facilities	All	No. of facility healthcare waste management plans developed	• Healthcare waste strategies developed during the PacWaste project for CI, FSM, FJ, KI, NA, PA, SI, TO, TV and VU, but it is unclear if they were finalised and endorsed[173] • SA – healthcare waste management plan reviewed and implemented • PNG – National Healthcare Waste Management Policy and Guideline for Medical and Health Facilities in PNG is in draft form [Refer to PICTs' progress assessments for details and sources]
	2.10. Develop national disaster waste-management plans	NDMOs/WCP departments	All	No. of disaster waste management plans endorsed	2 of 21 PICTs commenced development of a plan: • TV – Department of Waste Management and the Disaster Management Agency initiated the development of a national disaster waste management plan • VU – draft disaster waste management plan developed with JICA/J-PRISM II [Refer to PICTs' progress assessments for details and sources]
	2.11. Update national oil-spill contingency plans	Maritime agencies	FSM, FJ, KI, RMI, NA, NI, PA, PNG, SA, SI, TK, TV, VU	No. of updated national oil spill contingency plans endorsed	3 of 13 priority PICTs and 2 non-priority PICTs updated their NATPLANs (National Marine Spill Contingency Plans) (CI, NI, PNG, SA, TO)[174]
	2.12. Adopt tools to support marine environmental protection, such as designation of particularly sensitive sea areas (PSSA)	Maritime departments	CI, FJ, PA, PNG	Submissions to IMO in accordance with IMO PSSA Guidelines	1 of 4 priority PICTs declared a PSSA: • PNG – Jomard passage declared as a PSSA; a first for Pacific islands[175]
	2.13. Develop and implement national licencing or certification programmes for WCP management service providers	WCP departments	All	No. of licencing or certification programmes implemented	2 of 21 PICTs implemented licencing programmes: • FJ – permits required for operation of landfills or recycling facilities • VU – licences required for operation of waste management services e.g. waste transfer stations, composting, waste incineration and collection [Refer to PICTs' progress assessments for details and sources]
	2.14. Adopt the World Customs Organisation Harmonised System (HS) codes for WCP including for ODS and other chemicals	Customs departments/ WCP departments	CI, KI, RMI, FSM, NA, NI, PA, SA, SI, TO, TV, VU, FJ	No. of PICTs that adopt HS codes for WCP	No progress

[173] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[174] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020; Conservation and Environment Protection Authority, Papua New Guinea, pers. comm., 25 June 2020
[175] SPREP Secretariat (2017) Report of work performed in the period July 2015 to June 2017, fourteenth meeting of the Noumea Convention, https://www.sprep.org/attachments/2017SM28/Noumea%20Convention/English/14NC_WP.4.1%20Report%20by%20Secretariat%20(Final%20Draft).pdf

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
B. Promote public-private partnerships					
3. SPREP, PICTs, and partners shall develop new public–private partnerships, including through strengthened frameworks.	3.1. Prepare regional guidance on private sector participation in WCP management activities (linked to 5.2.1)	SPREP (Sec)	All	Regional guidance on private sector participation in WCP published	2 forms of guidance provided: • JICA/J-PRISM and SPREP published guidance on contract management[176] • JICA/J-PRISM II and SPREP supported establishment of national recycling associations in SA, SI, VU, FJ, TV [Refer to PICTs' progress assessments for sources]
	3.2. Apply regional guidance in developing and implementing incentives to encourage private sector participation in WCP management	WCP and Finance departments	All	No. of private sector organisations participating in national WCP management	9 of 21 PICTs developed WCP management partnerships with the private sector: • CI – collaboration developed between Infrastructure Cook Islands and General Transport to export recyclables from Rarotonga • FJ, SA, SI, TV, VU – national recycling associations established in partnership with the private sector • FSM – private company contracted by Pohnpei state government to manage the landfill; private waste and recycling companies contracted by Yap Public Works and EPA to manage waste collection and recycling; collaboration developed between recycling company and KIRMA • RMI – collaboration developed with Majuro Atoll Waste Company, supported by government, to implement a cost effective waste management program for residential waste collection, disposal and recycling; launch of ULAB collection and international export systems, in partnership with the private sector and State-owned Enterprises; partnership agreement established between MEC and RMI Government through the PacWaste project for a buy-back scheme enabling compliant transboundary movement of ULABs • SA – PPP established between MNRE, Samoa Stationary and Books, and HP New Zealand for collection and export of HP toners and ink cartridges; PPP for a Waste Oil Management Program developed between Samoa Recycling and Waste Management Association, local suppliers, lubricant oil consumers, MNRE, JPRISM II, SPREP, SWIRE Shipping Company and Blue Scope Fiji • SI – public-private partnership (PPP) established between Sol Power Solomon Islands Ltd (SPSIL) and the Environment and Conservation Division (ECD) of the Solomon Islands Government to recover household solar batteries • TK – Memorandum of Understanding signed between the Department of Economic Development, Natural Resources and Environment and the Pacific Recycle Co. Ltd Samoa to cooperate on metal waste collection and export [Refer to PICTs' progress assessments for sources]

[176] JICA and SPREP (2018) Practical Guide to Solid Waste Management in Pacific Island Countries and Territories, https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
	3.3. Develop agreements with private sector organisations to facilitate cooperation in planning, consultation and implementation of WCP management activities, and in the dissemination of relevant best practices	SPREP (Sec)	All	No. of agreements signed (and active) with private-sector organisations	1 agreement signed: • Memorandum of Understanding signed between China Navigation Company (CNCo) and SPREP, known as the "Moana Taka Partnership", allowing for CNCo vessels to carry containers of recyclable waste from eligible Pacific island ports, pro bono, to be sustainably treated and recycled in suitable ports in Asia Pacific[177]
	3.4. Develop an agreement with the Chamber of Commerce or other appropriate national organisations to facilitate cooperation in planning, consultation and implementation of WCP management activities, and in the dissemination of relevant best practices	WCP departments	All	No. of agreements signed (and active) with private-sector organisations	5 of 21 PICTs established national recycling associations (SA, SI, VU, FJ, TV), with the support of JICA/J-PRISM II and SPREP [Refer to PICTs' progress assessments for sources]
	3.5. Maintain an updated national focal point list of private sector organisations involved in WCP management and provide relevant details to SPREP (Sec) for the regional focal point list	WCP departments	All	No. of PICTs that provide details of WCP private-sector organisations	No progress

[177] https://www.sprep.org/news/moana-taka-partnership-unfolds-exciting-recycling-possibilities-pacific-islands

Strategic Actions	Activities[150] Good progress Limited progress No progress	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	3.6. Maintain a regional focal point list of private-sector organisations involved in WCP management	SPREP (Sec)	All	SPREP focal point list of national private-sector organisations published	Pacific recycling companies published on J-PRISM 3R+return webpage[178]
C. Implement sustainable best practices in WCP management					
4. SPREP, PICTs and partners shall implement best-practice occupational health and safety measures for formal and informal workers	4.1. Prepare regional guidance on the identification, assessment and management of occupational health and safety risks associated with WCP management	SPREP (Sec)	All	Regional guidance on the identification, assessment and management of occupational health and safety risks published and disseminated	Regional guidance for asbestos and healthcare waste completed and disseminated during the PacWaste project[179]

[178] https://www.sprep.org/j-prism-2/3rreturn

[179] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
in the WCP management sectors.	4.2. Enforce the use of appropriate personal protective equipment in all WCP management activities	Labour departments	All	No KPI listed	1 of 21 PICTs focused on PPE: • TV – training and enforcement for PPE use led by the Department of Waste Management[180]
	4.3. Implement monitoring regimes for asbestos-containing and radioactivity-emitting materials	Health/ Environment and WCP departments	CI, RMI, PNG, SA, SI, TV, NC, FJ, FSM	No. of monitoring regimes implemented	No progress
5. PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes.	5.1. Prepare regional guidance on options to implement polluter-pays programmes to address proper management of problematic waste streams and encourage sustainable WCP management	SPREP (Sec)	All	Regional guidance on waste-reduction options for disposable nappies and packaging waste disseminated	No progress – no available resources to support the options study
	5.2. Review regional guidance to identify suitable options for national implementation of polluter-pays programmes	WCP departments	All	No. of polluter-pays programmes implemented	No progress, linked to 5.1
	5.3. Undertake a national cost-benefit analysis of options to implement polluter-pays programmes	WCP departments	All	No. of PICTs that complete cost-benefit analyses	No progress, linked to 5.1 and 5.2
	5.4. Prepare a Cabinet paper on implementation of the recommendations of the cost-benefit analysis	WCP departments	All	No. of PICTs that present cost-benefit analysis outcomes to Cabinet	No progress, linked to 5.1, 5.2 and 5.3
	5.5. Prepare regional guidance on importation standards for durable energy-efficient products (e.g., white goods)	SPREP (Sec)	All	Regional guidance on energy-efficient products disseminated	No progress – no available resources to develop the regional guidance

[180] Government of Tuvalu (2019) The 2nd Annual Review of the Implementation Status of Tuvalu's Integrated Waste Policy and Action Plan 2017-2026

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	5.6. Prepare guidance on best practices to minimise waste arising from imported used products (tyres, vehicles and computers) and from donated pharmaceuticals and disaster-relief supplies	SPREP (Sec)	All	Regional guidance on reducing waste from imported used goods disseminated	Draft guidance developed for 1 waste stream only: • Draft Regional Scrap Metal Management Strategy developed by SPREP[181]
	5.7. Adopt best practices to minimise waste arising from imported used products	WCP departments	All	No. of PICTs that adopt best practices to reduce waste from imported used products	13 of 21 PICTs implemented new measures/initiatives to reduce waste arising from imported used products: • CNMI – 9 recycling centres operational for paper, glass, plastic, metals • CI – recycling centre operational • FSM – container deposit programmes (CDPs) operational (Kosrae, Pohnpei, Yap); CDP preparing to commence (Chuuk); transfer facility built for used oil • FJ – 3R projects led by City and Town Councils (Suva, Lautoka, Nadi, Sigatoka) • GU – used lead acid batteries, used oil and used paint collected for safe disposal • NC – EPR schemes for single-use batteries, lead acid batteries, end of life vehicles, used oil, tyres, electrical equipment • NI – recycling facility built so waste from imported goods can be collected and exported for recycling • PA – tyre shredding, plastic conversion to fuel, Waste Segregation Stations programme and CDP operational • RMI – buy-back scheme established for used lead acid batteries; new law enacted establishing a CDP • SA – e-waste (HP toners and ink cartridges) collected and exported • SI – CDP feasibility study conducted by JICA/J-PRISM II, collection and export system for used lead acid batteries • TV – Waste Management (Levy Deposit) Regulation enacted • VU – CDP pre-feasibility study conducted by JICA/J-PRISM II [Refer to PICTs' progress assessments for sources]

[181] SPREP (2018) Performance Monitoring and Evaluation Report on the 2017 Work Programme and Budget, https://www.sprep.org/sites/default/files/documents/executive_board/2018/WP.5.3.Att.1%20-%20Final%20Draft%20Report%20on%20the%202017%20PMER%20ME%20Final.pdf

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	5.8. Assist PICTs with the reduction, management and monitoring of unintentional persistent organic pollutants (UPOP)	SPREP (Sec)	All	No. of instances of assistance in UPOP management delivered	At least 15 forms of assistance provided:[182, 183, 184] • UPOPs National Action Plans developed for Tuvalu and Vanuatu • Guideline developed – UPOPs Prevention and Chemical Awareness: Considerations for Awareness-Raising Campaigns • Drafting instructions prepared for model national legislation to regulate UPOPs • Draft model used oil regulations developed • Used oil management issues and priorities investigated for FJ, FSM, KI, NI, RMI, VU • E-waste review conducted for CI, FJ, FSM, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU • Across the 14 PICs, National Guidelines and Best Practice Training Manuals developed for chemical management • Technical support/resourcing provided for national UPOPs education and awareness-raising campaigns in FSM, NA and TV • In-depth feasibility studies completed on used pesticide container management programmes for SA, TO and FJ • Across the 14 PICs, baseline surveys completed and estimates obtained of annual pesticide container importation rates • Regional Pesticide Container Management Strategy completed • Technical and financial support provided to PNG in the implementation of a pilot used oil management project • TV and FSM assisted with improved used oil management practices • Used oil storage tanks procured for TV • "Oil leakage countermeasures project for World War II Wrecks in Truk Lagoon Marine Area, Federated States of Micronesia (Phase 1)" conducted by Japan Mine Action Service (JMAS) under the Japanese Government

[182] https://www.sprep.org/gefpaspops/gefpas-reports
[183] SPREP (2019) Progress towards achievement of the 2018/19 PIP strategic outcomes, https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[184] https://www.micronesia.emb-japan.go.jp/itpr_en/grantceremonyforprofectforoilleakge_en.html

Strategic Actions	Activities[150] Good progress Limited progress No progress	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	5.9. Evaluate options to identify lost fishing gear in order to allocate clean-up costs	Fisheries departments/ Coastal management agencies	All	Evaluation report published and disseminated	Unable to measure progress against the KPI, but relevant initiatives progressed:[185] • SPREP partnered with the Global Ghost Gear Initiative and FAO to address abandoned discarded lost fishing gear (ALDFG). A workshop on best practice fishing gear guidelines held in VU in February 2019 • Western and Central Pacific Fisheries Commission adopted the Conservation and Management Measure on Marine Pollution, CMM 2017-04, which addresses ALDFG
	5.10. Convene a regional workshop to consider options to reduce the amount of abandoned and lost fishing gear, such as through-tagging of fishing gear	SPREP (Sec)	All	No KPI listed	No progress, but SPREP participated in an IMO/FAO expert technical working group for the global initiative of marking of fishing gear, which allowed for advocacy of Pacific SIDS' special requirements[186]
	5.11. Increase observer coverage of active fishing vessels in the region	Fisheries departments	All	Percentage expansion in observer coverage	No progress
	5.12. Establish a taskforce of stakeholders from the public and private sectors and civil society (or used established groups) to develop and implement voluntary WCP reduction schemes in the private sector	WCP departments	All	No. of voluntary WCP reduction schemes implemented	No progress
	5.13. Enforce recognised standards for prohibiting the sale of perishable goods beyond their expiry date	Health departments, EPAs	CI, SA, SI, TV, FSM	No. of PICTs implementing enforcement initiatives	1 of 21 PICTs progressed enforcement initiatives: • TV – discussions held between DWM and relevant government agencies about enforcing legal provisions to prolong the lifespan of goods, and about options for shops when products are close to expiry dates[187]
	5.14. Implement measures to restrict and regulate importation, handling, storage and sales of chemicals and hazardous substances	WCP departments	All	No. of different chemicals and hazardous substances regulated per PICT	No progress

[185] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[186] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Work Programme and Budget, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%205.2.Att.1.rev.1-2016%20PMER%20final.pdf
[187] Government of Tuvalu (2019) The 2nd Annual Review of the Implementation Status of Tuvalu's Integrated Waste Policy and Action Plan 2017-2026

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
6. PICTs, supported by SPREP and partners, shall implement resource-recovery programmes.	6.1. Evaluate existing resource-recovery initiatives and make recommendations for improvements and potential replication (regionally and nationally)	SPREP (Sec)	CI, NC, PNG, SA, SI, TV	No. of resource-recovery initiatives evaluated	No specific evaluations completed but relevant initiatives progressed: • Used lead acid batteries collection and international export systems launched in RMI and SI, in partnership with the private sector[188] • PacWaste study investigated emissions from recycled paper briquettes and found them to be an eco-friendly alternative to commercially available stove fuel[189]
	6.2. Seek funding to implement resource-recovery recommendations in partnership with the private sector	SPREP (Sec)	CI, NC, PNG, SA, SI, TV, FSM	No. of funding proposals submitted	Funding sourced through PacWaste, GEFPAS, AFD, J-PRISM[190]
	6.3. Complete a cost-benefit study of regional options for waste-to-energy systems	SPREP (Sec)	All	Regional cost-benefit analysis of waste-to-energy published	No progress – no funding to support the study
	6.4. Explore and implement practical options for extended producer-responsibility programmes (including compliance options) for the product life-cycle of imported products, packaging waste and bulky waste	WCP departments	All	No. of extended producer-responsibility programmes for packaging and bulky waste implemented	2 of 21 PICTs progressed EPR: • NC – EPR schemes well-established across NC for single-use batteries, lead-acid batteries, end-of-life vehicles, used oil, tyres and electrical/electronic equipment • SA – EPR programme established between HP New Zealand, MNRE, Samoa Stationary and Books for e-waste (HP toners and ink cartridges) collection and export [Refer to PICTs' progress assessments for sources]
	6.5. Evaluate existing pilot and full-scale organic waste-recycling activities (production of compost, mulch, charcoal and biochar, and biogas), and scale up where appropriate	WCP departments	CI, NC, SA, TV	Evaluation report with concrete recommendations published and disseminated	1 of 4 priority PICTs and 3 non-priority PICTs evaluated or investigated organic waste recycling: • FJ – compost sales regularly monitored by Lautoka City Council • FP – solutions studied by Technival, with government support, for recovering biodegradable organic waste and for bioconversions with production of renewable energy • NA – options for scaling up composting investigated • TV – cost-benefit analysis and M&E tools used to improve green waste management [Refer to PICTs' progress assessments for sources]

[188] Ibid.
[189] Thai, P. et al. (2016) Comparative investigations of combustion emissions from paper briquettes, Apia, Samoa: SPREP, https://www.sprep.org/attachments/Publications/WMPC/PacWaste-technical-report-briquettes.pdf
[190] SPREP WMPC Programme (2020) CP2025 Implementation Plan – Reporting Spreadsheet, unpublished

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
	6.6. Implement pilot projects at the community level for the integrated management of organic waste streams (household organic waste, market and animal waste)	WCP departments	CI, PNG, SA, SI, TV, NC	No. of community-level pilot projects for organic-waste recycling successfully implemented	2 of 6 priority PICTs and 4 non-priority PICTs progressed organic waste recycling initiatives: • GU – demonstration/pilot project composting wastewater solids with locally produced wood chips • NI – green waste shredding machine trialled at landfill site • PA – composting bins provided to 40 households for participation in a food waste composting project • PNG – market waste compost pilot project implemented in Kokopo with support from JICA/J-PRISM II • TV – green waste collection being introduced to the outer islands • VU – large-scale organics waste bin installed at the main market house in Luganville for composting [Refer to PICTs' progress assessments for details and sources]
	6.7. Develop and implement 'Clean Schools' and 'Clean Campus' programmes to encourage adoption of waste reduction and recycling best practices in schools and educational institutions	WCP departments, Education departments	All	No. of 'Clean Schools' and 'Clean Campus' programmes implemented	11 of 21 PICTs delivered WCP education/awareness in schools (AS, CNMI, FJ, KI, PA, RMI, SA, SI, TV, VU and WF) [Refer to PICTs' progress assessments for details and sources]
7. PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices.	7.1. Undertake a comprehensive national survey (including geo-location) and risk assessment of WCP stockpiles and contaminated sites (to be implemented with 9.8)	WCP departments	All	No. of national surveys and risk assessments completed	14 of 21 PICTs supported the completion of healthcare and asbestos waste surveys during the PacWaste project[191] (CI, FSM, FJ, KI, NA, NI, PA, PNG,[192] RMI, SA, SI, TO, TV, VU) PNG (Kokopo): DDT stockpiles identified and safeguarded, with support from SPREP and UNEP[193]
	7.2. Compile, maintain and share data with SPREP (Sec) and other PICTs on verified contaminated sites and WCP stockpiles	WCP departments	All	No. of PICTs that provide data on verified contaminated sites and stockpiles to SPREP	No progress

[191] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[192] An asbestos survey was not done in PNG
[193] Conservation and Environment Protection Authority, Papua New Guinea, pers. comm., 25 June 2020

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	7.3. Develop programmes to collect, remove and dispose of legacy wastes, in particular asbestos, vessels and wrecks, end-of-life vehicles, tyres, shipping containers, e-waste (including from construction and demolition activities), obsolete chemicals, radioactive waste, and healthcare-waste stockpiles	SPREP (Sec)	All	Quantity of legacy wastes removed No. of supporting national policies and legislation implemented	Legacy wastes removed but supporting national policies/legislation yet to be implemented: • > 27,183 m^2 asbestos removed from CI (3,310 m^2), FSM (53 m^2), FJ (6,250 m^2), KI (280), NA, (3,400), NI (3 x 20 ft containers), RMI (160), SA (100), SI (5000), TO (6,880), VU (6,250) during the PacWaste project[194] • 200,000 L used oil and 300 tonnes batteries exported from WF during INTEGRE project[195] • 200 end-of-life vehicles removed from NC (Poindimié) during INTEGRE project[196] • 17 incinerators installed and commissioned during the PacWaste project to dispose of healthcare waste stockpiles – CI (1), FSM (1), FJ (1), KI (1), NA (1), NI (1), SI (3), TO (3), TV (1), VU (4); 1 incinerator repaired in RMI[197] • 4 x 40 ft containers of scrap metal removed from RMI during PacWaste project[198] • 686 tonnes of waste (e.g. scrap metal, plastics, used oil, paper/cardboard) exported from PICs (FJ, PNG, RMI, SA) for treatment and recycling in suitable ports in the Asia-Pacific region through the Moana Taka Partnership[199] In addition: • Regional strategy addressing WWII wrecks completed, to be presented for endorsement by SPREP members[200]
	7.4. Develop programmes to remediate contaminated sites, in particular, disused dumpsites, abandoned sites, petroleum-contaminated sites (including sites contaminated from accidental spills), and hazardous waste and chemicals storage sites	SPREP (Sec)	All	No. of contaminated sites remediated	Asbestos removed from 78 sites during the PacWaste project[201]

[194] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[195] https://integre.spc.int/en/regional-actions/waste-management#territories-declinaisons
[196] Ibid.
[197] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished
[198] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[199] https://sdg.iisd.org/commentary/policy-briefs/shipping-partnership-advances-waste-management-in-pacific-islands/
[200] SPREP (2019) Progress towards achievement of the 2018/19 PIP strategic outcomes, https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[201] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
8. PICTs, supported by SPREP and partners, will expand user-pay WCP collection services.	8.1. Prepare regional guidance on options for sustainable financing of WCP collection services	SPREP (Sec)	All	Regional guidance on sustainable financing of WCP collection disseminated	Regional guidance not prepared but 6 of 21 PICTs supported in the implementation (FSM – Kosrae, RMI, TO), and investigation (FSM – Yap, PA, SA, TO, TV), of sustainable financing options for WCP collection services [Refer to PICTs' progress assessments for details and sources. Note that the FSM (Kosrae, Yap) and PA examples are captured under Strategic Action 9 in their respective progress assessments]
	8.2. Undertake a cost-benefit analysis of options to increase national coverage and financing of WCP collection services	WCP departments	AS, FP, NC, NI, PNG, SI, TO, TV	No. of PICTs that complete a cost-benefit analysis	2 of 8 priority PICTs and 1 non-priority PICT progressed the investigation of user-pays waste collection systems: • SA – with the support of JICA/J-PRISM II, user-pays systems analysed in Tonga, Vanuatu and New Zealand; user-pays legal frameworks and stakeholder profiles investigated; study tour conducted to Vanuatu, Tonga and Fiji; and options prepared to introduce a user-pays waste collection system • TV – Waste User Pay Feasibility Study completed and prepaid bag system recommended (but TV has actually opted for a waste levy instead) • TO – with support from JICA/J-PRISM II, expansion of user-pays waste management services to Vava'u investigated and implemented [Refer to PICTs' progress assessments for details and sources]
	8.3. Prepare a Cabinet paper on implementation of the recommendations of the cost-benefit analysis	WCP departments	AS, FP, NC, NI, PNG, SI, TO, TV	No. of PICTs that present cost-benefit analysis outcomes to Cabinet	No information found on CBA outcomes being presented to Cabinet for increasing national coverage and financing of WCP collection services
	8.4. Undertake ongoing government and community-awareness programmes on outcomes of the cost-benefit analysis	WCP departments	AS, FP, NC, NI, PNG, SI, TO, TV	No. of awareness initiatives implemented	1 of 8 priority PICTs progressed awareness-raising: • TO – stakeholder meetings conducted to build support and awareness for expansion of user-pays waste management services to Vava'u[202]
9. PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable	9.1. Develop funding proposals in partnership with PICTs to address priority areas identified by the strategic assessments and gap analyses conducted under Strategic Action 1	SPREP (Sec)/SPC	All	No. of funding proposals submitted No. of facilities improved	No progress; relevant activities under Strategic Action 1 not progressed

[202] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
operation and maintenance.	9.2. Update and disseminate guidance on landfill improvement, operation, and maintenance (including climate-change adaptation and greenhouse-gas mitigation considerations) based on methods such as the Fukuoka semi-aerobic landfill method and the atoll landfill method used in Kiribati	SPREP (Sec)	All	Landfill management guidance disseminated	Guidance disseminated by JICA/J-PRISM and SPREP, *Practical Guide to Solid Waste Management in Pacific Island Countries and Territories* [203]
	9.3. Identify and disseminate market information for recyclable commodities, and appropriate transboundary disposal facilities for hazardous waste	SPREP (Sec)	All	Information on commodity markets disseminated Information on transboundary disposal facilities disseminated	Transboundary disposal and treatment facilities identified for used oil[204]
	9.4. Submit information on national WCP equipment to SPREP and other PICTs	WCP departments	All	No. of PICTs that submit information on WCP equipment to SPREP (Sec)	6 of 21 PICTs assessed and reported on their WCP assets during the development of national waste management strategies: • FSM (Chuuk, Kosrae, Pohnpei, Yap), PA, RMI (Kwajalein Atoll), SA, TV, VU [Refer to PICTs' progress assessments for sources]
	9.5. Compile and disseminate information on suitable national WCP equipment and provide advice on request to encourage equipment standardisation across PICTs	SPREP (Sec)	All	Regional WCP equipment inventory disseminated	No progress
	9.6. Develop WCP equipment maintenance capacity in PICTs	WCP departments	All	No. of relevant capacity-building initiatives implemented	1 of 21 PICTs progressed capacity-building: • TV – infrastructure management and maintenance plan developed and constant equipment maintenance promoted[205]

[203] JICA and SPREP (2018) Practical Guide to Solid Waste Management in Pacific Island Countries and Territories, https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf
[204] Araspring Ltd. (2018) Used Oil Report – Fiji, Niue, Kiribati, Vanuatu, SCL, https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf
[205] Government of Tuvalu (2019) The 2nd Annual Review of the Implementation Status of Tuvalu's Integrated Waste Policy and Action Plan 2017-2026

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	9.7. Prepare and disseminate a regional 3R + Return and other waste-management guidelines	SPREP (Sec)	All	Guidelines for 3R + Return and management of other priority WCP issues developed and disseminated	Guidance disseminated by JICA/J-PRISM and SPREP, *Practical Guide to Solid Waste Management in Pacific Island Countries and Territories* [206]
	9.8. Complete inventories of existing national WCP facilities, particularly near coastal and riverine areas (to be implemented with 7.1)	WCP departments	All	No. of inventories completed	No progress
	9.9. Improve national dumpsites (when appropriate) according to regional and existing guidance, and incorporate best-practice sustainable financing measures	WCP departments	All	No. of national dumps and landfills improved	13 dumps and landfills improved across 11 of 21 PICTs: • CNMI, FSM (Pohnpei, Yap), NC, PA, PNG, RMI (Ebeye, Majuro), SA, SI[207], TO, TV, VU Funds approved to improve 1 dump: • CNMI (Rota dumpsite) Options investigated/plans developed to improve > 6 dumps and landfills across 6 of 21 PICTs: • CNMI (Saipan), NA, PA (M-Dock landfill), PNG, TV (Funafuti and outer islands), VU [Refer to PICTs' progress assessments for details and sources]
	9.10. Construct national secure storage facilities (including provision of relevant equipment) to support effective chemical and hazardous waste management	WCP departments	All	No. of national secure-storage facilities available for use	3 of 21 PICTs organised secure storage facilities for used oil: • FSM – 2 containment facilities completed • SA – intermediate bulk containers procured • TV – storage containers procured [Refer to PICTs' progress assessments for details and sources]
	9.11. Develop pilot decentralised liquid-waste management programmes and construct sludge-treatment facilities	WCP departments	SA, TV, SI, NC	No. and capacity of best-practice sludge-treatment facilities available	1 non-priority PICT, VU, built a new septage treatment facility[208]

[206] JICA and SPREP (2018) Practical Guide to Solid Waste Management in Pacific Island Countries and Territories, https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf
[207] Improvement involved development of a landfill operation manual
[208] https://www.gov.vu/en/public-information/302-new-septage-treatment-plant

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress / Limited progress / No progress				
	9.12. Improve healthcare-waste treatment and disposal facilities and incorporate best-practice sustainable financing measures	Health departments	AS, CI, FJ, FP, KI, RMI, NA, NI, PA, PNG, SA, SI, TO, TV, VU	No. and capacity of best-practice healthcare-waste treatment and disposal facilities available	17 healthcare waste incinerators installed and commissioned across 9 of 15 priority PICTs during the PacWaste project – CI (1), FSM (1), FJ (1), KI (1), NA (1), NI (1), SI (3), TO (3), TV (1), VU (4); 1 incinerator repaired in RMI [209]
	9.13. Improve bio-security waste treatment facilities and incorporate best-practice sustainable financing measures	Bio-security authorities	AS, FP, NI, SI, TO, TV	No. and capacity of best-practice bio-security waste treatment facilities available	No progress
	9.14. Commit human and financial resources to the stepwise improvement of WCP infrastructure and services that incorporate best-practice sustainable financing measures	WCP departments	All	Amount of national and local waste-management budgets	Unable to measure the KPI, but progress made to improve WCP services in 4 of 21 PICTs: • FSM – new waste collection system trialled in Tomil municipality (Yap) and new inter-municipal waste collection system developed in Kosrae • PA – 10 state-wide waste collection plan under development with the support of JICA/J-PRISM II • SI – new "Waste Management & Control Division" established by Honiara City Council • TO – new manager appointed at Tonga Waste Authority Ltd to address accounts, public relations, disposal sites operation, and to assist with outer islands service provision; Waste Management Service Plans developed for and Ha'apai and Eua to support expansion of services [Refer to PICTs' progress assessments for details and sources]
10. PICTs, supported by SPREP and partners, shall implement best-practice environmental monitoring and reporting programmes.	10.1. Undertake a regional assessment of soil, air and water quality status, trends and monitoring capacity to identify specific areas for strategic monitoring intervention	SPREP (Sec)/SPC	All	Regional assessment of water-quality status disseminated	No progress – no funding to support this activity
	10.2. Prepare regional water, soil and air quality standards	SPREP (Sec)/SPC	All	Regional water-quality standards published and disseminated	Regional water quality monitoring guidelines completed by SPREP with funding assistance from USAID[210]

[209] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished

[210] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Work Programme and Budget, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%205.2.Att.1.rev.1-2016%20PMER%20final.pdf

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	10.3. Provide national training in environmental monitoring and reporting (including waste disposal site, waste and chemical stockpile, and marine-debris monitoring)	SPREP (Sec)	All	No. of persons trained in environmental monitoring	Unable to accurately measure the KPI but training delivered for: • 6 of 21 PICTs (FJ, PNG, SA, SI, TV, VU) on landfill operation and management, incorporating monitoring and reporting. Training delivered by JICA/J-PRISM II in collaboration with SPREP [211] • 3 of 21 PICTs (PA, FSM and RMI) in 2018, focusing on sanitary landfill design and operation following the Fukuoka method (follow-up training). Training delivered by JICA Kyushu, Fukuoka University, NPO SWAN-Fukuoka and JICA/J-PRISM II in Palau[212] • PICTs on marine litter and plastics monitoring at the 2018 Clean Pacific Roundtable (through Tangaroa Blue) and the 29th SPREP Meeting 2019 (through Sustainable Coastlines)[213] • 14 of 21 PICTs, 441 individuals, on chemicals inventory development (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU)[214]
	10.4. Implement national environmental monitoring, compliance and reporting programmes (including procurement and installation of equipment when possible), with a particular focus on point source monitoring	WCP departments	All	No. of national environmental monitoring reports published	Unable to accurately measure the KPI but water quality monitoring implemented by 11 of 21 PICTs: • AS, CNMI, CI, FSM, FP, GU, PA, RMI, SA, SI, TV – recreational marine waters, coastal waters, freshwater rivers, streams, estuaries, lagoons 1 of 21 PICTs (CNMI) monitored coral reefs and seagrass beds Plans to implement environmental monitoring developed by 1 of 21 PICTs • PNG – initial discussions held to utilise the SPREP Inform project for monitoring and reporting [Refer to PICTs' progress assessments for details and sources]

[211] SPREP WMPC Programme (2020) CP2025 Implementation Plan – Reporting Spreadsheet, unpublished; JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II), Group 2, Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.

[212] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II), Group 1, Project Completion Report 2 (Phase 2), Kokusai Kogyo Co., Ltd. EX Research Institute Ltd., unpublished

[213] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

[214] No author (2017) Mid-term review of the GEF ID 4066: Pacific POPs Release Reduction Through Improved Management of Solid and Hazardous Waste, A project funded by the GEF, implemented by UNEP and executed by SPREP, Findings and Recommendations, unpublished

Strategic Actions	Activities[150]		Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
		Good progress				
		Limited progress				
		No progress				
D. Develop human capacity						
11. SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders.	11.1.	Conduct national and regional training in the implementation of obligations and accessing other opportunities under the Basel, Waigani, Noumea, Rotterdam, Stockholm and Minamata Conventions, and the Montreal Protocol	SPREP (Sec)	Relevant Parties	No. of persons trained in applicable conventions	More than 450 individuals trained. Training delivered by: SPREP • SI – covered various components of the Waigani Convention e.g. national reporting, notification and movement forms, legislation[215] • TV – technical advice and training on the Waigani Convention process and national reporting, delivered in collaboration with the Fiji Customs Authority[216] • Technical advice and support delivered to PICs (FJ, KI, PNG, RMI, SI, TV) and French Territories (NC, WF) to support collaboration under the Waigani and Basel Conventions and achieve smooth and efficient transboundary movement of hazardous waste[217] USP • CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU – more than 450 individuals trained in-country, in national, regional and international obligations under the Stockholm, Rotterdam, Basel and Waigani Conventions[218]
	11.2.	Conduct national and regional training in the implementation of marine pollution conventions in accordance with the IMO ITCP	SPREP (Sec)	Relevant Parties	No. of persons trained in applicable conventions	Unable to accurately measure the KPI due to potential overlap between participants attending the training workshops. Training delivered for: • Representatives from the 14 PICs, who attended a 2016 workshop on the London Dumping Convention/Protocol in Suva, Fiji[219] • 31 representatives from 8 PICs, who attended the 2017 regional MARPOL Annex V and Port Reception Facilities Workshop in Majuro, RMI[220] • 30 representatives from 10 PICs, who attended the 2017 regional Cape Town Agreement 2012 workshop in Rarotonga, Cook Islands

[215] SPREP (2019) Report of the Sixth Meeting of the Steering Committee of the Pacific Regional Centre for Training and Technology Transfer for the Joint Implementation of the Basel and the Waigani Conventions in the South Pacific Region, https://www.sprep.org/sites/default/files/29-SPREP-Meeting/Waigani%20Convention/WP%204.1.%20Att.%202%20-%20Draft%20Report%20of%20the%20SCPRC-6%20meeting.pdf

[216] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Work Programme and Budget, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%205.2.Att.1.rev.1-2016%20PMER%20final.pdf

[217] Ibid.

[218] USP (2018) Capacity building through regional institutions. Chemical Management Training for PICs, Clean Pacific Roundtable presentation, Suva, 2018, https://www.sprep.org/attachments/Publications/Presentation/cprt-2018/2-jpoinapen-capacity-building.pdf

[219] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Work Programme and Budget, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%205.2.Att.1.rev.1-2016%20PMER%20final.pdf

[220] SPREP (2019) Report of Secretariat of work performed July 2017 – June 2019 in relation to the Noumea Convention and its protocols, https://www.sprep.org/sites/default/files/29-SPREP-Meeting/Noumea%20Convention/WP%204.1%20-%20SPREP-SM-Noumea%20Convention%202019%20-%20Sec%20report%20final.pdf

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
	11.3. Update and support further delivery of the regional waste-management training course, with inclusion of competency-based assessments and hands-on modules	SPREP (Sec)	All	No. of persons trained through the regional waste-management training course	Unable to assess against the KPI, but relevant training progressed for 28 individuals across 15 of 21 PICTs (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU, WF): • Training delivered by Griffith University and Fiji National University in 2016 through the GEFPAS UPOPs project, covering solid and hazardous waste management including landfill management and waste management techniques[221]
	11.4. Conduct national and regional training in waste disposal site improvement, operation and maintenance in accordance with best practices (such as the Fukuoka semi-aerobic landfill method and the atoll method utilised in Kiribati) as appropriate	SPREP (Sec)	CI, FSM, FJ, KI, NA, NI, RMI, PA, PNG, SA, SI, TO, TV, VU, WF, NC	No. of persons trained in management of waste-disposal sites	Unable to accurately measure the KPI but training delivered for: • 5 of 21 PICTs, focusing on landfill management and operation (FSM, PA, RMI, SA, TV)[222] • Government officers from PA, FSM and RMI, in 2018, focusing on sanitary landfill design and operation following the Fukuoka method (follow-up training). Training delivered by JICA Kyushu, Fukuoka University, NPO SWAN-Fukuoka and JICA/J-PRISM II in Palau[223] • PNG, SI, VU in 2017 focusing on landfill operation and management. Training delivered by JICA/J-PRISM II in collaboration with SPREP[224]
	11.5. Conduct national training in asbestos management and radioactivity monitoring for waste-handlers, managers and emergency responders	SPREP (Sec)	All	No. of persons trained in asbestos monitoring and radioactivity monitoring	Unable to accurately measure the KPI but asbestos handling training delivered for 10 of 21 PICTs during the PacWaste project (CI, FSM, FJ, KI, NA, NI, SA, SI, TO, VA)[225]
	11.6. Conduct national and regional training in ODS capture and management for recyclers, equipment-repair technicians and others involved in ODS management	SPREP (Sec)	All	No. of persons trained in ODS capture and management	No progress – no funding to support this activity

[221] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

[222] SPREP (2019) Progress towards achievement of the 2018/19 PIP strategic outcomes, https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf

[223] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II), Group 1, Project Completion Report 2 (Phase 2), Kokusai Kogyo Co., Ltd. EX Research Institute Ltd., unpublished

[224] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II), Group 2, Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.

[225] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
	11.7. Conduct national and regional training in chemical life-cycle management	SPREP (Sec)	All	No. of persons trained in chemical life-cycle management	More than 450 individuals trained in-country by USP across 14 of 21 PICTs, in national, regional and international obligations under the Stockholm, Rotterdam, Basel and Waigani Conventions[226]
	11.8. Conduct national and regional training in mercury management	SPREP (Sec)	All	No. of persons trained in mercury management	No progress
	11.9. Conduct national and regional training in used-oil management	SPREP (Sec)	All	No. of persons trained in used-oil management	No progress – no funding to support this activity
	11.10. Conduct national and regional training in healthcare-waste management	SPREP (Sec)	All	No. of persons trained in healthcare-waste management	More than 600 personnel from 32 hospitals and other agencies trained across 11 of 21 PICTs (SA, TO, VA, FJ, FSM, NA, PA, RMI, CI, PNG, SI) during the PacWaste project, following a train-the-trainer model[227]
	11.11. Conduct national and regional training in bio-security waste management	SPREP (Sec)	All	No. of persons trained in bio-security waste management	No progress – no funding to support this activity
	11.12. Conduct national and regional training in e-waste management	SPREP (Sec)	All	No. of persons trained in e-waste management	Unable to accurately measure the KPI but training on safe e-waste extraction and processing completed in 7 of 21 PICTs (CI, KI, PA, RMI, SI, TO and VU) during the PacWaste project[228]

[226] https://www.sprep.org/attachments/Publications/Presentation/cprt-2018/2-ipoinapen-capacity-building.pdf
[227] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished
[228] Ibid.

Strategic Actions	Activities[150] Good progress Limited progress No progress	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	11.13. Conduct national and regional disaster-waste management training	SPREP (Sec)	All	No. of persons trained in disaster-waste management	Unable to accurately measure the KPI but disaster waste management training/workshops held in: • VU – more than 20 staff from government and non-government agencies and the private sector attended a workshop to trial the use of the draft DWM Training Handbook that will be used by SPREP in the promotion of DWM[229] • SA – participants were staff from Waste Management divisions and Disaster Management offices from FJ, SA, SI, TO and VA, workshop delivered by JICA/J-PRISM II in collaboration with SPREP, and UNDP[230] • PA – participants were staff from Waste Management divisions and Disaster Management offices from FSM, PA, RMI, workshop delivered by JICA/J-PRISM II in collaboration with SPREP, IOM and ILO[231]
	11.14. Promote WCP capacity-building exchanges among all SPREP members (PICTs and metropolitan members) in the public and private sectors	SPREP (Sec)	All	No. of capacity development exchange programmes implemented	7 capacity development exchange programmes implemented through: • The PacWaste project – exchanges organised between (1) RMI, TV and KI on integrated atoll waste management, (2) FJ and NA on landfill rehabilitation and operations, and (3) VU, FJ and TV on disaster waste management[232] • The INTEGRE project – exchange missions organised between NC and NZ in (1) hazardous waste management, and (2) glass waste recovery; and between WF and FJ in climate-proofing for landfills[233] • JICA/J-PRISM II – (1) exchange organised in Port Moresby between PNG, SI and VU for landfill operation and management[234]; and (2) SA visited FJ, TO and VU to learn about waste management and financing[235]
	11.15. Conduct a national training-needs assessment (against required competency levels) for integrated WCP management and enforcement (including redundancy to cope with high staff turnovers)	WCP departments	All	No. of national training needs assessments completed and communicated to Cabinet	9 of 21 PICTs (FSM, PA, PNG, RMI, SA, SI, TO, TV, VU) completed capacity-building needs assessments with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs[236]

[229] JICA (2019) J-PRISM Flash Newsletter, No. 7, https://www.sprep.org/j-prism-2/report-and-materials
[230] Yoshida A., Regional Cooperation/Project Coordinator, J-PRISM II, pers. comm., 26 June 2020
[231] Ibid.
[232] SPREP (2017) Twenty Eighth SPREP Meeting of Officials, Agenda Item 12.3.1: PacWaste Achievements, Evaluation and Legacy, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%2012.3.1-PACWASTE.pdf
[233] https://integre.spc.int/en/regional-actions/waste-management#bilateral-exchange
[234] JICA (2017) J-PRISM Flash Newsletter, No. 1, https://www.sprep.org/j-prism-2/report-and-materials
[235] JICA (2019) J-PRISM Flash Newsletter, No. 7, https://www.sprep.org/j-prism-2/report-and-materials
[236] Nomura M., JICA Expert on Solid Waste Management Training/Monitoring, J-PRISM II, pers. comm., 26 June 2020

Strategic Actions	Activities[150] Good progress Limited progress No progress	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	11.16. Conduct national training on litigation, enforcement, compliance, monitoring and prosecution of WCP legislation, including marine pollution	WCP departments	AS, FP, GU, NI, PNG, TO, TV, VU, SI, FJ	No. of persons trained in WCP legislation enforcement	Unable to measure the KPI but 1 of 10 priority PICTs progressed legislation enforcement: • VU – authorised enforcement officers trained to enforce waste management regulations; and two other training workshops held for a police officer, 12 municipal wardens, provincial compliance officer, planner, and the area secretary within the Shefa province[237]
E. Improve dissemination of outcomes and experiences in WCP management					
12. SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural change programmes.	12.1. Develop and disseminate a model regional WCP communication plan	SPREP (Sec)	All	Model WCP communication plan disseminated	No progress – no funding to support this activity
	12.2. Develop and implement national WCP communication action plans	WCP departments	All	No. of national WCP communication action plans developed and implemented	Unable to assess against the KPI (due to no progress with 12.1), but WCP communication and awareness-raising undertaken by 8 of 21 PICTs (CI – asbestos, FSM – new waste collection system, KI – clean Pacific programme, NI – asbestos, PA – solid waste management, RMI – asbestos, pre-paid bag scheme, SA – marine litter, TV – solid waste management) [Refer to PICTs' progress assessments for details and sources]
	12.3. Develop a regional WCP tool kit (including teaching methods) for primary, secondary and tertiary schools	SPREP (Sec)	All	Regional tool kit for school WCP education disseminated	No progress – limited resources available to support this activity
	12.4. Apply regional tool kits at the national level to deliver WCP education programmes in primary, secondary and tertiary schools	WCP departments	All	No. of PICTs delivering WCP awareness programmes based on regional tool kit	Unable to assess against the KPI (due to no progress with 12.3), but 5 of 21 PICTs progressed WCP education programmes in schools (AS, CNMI, FJ, KI, PNG) [Refer to PICTs' progress assessments for details and sources]
	12.5. Develop a regional WCP education tool kit (including teaching methods) for the private sector	SPREP (Sec)	All	Regional tool kit for private sector WCP education disseminated	No progress – limited resources available to support this activity

[237] https://depc.gov.vu/images/Waste.Management/Public_Version_NWMPCS_Action_Plan_in_2019.pdf

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
	12.6. Apply regional tool kit at the national level to deliver WCP awareness programmes in the private sector	WCP departments	All	No. of PICTs delivering WCP awareness programmes based on regional tool kit	Unable to assess against the KPI (due to no progress with 12.5), but 4 of 21 PICTs progressed WCP education programmes with the private sector (CNMI, NC, PNG, TV) [Refer to PICTs' progress assessments for details and sources]
	12.7. Provide training to WCP departments in the development and delivery of WCP awareness materials and programmes	SPREP (Sec)	All	No. of persons trained in development and delivery of WCP awareness programmes	Unable to measure the KPI but 2 training sessions delivered by PacWaste Plus for the 14 PICs (CI, FSM, FJ, KI, NA, NI, PA, PNG, RMI, SA, SI, TO, TV, VU), on the development and implementation of National Education and Awareness Plans[238]
	12.8. Develop and disseminate case studies of WCP best practices	SPREP (Sec)	All	No. of case studies of WCP best practices published	Numerous best practice case studies/information presented as part of: • *Practical Guide to Solid Waste Management in Pacific Island Countries and Territories*, developed by JICA/J-PRISM and SPREP with contributions from FJ, FSM, PA, PNG, SI, TO, VU[239] • PacWaste project – best practice information presented for management of asbestos, e-waste, healthcare waste[240] • University of Samoa Science Conference – four papers presented on good waste management practices in Samoa[241]

[238] Nolan B., Programme Manager PacWaste Plus, pers. comm., 24 June 2020
[239] JICA and SPREP (2018) Practical Guide to Solid Waste Management in Pacific Island Countries and Territories, https://www.sprep.org/attachments/j-prism-2/SWM_GUIDEBOOK_.pdf
[240] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished
[241] SPREP (2018) Performance Monitoring and Evaluation Report on the 2017 Work Programme and Budget, https://www.sprep.org/sites/default/files/documents/executive_board/2018/WP.5.3.Att.1%20-%20Final%20Draft%20Report%20on%20the%202017%20PMER%20ME%20Final.pdf

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress / Limited progress / No progress				
	12.9. Implement community-based demonstration projects (such as installation of litter booms and litter bins, and assessment of the collected litter) to raise awareness of marine litter	SPREP (Sec)	AS, PNG, SA, SI, TV	No. of community-based demonstration projects implemented	Community-based demonstration projects implemented/supported by SPREP in 2 of 5 priority PICTs and 1 non-priority PICT: • FJ – supported a plastic-free rugby tournament (RAKA 7s)[242] • SA – Greening of the (Pacific) Games initiative led by MNRE and SPREP involved 3 Apia-wide litter clean-ups, including assessment and recording of collected litter types; and banning of single-use plastics from Games venues, transport services and accommodation[243] • SI – Matanikau River marine debris demonstration project included installation of waste management collection bins for communities[244]
	12.10. Prepare annual briefing notes for ministers and heads of governments seeking the inclusion of priority WCP issues into leaders' forums such as MSG, MCES, PIFS, PIDF, and ministerial forums on climate change, economy, transport, energy and education	WCP departments	All	No. of PICTs preparing annual briefing notes	No progress
F. Promote regional and national cooperation					
13. SPREP, PICTs, and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste	13.1. Prepare a detailed concept note on the Clean Pacific Roundtable and obtain views from members, donors, partners and others	SPREP (Sec)	All	Clean Pacific Roundtable concept note disseminated	Concept notes prepared and disseminated for CPRT sessions, and two CPRTs successfully convened in 2016 and 2018 (see 13.5)[245]
	13.2. Convene an in-house committee to progress planning for the first Clean Pacific Roundtable meeting	SPREP (Sec)	All	In-house committee meetings conducted	Organising committee convened within SPREP WMPC, and meetings conducted, ahead of the 2016 CPRT[246]

[242] Ibid.
[243] https://www.sprep.org/news/samoas-leaves-a-legacy-for-the-greening-of-future-pacific-games
[244] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Work Programme and Budget, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%205.2.Att.1.rev.1-2016%20PMER%20final.pdf
[245] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[246] Ibid.

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
management and pollution control dialogue and networking in the region.	13.3. Participate fully in the establishment and implementation of the Clean Pacific Roundtable (for example, by providing timely input and feedback on the Clean Pacific Roundtable concept note)	WCP departments	All	No. of PICTs providing feedback during the process No of PICTs participating in roundtable meeting(s)	Unable to measure the KPI but the 2018 CPRT organising committee comprised PICT representatives from each sub-region, who provided input during the preparation and conduct of the event.[247] • 17 of 21 PICTs attended the 2016 CPRT (AS, CI, FSM, FJ, FP, GU, KI, NA, PA, PNG, RMI, SA, SI, TK, TO, TV, VU) • 20 of 21 PICTs attended the 2018 CPRT (AS, CI, FSM, FJ, FP, GU, KI, NA, NC, NI, PA, PNG, RMI, SA, SI, TK, TO, TV, VU, WF)[248]
	13.4. Allocate resources through national budgeting process (where possible) to support attendance costs to the first Clean Pacific Roundtable (to be held tentatively in early 2016)	WCP departments	All	No. of self-funded PICT representatives participating in the Clean Pacific Roundtable meeting	5 of 21 PICTs self-funded representatives to attend the 2018 CPRT (AS, FJ, FP, VU, TV)[249]
	13.5. Conduct the first Clean Pacific Roundtable meeting	SPREP (Sec)	All	Clean Pacific Roundtable meeting convened	Two CPRTs convened: • 2016 – successful launch of Inaugural Clean Pacific Roundtable in Suva, Fiji, with 96 participants from 17 SPREP Member countries and territories[250] • 2018 – second CPRT, with 170 participants, including the private sector[251]
14. SPREP, PICTs, and partners shall strengthen national and regional cooperation and	14.1. Develop database of PICTs' and metropolitan members' WCP capacity (WCP expertise, main contacts, WCP stakeholders, WCP case studies, and so on).	SPREP (Sec)	All	Database developed and populated	Pacific Islands Database of Capacity Development Initiatives under development through J-PRISM II, to be turned over to SPREP for input of information[252]

[247] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[248] Ibid.
[249] Yoshida A., Regional Cooperation/Project Coordinator, J-PRISM II, pers. comm., 26 June 2020
[250] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Work Programme and Budget, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%205.2.Att.1.rev.1-2016%20PMER%20final.pdf
[251] SPREP (2018) Executive Board Meeting 2018, WP 10.3, Att. 1, Clean Pacific Roundtable 2018 Executive Summary https://www.sprep.org/sites/default/files/documents/executive_board/2018/WP.10.3.1.Att.1%20-%20CPR%20Report%202018_Executive%20Summary_FINAL.pdf
[252] Yoshida A., Regional Cooperation/Project Coordinator, J-PRISM II, pers. comm., 26 June 2020; Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress				
	Limited progress				
	No progress				
coordination on waste and pollution management activities.	14.2. Increase the profile of WCP issues and best practices through existing forums such as the CROP Marine Sector Working Group, PACMA, PMTA, AOSIS, MSG, MCES, PALM	SPREP (Sec)	All	No. of forums with priority WCP issues on the agenda	WCP issues featured in 7 forums:[253] • 2017, 2018, 2019 Pacific Islands Forum meeting, WCP issues included in communique • 2017, 2019 Transport and Energy Ministers Meeting, WCP issues included in outcomes statement • 2018 Pacific Islands Leaders Meeting (PALM8), WCP issues included in outcomes statement • 2019 Sports Ministers Meeting, WCP issues included in outcomes statement • 2019 Pacific Maritime Transport Alliance

[253] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

	14.3. Conduct an annual national WCP forum, or participate in existing forums to support and promote experience-sharing and dissemination of best practices	WCP departments	All	No. of national annual WCP forums conducted	17 of 21 PICTs hosted, coordinated or participated in WCP forums: • AS – hosted a Dry Litter Piggery Workshop attended by representatives from CI, FSM, KI, TV • CNMI – hosted the 29th Pacific Islands Environment Conference, which included sessions on water quality • FSM – two national SWM workshops held (under J-PRISM II's JCC), for the 4 states to share baseline waste survey results and efforts to improve waste collection services • FSM, PA, RMI – participated in a sub-regional workshop on disaster waste management (DWM) • FJ, NA – shared landfill rehabilitation experience • FJ, TV, VU – collaborated on DWM • FJ, SA, SI, TO, TV, VU – participated in a sub-regional workshop on DWM • GU – hosted the 30th Pacific Islands Environment Conference, which included waste management workshops and presentations • KI – convened the "Kiribati Boboto Technical Dialogue" on waste management issues with representatives from government, Church groups, NGOs, communities, State Owned Enterprises and the private sector • NC – hosted the 11th Pacific Water and Wastewater Conference • PA – shared experiences with representatives from TV at a SWM workshop; presented on SWM and 3R activities during J-PRISM II Steering Committee meetings • PNG – city-city cooperation, technical training and capacity development programme between NCDC-Goroka and NCDC-Kokopo with the support of J-PRISM II • RMI, KI, TV – exchanged knowledge of atoll waste management practices • SA – Greening the Games campaign promoted alternatives to single-use plastics; hosted the 10th Pacific Water and Wastewater Conference • SI – Honiara City Council, in cooperation with MECDM and Provincial Centres, led human and institutional capacity development initiatives targeting towns/cities, to share good practices and strengthen capacity nation-wide (e.g. with waste audits); attended disaster waste management training in Japan • VU – DEPC supported Municipal Councils and Provincial Government Councils with development of their annual Waste Management Plans through a process of information sharing and consultation • WF – 'Recycling waste for zero waste' side event hosted at the 29th SPREP Meeting • Also, J-PRISM II Steering Committee Meetings held annually, attended by representatives from the 9 member countries (FSM, PA, PNG, RMI, SA, SI, TO, TV, VU) as a regional platform to share their practices and project progress. At the national level, Joint-Coordination-Committee Meetings held annually with all stakeholders to share project progress and good practices [Refer to PICTs' progress assessments for details and sources]

Strategic Actions	Activities[150]	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	Good progress Limited progress No progress				
	14.4. Seek opportunities to engage with regional organisations in WCP-related areas of water and sanitation, transport, energy, disaster risk reduction, agriculture, tourism, health, forestry and fisheries	SPREP (Sec)	All	No. of WCP activities involving other regional organisations	No progress / unable to measure the KPI in relation to the specified activity
	14.5. Establish a network of WCP recyclers, shippers and related stakeholders across PICTs to champion resource recovery from packaging waste, e-waste, used oil, used lead acid batteries, used shipping containers and other WCP	SPREP (Sec)	All	WCP recycling network established No. of members of WCP recycling network	Several initiatives contributed to establishment of a recycling network: • J-PRISM II and SPREP supported the creation and functioning of recycling associations in SA, SI, TV, FJ and VU[254] • J-PRISM II held the third Steering Committee meeting in 2019, attended by recycling associations from FJ, SA, SI, VU, and government officials from FSM, PA, PNG, RMI, SA, SI, TO, TV, VU, to discuss the need for establishing a regional recycling network[255] • Recycling Technical Working Group formed through the CPRT[256] Unable to accurately measure the KPI
	14.6. Develop a directory of endorsed WCP professional bodies for potential member participation	SPREP (Sec)	All	Directory of endorsed WCP professional bodies disseminated to PICTs	No progress
	14.7. Encourage employees to participate in endorsed WCP professional bodies	WCP departments	All	No. of persons participating in WCP professional bodies	No progress, linked to 14.6

[254] Ibid.
[255] Yoko, O., JICA Expert / Monitoring 3R+Return J-PRISM II, pers. comm., 26 June 2020
[256] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

Strategic Actions	Activities[150] Good progress Limited progress No progress	Lead Agency	Priority PICTs	Key Performance Indicators	KPI assessment
	14.8. Establish a national WCP Steering Committee to support coordination and monitoring of WCP activities across responsible agencies	WCP departments	All	No. of functional national WCP steering committees	4 of 21 PICTs established WCP steering committees: • GU – established the multi-agency Zero Waste Working Group Guam, to develop and make recommendations for adoption and implementation of the Guam Zero Waste Master Plan • PNG – ToR developed for the National Waste Management Committee and first meeting held • SA – steering committee established to monitor the implementation of the National Solid Waste Management Strategy and coordinate technical working groups • TV – Waste Management Coordinating, Waste Levy, and Used Lubricating Oil committees established [Refer to PICTs' progress assessments for details and sources]
15. SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the *Integrated Regional Waste Management and Pollution Control Strategy 2016–2025*.	15.1. Prepare annual national reports of WCP activities and outcomes	WCP departments	All	No. of annual national reports of WCP activities prepared and submitted to SPREP (Sec)	3 of 21 PICTs completed WCP activity reports: • PA – annual report published on beverage container recycling programme by the Bureau of Public Works[257] • VU – progress monitoring of National Waste Management and Pollution Control Strategy evaluated and summarised by DEPC in 2017, 2018 and 2019[258, 259] • TV – 2 reviews completed of Tuvalu's Integrated Waste Policy and Action Plan 2017-2026[260] Regional monitoring form for solid waste management data developed by JICA/J-PRISM II and distributed in 2020. The form is aligned with the performance indicators of J-PRISM II and CP2025, and supports annual, national level monitoring and reporting in 9 PICs (FSM, FJ, PA, PNG, RMI, SA, SI, TO, VU)[261]
	15.2. Prepare an annual regional report of WCP activities and outcomes (with support for online national reporting)	SPREP (Sec)	All	No. of annual regional reports of WCP activities prepared	No progress – dependent on the development of the regional waste monitoring system (refer to activities 1.2, 1.3)

[257] Nomura M., JICA Expert on Solid Waste Management Training/Monitoring, J-PRISM II, pers. comm., 26 June 2020
[258] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.
[259] https://depc.gov.vu/images/Waste.Management/Public_Version_NWMPCS_Action_Plan_in_2019.pdf
[260] Government of Tuvalu (2019) The 2nd Annual Review of the Implementation Status of Tuvalu's Integrated Waste Policy and Action Plan 2017-2026
[261] Yoshida A., Regional Cooperation/Project Coordinator, J-PRISM II, pers. comm., 5 June 2020

Appendix 4: Pacific island country and territory progress assessments

Individual progress assessments are detailed below for each of the twenty-one Pacific island countries and territories, for the initial implementation phase of CP2025, 2016–2019. Assessment comprehensiveness varied between countries and territories depending on data and information available at the time of the CP2025 mid-term review (April–July 2020). A few progress assessments were reviewed and validated by countries, but most were not (indicated in footnotes).

Each country or territory was assigned a rating based on their overall CP2025 progress:

- **Good = ≥ 5 (out of 20) performance indicators improved and good and/or limited progress achieved for ≥ 8 (out of 15) strategic actions;**
- **Fair = ≥ 5 (out of 20) performance indicators improved and good and/or limited progress achieved for < 8 (out of 15) strategic actions, OR**

58) **< 5 (out of 20) performance indicators improved and good and/or limited progress achieved for ≥ 8 (out of 15) strategic actions;**

- **Limited = < 5 (out of 20) performance indicators improved and good and/or limited progress achieved for < 8 (out of 15) strategic actions.**

The low assessment threshold for performance indicators accounts for the data gaps that still exist across all countries and territories.

AMERICAN SAMOA: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016–2019[262]

Overview

Based on available data/information, American Samoa's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: Litter enforcement law updated, Keep American Samoa Beautiful Act 2016 (Table 1).
- *Twenty CP2025 performance indicators*: with reference to very limited 2014 baseline information, 2 indicators have improved (per capita municipal solid waste generation decreased, composting operational); 6 remain unchanged/stable; progress is undetermined for 4 indicators due to data being available for 1 year only; and 8 indicators have no data for assessing progress (Table 2). Note, 2 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 3 (resource recovery, environmental monitoring and reporting, Clean Pacific Roundtable participation); limited progress achieved for 4; and no progress for 8 strategic actions (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

5. Development of an integrated WCP strategy and action plan that is aligned with CP2025, and includes a monitoring and reporting framework;
6. Development of public-private partnerships, especially for container deposit, EPR and recycling programmes;
7. Implementation of WCP prevention and reduction programmes;
8. Expansion of routine monitoring and reporting, especially for WCP management activities; and
9. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for American Samoa. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X	ND	13, 14 (L)
Healthcare waste	X	X		ND	13, 14 (L)
Other hazardous waste	X	X	X	ND	13 (L)
Liquid waste	X	X		ND	2, 13, 14 (L)
Chemicals	X	X		ND	13, 14 (L)
Oil spill contingency	N/A	N/A	X	X	2 (PSP)
Air pollution	X	X		ND	13, 14 (L)
Plastics (including single-use)[c]	X	X		ND	13 (L)
Container deposit[c]					
Litter[c]	X	X[1]		ND	13, 14 (L)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; ND = no data; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; 1 = updated law, *Keep American Samoa Beautiful Act 2016*.

[262] Progress assessment not reviewed and validated by American Samoa.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				1.0 (Tutuila Island)	0.94[b]	15
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	10
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND	
No. of national or municipal composting programmes				0	1[c]	3
No. of national or state container deposit programmes				0	0[d]	12
No. of national EPR programmes for used oil				0	0[e]	4
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection[a]				1[f]	1[f]	11
Waste collection coverage (% of population)				100% (urban) 100% (national)	ND	
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				3[g]	ND	
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0[h]	16
No. of water and environmental quality monitoring programmes[a]				1[i]	1[i]	5
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 adjusted urban and rural estimate; c = '1' indicates a composting programme is operational; d = no CDP but a private enterprise pays customers for the return of used beverage aluminium cans and bottles; e = EPR scheme run by one supplier for its products only; f = '1' indicates user-pays waste collection is in place; g = open dumps only; h = primary treatment only; i = '1' indicates a number of EPA monitoring programmes are operational.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	Strengthen institutional capacity		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 3 activities progressed: recreational marine waters analysed weekly for microbiological quality and public advisories issued; freshwater rivers, streams and estuaries monitored regularly by AS-EPA.	5
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	1 of 5 activities progressed: litter enforcement law updated and in force (Keep American Samoa Beautiful Act 2016).	6
B.	Promote public-private partnerships		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	Implement sustainable best practices in WCP management		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 8 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 2 activities progressed: WCP education/environmental awareness delivered in schools by AS-EPA.	8
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	0 of 3 activities progressed, however, AS has an existing monthly household waste collection fee billed by the AS Power Authority.	1
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	0 of 8 activities progressed.	
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: recreational marine waters analysed weekly for microbiological quality and public advisories issued; freshwater rivers, streams and estuaries monitored regularly by AS-EPA.	5
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 2 activities progressed.	
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: WCP education/environmental awareness delivered in schools by AS-EPA.	8
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	2 of 2 activities progressed: participated in CPRTs 2016 and 2018; self-funded a delegate in 2018.	7

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: AS-EPA, in partnership with the Interagency Piggery Management Group, hosted a Dry Litter Piggery workshop attended by representatives from TV, KI, FSM and CI.	9
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] https://americansamoaport.as.gov/about-us/general-rules-regulations.html
[3] https://www.epa.as.gov/piggeries
[4] Araspring Ltd. (2018) Used Oil Report – Fiji, Niue, Kiribati, Vanuatu, SCL, https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf
[5] https://www.epa.as.gov/water-quality
[6] https://www.epa.as.gov/sites/default/files/documents/regulations/Litter%20Enforcement.pdf
[7] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[8] https://www.epa.as.gov/outreach
[9] https://www.epa.as.gov/asepa-hosts-dry-litter-piggery-program-workshop
[10] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[11] https://aspower.com/rates.html
[12] https://www.ghcreid.com/recycling
[13] https://www.epa.as.gov/laws-and-regulations
[14] http://www.paclii.org/as/legis/consol_act/
[15] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317
[16] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS (CNMI): CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016–2019[263]

Overview

Based on available data/information, CNMI's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: Air Pollution Control Regulations updated (Table 1).
- *Twenty CP2025 performance indicators*: with reference to very limited 2014 baseline information, 1 indicator has improved (water quality monitoring operational), 3 remain unchanged/stable, progress is undetermined for 5 indicators due to data being available for 1 year only, and 11 indicators have no data for assessing progress (Table 2).
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 2 (WCP data collection and management, environmental monitoring), limited progress achieved for 5, and no progress for 7 strategic actions. Activities under 1 strategic action were not applicable to CNMI (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of an integrated WCP strategy and action plan that is aligned with CP2025 and includes a monitoring and reporting framework;
2. Development of public-private partnerships, especially for container deposit, EPR and recycling programmes;
3. Implementation of WCP prevention and reduction programmes;
4. Remediation of contaminated sites and management of hazardous waste, including development of inventories; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for CNMI. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	ND	ND	11 (L)
Healthcare waste	ND	ND	ND	ND	
Other hazardous waste	X	X	ND	ND	11 (L)
Liquid waste	X	X	ND	ND	11 (L)
Chemicals	X	X	ND	ND	11 (L)
Oil spill contingency	N/A	N/A	ND	ND	
Air pollution	X	X[1]	ND	ND	11 (L)
Plastics (including single-use)[c, d]				ND	
Container deposit[c]				ND	
Litter[c]	X	X		ND	11 (L)

a = 2020 information/data sources only, 2016 data from source 1; b = c = new category, not referred to in CP2025; d = in 2019 the CNMI Legislature introduced a bill to ban the importation, production, distribution and use of single-use plastic bags (source 2); N/A = not applicable; ND = no data; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; 1 = Air Pollution Control Regulations updated in 2017.

[263] Progress assessment not reviewed and validated by the Commonwealth of the Northern Mariana Islands.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				ND	2.6[b]	3
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	4
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND	
No. of national or municipal composting programmes				0	0	9
No. of national or state container deposit programmes				0	0[c]	12
No. of national EPR programmes for used oil				0	ND	
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection				ND	ND	
Waste collection coverage (% of population)				ND	ND	
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				ND	2[d]	9
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				ND	ND[e]	9
No. of water and environmental quality monitoring programmes				0	1[f]	5, 6
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = estimate for Saipan only (approx. population 50,000), based on MSW tonnages received at solid waste facilities during the 2018 fiscal year (FY). FY2019 MSW tonnages are available, however, Super Typhoon Yutu resulted in a significant increase in MSW generation during that year, so FY2018 figures were deemed to be better for the purpose of this assessment; c = no container deposit programme but recycling is available, with some private operators offering a buyback programme for recyclables; d = open dumps only; e = Saipan has two wastewater treatment plants that treat sewage to secondary standards, however, no data is available for % treated; f = '1' indicates water quality monitoring is occurring, a number of monitoring programmes are operational.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	Strengthen institutional capacity		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 3 activities progressed: MSW and recyclables data recorded (amount collected and processed) by the Public Works Department; marine water quality sampled weekly by Division of Environmental Quality (DEQ) to monitor chemical, physical and microbial quality of nearshore waters (Tinian, Rota, Managaha, Saipan islands); health of CNMI waters evaluated biannually by DEQ, analysing water quality monitoring data, the health of coral reefs and seagrass beds, and interpreting the impacts of mapped pollution sources; stream water monitored and watersheds assessed regularly for pollution sources by DEQ.	3, 5, 6
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	1 of 5 activities progressed: Air Pollution Control Regulations updated.	11
B.	Promote public-private partnerships		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	Implement sustainable best practices in WCP management		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: 8 recycling centres on Saipan, 1 on Tinian for paper, glass, plastic, metals.	7
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	0 of 2 activities progressed.	8
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to CNMI.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 6 activities progressed: new solid waste transfer facility built for Tinian, feasibility studies underway for solid waste management options for Saipan, funds approved to modify and improve Rota dumpsite.	9
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: marine water quality sampled weekly by DEQ to monitor chemical, physical and microbial quality of nearshore waters (Tinian, Rota, Managaha, Saipan islands); health of CNMI waters evaluated biannually by DEQ, analysing water quality monitoring data, the health of coral reefs and seagrass beds, and interpreting the impacts of mapped pollution sources; stream water monitored and watersheds assessed regularly for pollution sources by DEQ.	5, 6
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 1 activity progressed.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 5 activities progressed: education programmes delivered by DCRM to schools, businesses and general community about the impacts of single-use plastics and benefits of a zero-waste lifestyle.	8
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	0 of 2 activities progressed.	
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: Bureau of Environmental and Coastal Quality hosted the 29th Pacific Islands Environment Conference in 2017, which included water quality training sessions.	10
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] http://www.cnmileg.gov.mp/documents/senate/sen_bills/21/SB21-37.pdf

[3] https://opd.gov.mp/library/ccr/2019-department-of-public-works-citizen-centric-report/

[4] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

[5] http://www.deq.gov.mp/sec.asp?secID=66

[6] http://www.deq.gov.mp/sec.asp?secID=68

[7] http://www.deq.gov.mp/article.asp?secID=11&artID=31

[8] https://dcrm.gov.mp/our-programs/education-and-outreach/

[9] Office of Planning and Development, CNMI (2019) Resources Report: Planning for Sustainability in the Commonwealth of the Northern Mariana Islands (Working draft) https://opd.gov.mp/wp-content/uploads/opd/ResourcesReport_workingdraft0901.pdf

[10] http://www.deq.gov.mp/sec.asp?secID=73

[11] http://www.deq.gov.mp/sec.asp?secID=15

[12] http://deq.gov.mp/article.asp?secID=11&artID=99

COOK ISLANDS: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[264]

Overview

Based on available data/information, the Cook Islands' overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: Solid Waste Management Policy 2016-2026 remains current; Sanitation (Wastewater Management) Policy 2016 endorsed by Cabinet; NATPLAN (National Marine Spill Contingency Plan) updated; and a new Single-use Plastic Ban Policy 2018-2023 prepared and endorsed (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 2 indicators have improved (asbestos removed, water quality monitoring operational), 7 indicators remain unchanged/stable, progress for 6 is undetermined due to data being available for 1 year only, and 5 indicators have no data for assessing progress (Table 2).
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 3 (development of WCP policies, strategies, plans; environmental monitoring; Clean Pacific Roundtable participation); limited progress achieved for 5; and no progress for 6 strategic actions. Activities under 1 strategic action were not applicable to the Cook Islands (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of public-private partnerships, especially for container deposit, EPR and recycling programmes;
2. Implementation of WCP prevention and reduction programmes;
3. Management of hazardous waste, including development of inventories;
4. Expansion of monitoring and reporting, especially for WCP management activities; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for the Cook Islands. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X*	X*	17 (L), 2 (PSP)
Healthcare waste			X*	X*	2 (PSP)
Other hazardous waste	X	X	X*	X*	17 (L), 2 (PSP)
Liquid waste	X	X	D*	X	17, 18 (L), 2 (PSP)
Chemicals	X	X	C[1^]	C[1^]	17 (L), 16 (PSP)
Oil spill contingency	N/A	N/A	X	X	20 (PSP)
Air pollution					
Plastics (including single-use)[c]				X	3 (PSP)
Container deposit[c]					
Litter[c]					

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; ND = no data; X = enacted (L) or endorsed (PSP) and current; D = prepared but not endorsed (PSP); C = preparation has commenced; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; 1 = for POPs only; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for COP amendments.

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[264] Progress assessment not reviewed and validated by the Cook Islands.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				ND	1.14[a]	4
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	20
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND	
No. of national or municipal composting programmes				1	ND	
No. of national or state container deposit programmes				0	0[b]	6
No. of national EPR programmes for used oil				0	0[c]	7
No. of national EPR programmes for e-waste				0	0[d]	15
No. of national or state user-pays systems for waste collection				0	0[e]	2
Waste collection coverage (% of population)				100% (urban) 74% (national)[f]	ND	
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				10[g]	10[g]	8
Quantity of asbestos stockpiles (m^2)				6,520	3,310 removed during PacWaste project[h]	11
Quantity of healthcare waste stockpiles (tonnes)				0	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				0	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	19
No. of water and environmental quality monitoring programmes				0	1[i]	10
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = 2016 estimate based on income groups in source 4 (Fig. 2.6, pg 27), and calculation of the average value across upper-middle and high-income countries; b = recycling available but no container deposit programme; c = EPR scheme run by one supplier for its products only; d = no EPR programmes but a pilot e-waste collection scheme was organised during the PacWaste project; e = Solid Waste Management Policy 2016-2026 includes a policy to introduce user-pay for collection of household waste; f = Rarotonga only; g = open dumps only; h = this indicator is rated as 'improved' based on the removal of asbestos; i = '1' indicates monitoring of stream, lagoon and groundwater resources by the Ministry of Marine Resources in collaboration with the National Environment Service, Infrastructure Cook Islands and the Ministry of Health.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	Strengthen institutional capacity		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 4 activities progressed: stream, lagoon and groundwater water quality monitored by the Ministry of Marine Resources in collaboration with the National Environment Service (NES), Infrastructure Cook Islands (ICI) and the Ministry of Health.	10
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	4 of 8 activities progressed: integrated policies developed for WCP management and institutional arrangements reviewed; marine spill contingency plan (NATPLAN) updated; development of a national healthcare waste strategy supported by the PacWaste project.	2, 3, 9, 15, 20
B.	Promote public-private partnerships		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: collaborative arrangement made between ICI and General Transport to export recyclables off Rarotonga; list of Pacific recycling companies posted on Pacific Recycling Technical Working Group (RWG) webpage.	12, 14
C.	Implement sustainable best practices in WCP management		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 9 activities progressed: recycling centre managed by Infrastructure Cook Islands at the Rarotonga Waste Facility.	9, 13
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	0 of 4 activities progressed.	
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to the Cook Islands.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 7 activities progressed: high temperature incinerator installed to address medical waste disposal through the PacWaste project; Healthcare Waste Management Committee formalised to monitor outcomes, maintain standards and deliver staff education.	11
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: stream, lagoon and groundwater water quality monitored by the Ministry of Marine Resources in collaboration with the NES, ICI and the Ministry of Health.	10
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 1 activity progressed.	
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: education, awareness and engagement activities delivered through the PacWaste project, including an asbestos awareness-raising campaign.	15

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
F. Promote regional and national cooperation			
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018.	5
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	0 of 3 activities progressed.	
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025, https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] http://ici.gov.ck/news/policies-approved-by-cabinet
[3] http://www.ici.gov.ck/policy-to-ban-importation-of-polystyrene-takeaway-containers
[4] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317
[5] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[6] http://www.ici.gov.ck/the-landfill
[7] Araspring Ltd (2018) Used Oil Report – Fiji, Niue, Kiribati, Vanuatu, SCL, https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf
[8] https://www.theprif.org/documents/regional/urban-development-waste-management/pacific-region-solid-waste-management-and
[9] SPREP Waste Management and Pollution Control Programme, internal CP2025 progress review, unpublished
[10] https://www.mmr.gov.ck/water-quality-monitoring/
[11] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished
[12] http://ici.gov.ck/pacific-recycling-technical-working-group
[13] http://ici.gov.ck/the-landfill
[14] http://ici.gov.ck/news/waste
[15] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[16] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[17] https://www.ecolex.org/details/legislation/environment-act-2003-no-23-of-2003-lex-faoc048637/
[18] https://www.health.gov.ck/wp-content/uploads/2017/05/Public-Health-sewage-and-waste-water-treatemnt-and-Disposal-Regulations-2014.pdf
[19] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[20] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

FEDERATED STATES OF MICRONESIA (FSM): CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[265]

Overview

Based on available data/information, FSM's overall CP2025 progress is rated as 'good':

- *National legislation, policies, strategies and plans for waste, chemicals and pollution (WCP)*: Solid Waste Management Strategies aligned with CP2025, developed and endorsed for Chuuk, Kosrae, Pohnpei and Yap, to support the National Solid Waste Management Strategy; and new laws banning single-use plastics enacted at a national level and also for Chuuk and Kosrae (Tables 1a, 1b).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 5 indicators have improved (increased number of state container deposit programmes, increased national waste collection coverage, asbestos removed, used oil stockpile decreased, water quality monitoring operational); 6 indicators remain unchanged/stable; progress for 7 is undetermined due to data being available for 1 year only; and 2 have no data for assessing progress (Table 2). Note, 2 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (WCP data collection and management; development of WCP policies, strategies, plans; environmental monitoring; human capacity development; Clean Pacific Roundtable participation); limited progress achieved for 5; and no progress for 4 strategic actions. Activities under 1 strategic action were not applicable to FSM (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of public-private partnerships, especially for EPR and recycling programmes;
2. Implementation of WCP prevention and reduction programmes;
3. Management of hazardous waste, including development of inventories;
4. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance; and
5. Implementation of WCP education and behavioural-change programmes.

Results

Tables 1a, 1b, 2 and 3, below, document key findings from the CP2025 progress assessment for FSM. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1a: Status of waste, chemicals and pollution (WCP) legislation[a]

	2016					2020					Sources[b]
	National	Chuuk	Kosrae	Pohnpei	Yap	National	Chuuk	Kosrae	Pohnpei	Yap	
Solid waste		X	X	X	X		X	X	X	X	16, 19
Healthcare waste											
Other hazardous waste	X		X	X	X	X		X	X	X	16
Liquid waste	X	X	X	X	X	X	X	X	X	X	16, 19
Chemicals	X		X		X	X		X		X	16, 19, 21
Air pollution	X	X	X	X	X	X	X	X	X	X	16, 19
Single-use plastics				X	X	X	X	X	X	X	17, 18, 20, 22
Container deposit		X[c]	X	X	X		X[c]	X	X	X	2, 16
Litter	X	X	X	X	X	X	X	X	X	X	16

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 and 2020; c = CDL legislation enacted but system last functioned around 2002 (source 2); X = enacted; blank cells indicate WCP categories not addressed in legislation.

[265] Progress assessment reviewed and validated by the Federated States of Micronesia.

Table 1b: Status of WCP policies, strategies, plans (PSP)

	2016	2020					Sources[a]
		National	Chuuk	Kosrae	Pohnpei	Yap	
Solid waste	X	X	X	X	X	X	2, 13
Healthcare waste	X*	X*					3, 13
Other hazardous waste	X*	X*					13
Liquid waste	X	X		X[c]		X[c]	2
Chemicals	X[1]	X[1^]					15
Oil spill contingency	D					X	24
Air pollution	X						2
Plastics (including single-use)[b]							
Container deposit[b]							
Litter[b]							

a = 2020 information/data sources only, 2016 data is from source 1 and it was not disaggregated in terms of national and state PSP; b = new category, not referred to in CP2025; c = waste oil included in state Solid Waste Management Strategy; ND = no data; X = document endorsed and current; C = preparation has commenced; D = document prepared but not endorsed; blank cells indicate WCP categories not addressed in PSP; * = part of an integrated PSP; 1 = for POPs only; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for COP amendments.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020					Sources[A]
	Improved		Undetermined		National	Chuuk	Kosrae	Pohnpei	Yap	
	Unchanged/stable		No data							
	Deteriorated									
Per capita generation of municipal solid waste (kg/person/day)				ND	1.12[b]	0.92[c]	1.13[c]	1.15[c]	1.29[c]	2
No. of marine pollution incidents				ND	0	0	0	0	0	24
No. of port waste reception facilities				0	0	0	0	0	0	6
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	68[d]	ND	86[e]	57[e]	96[e]	2
No. of national or municipal composting programmes[a]				1[f]	1[f]	1	1	1	1	2, 24
No. of national or state container deposit programmes				2	3[g]	0	1	1	1	2, 7
No. of national EPR programmes for used oil				0	0	0	0	0	0	24
No. of national EPR programmes for e-waste				0	0	0	0	0	0	24
No. of national or state user-pays systems for waste collection[a]				1	1[h]	0	1	1	1	2
Waste collection coverage (% of population)				35 (urban) 8 (national)	29 (national)[b, i]	48	36	17	16	2
Waste capture rate (= amount collected/amount generated) (%)				ND	18	28	17	13	14	2
No. of temporary, unregulated and open dumps				34	ND	ND	ND	ND	ND	
Quantity of asbestos stockpiles (m^2)				3,557	53 removed during PacWaste[i]	ND	ND	ND	ND	3
Quantity of healthcare waste stockpiles (tonnes)				0	ND	ND	ND	ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	ND	ND	ND	ND	
Quantity of used oil stockpiles (m^3)				1,027[k]	937[l]	ND	ND	ND	ND	8
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	ND	ND	ND	ND	
Urban sewage treated to secondary standards (%)				0	0	0	0	0	0	9
No. of water and environmental quality monitoring programmes				0	1[m]	1	1	1	1	10, 24
No. of national chemicals and pollution inventories				ND	1[n]	1	1	1	1	24

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = national value is the unweighted average of the state values; c = MSW (kg/person/day) estimates from 2017; d = national recycling rate calculated on the basis of total number of containers/items redeemed across CDPs in Pohnpei, Yap and Kosrae (i.e. national value is not the unweighted average of the state values); e = Kosrae and Pohnpei CDP recycling rates from 2017 and Yap recycling rate from 2016, based on the number of containers/items redeemed; f = '1' indicates composting programmes operational across the four states; g = national value is the sum of the 4 state values; h = '1' indicates municipal user-pays waste collection systems are operational across Kosrae, Pohnpei and Yap (to be counted as '1' for the regional assessment); i = note that waste from the outer islands is transported to the main islands on a monthly basis or when transport is available; j = this indicator is rated as 'improved' based on the removal of asbestos; k = sum of Chuuk, Kosrae, Pohnpei, Yap stockpiles; l = 2018 estimate for Pohnpei only (largest stockpile of all states), note, used oil has been exported since estimate made; m = '1' indicates monitoring programme operational, water quality testing by Pohnpei EPA; n = '1' indicates chemical inventories completed for all four states.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A. Strengthen institutional capacity			
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 4 activities progressed: waste amount and composition, waste disposal, and recycling surveys completed for all states with the support of JICA (J-PRISM II); fresh and marine water quality testing by Pohnpei EPA Water Lab.	2, 10
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	4 of 8 activities progressed: comprehensive solid waste management strategies, aligned with CP2025, developed for Chuuk, Kosrae, Pohnpei and Yap with the support of JICA (J-PRISM II); National Solid Waste Management Strategy under review; institutional arrangements reviewed and recommendations for improvement developed, as part of new waste management strategies; healthcare waste management guide reviewed through PacWaste project; new waste collection system trialled in Tomil municipality (Yap) and new inter-municipal collection system developed (Kosrae) with the support of JICA (J-PRISM II); Recycling Law reviewed in Chuuk with the support of JICA (J-PRISM II).	2, 3, 12, 24
B. Promote public-private partnerships			
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: private company contracted by Pohnpei state government to manage the landfill; private waste company and a recycling company contracted by Yap Public Works and EPA to manage waste collection and recycling, respectively; collaboration developed between recycling company and Kosrae Island Resource Management Authority (KIRMA).	24
C. Implement sustainable best practices in WCP management			
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	3 of 9 activities progressed: container deposit programmes (CDP)/recycling centres currently operating in Kosrae, Pohnpei and Yap; through J-PRISM II, recommendations developed for improving CDP in Pohnpei, and container deposit legislation amended by EPA in Chuuk, with CDP soon to commence; used oil transfer facility built through the GEFPAS UPOPs project, with used oil stockpiles transferred into this facility and exported to NZ through Socadis assistance; crushed glass used in Kosrae to cover pathways.	2, 6, 11, 12, 24
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	0 of 2 activities progressed.	
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to FSM – but a new user-pays waste collection system was trialled in Tomil municipality (Yap) and a new inter-municipal collection system was implemented in Kosrae with the support of JICA (J-PRISM II).	12

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	2 of 6 activities progressed: 2 waste oil containment facilities completed (Pohnpei); second cell constructed for Dekehtik Landfill Site (Pohnpei); new waste collection system trialled in Tomil municipality (Yap) with the support of (J-PRISM II); new inter-municipal waste collection system developed in Kosrae with the support of (J-PRISM II), with the service cost shared by Kosrae State Government and the four municipalities; inappropriately managed community dumpsites closed by EPA (Yap).	2, 10, 12, 23
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: fresh and marine water quality testing and monitoring conducted by all states (EPA/KIRMA surveillance labs).	10, 24
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 1 activity progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs.	23
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: public awareness programme implemented in Kosrae to encourage participation in the new inter-municipal waste collection system.	12
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: attended the CPRTs in 2016 and 2018 with JICA/J-PRISM assistance.	24
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint Coordination Committee Meetings, which brought together all states EPA/KIRMA Directors and Public Works Directors to share project progress and good practices, including SWM baseline survey results and efforts to improve waste collection services; participated in sub-regional workshops (JICA/J-PRISM II) on sanitary landfill design and operation, and disaster waste management.	6, 12, 23, 24
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025, https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] Chuuk State Solid Waste Management Strategy 2019 – 2028 (Action Plan: 2019-2023), Kosrae State Solid Waste Management Strategy 2018 – 2027 (Action Plan: 2018-2022), Pohnpei State Solid Waste Management Strategy 2020 – 2029 (Action Plan: 2020-2024), Yap State Solid Waste Management Strategy 2018 – 2027 (Action Plan: 2018-2022) https://www.sprep.org/j-prism-2/report-and-materials
[3] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[4] https://static1.squarespace.com/static/523ce201e4b0cd883dbb8bbf/t/5b5e38e02b6a28400343a7e8/1532901604439/ChuukSB14-34.pdf
[5] http://fsmlaw.org/kosrae/Law/pdf/11law/state%20law%20no.%2011-174.pdf
[6] SPREP Waste Management and Pollution Control programme, pers. comm.
[7] https://www.sprep.org/sites/default/files/documents/publications/pwp-factsheet-waste-funding-system.pdf
[8] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[9] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

[10] https://fsm-data.sprep.org/dataset/pohnpei-water-quality-and-project-report
[11] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/Waigani%20Convention/WP%204.1.%20Att.%202%20-%20Draft%20Report%20of%20the%20SCPRC-6%20meeting.pdf
[12] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II), Group 1, Project Completion Report 2 (Phase 2), Kokusai Kogyo Co., Ltd. EX Research Institute Ltd., unpublished
[13] Federated States of Micronesia, Office of Environment and Emergency Management (2015) FSM National Solid Waste Management Strategy 2015-2020.
[14] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[15] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[16] http://fsmlaw.org/fsm/index.htm
[17] https://static1.squarespace.com/static/523ce201e4b0cd883dbb8bbf/t/5b5e38e02b6a28400343a7e8/1532901604439/ChuukSB14-34.pdf
[18] https://www.cfsm.gov.fm/ifile/21%20congress/LAWS/PUBLIC_LAW_NO__21-76.pdf
[19] https://pohnpeistate.gov.fm/agency_protect.html
[20] http://www.micronesiaforum.org/index.php?p=/discussion/12259/yap-environmental-protection-agency-bans-plastic-bags
[21] https://fsm-data.sprep.org/dataset/yap-state-epa-regulations/resource/e1ae85aa-f89f-4b43-8961-478a1bab67fe
[22] http://fsmlaw.org/kosrae/Law/pdf/11law/state%20law%20no.%2011-174.pdf
[23] JICA, J-PRISM II team, pers. comm., 26 June 2020
[24] Pedrus P., Deputy Assistant Secretary, Waste Management & Pollution Control Unit, Division of ES&D, Department of Environment, Climate Change, & Emergency Management, National Government, FSM, pers. comm., 28 June 2020

FIJI: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[266]

Overview

Based on available data/information, Fiji's overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: new law passed banning the manufacture, sale, supply and distribution of thin plastic bags; Solid Waste Management Master Plan 2018–2027 published by Suva City Council (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 1 indicator has improved (asbestos removed); 5 indicators remain unchanged/stable, progress is undetermined for 10 indicators due to data being available for 1 year only, and 4 indicators have no data for assessing progress (Table 2). Note, 3 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 2 (resource recovery, Clean Pacific Roundtable participation), limited progress achieved for 6, and no progress for 6 strategic actions. Activities under 1 strategic action were not applicable to Fiji (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Finalisation of a national WCP strategy and action plan that is aligned with CP2025, and includes a monitoring and reporting framework;
2. Development of public-private partnerships, especially for container deposit and EPR programmes;
3. Implementation of WCP prevention and reduction programmes;
4. Management of hazardous waste, including development of inventories; and
5. Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Fiji. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	O	D[#]	9 (L), 2, 21 (PSP)
Healthcare waste	X	X	D	O	9 (L), 2 (PSP)
Other hazardous waste	X	X	O	O*	9 (L), 2 (PSP)
Liquid waste	X	X	O	O	9 (L), 3 (PSP)
Chemicals	X	X	C[1^]	C[1^]	9 (L), 6 (PSP)
Oil spill contingency	N/A	N/A	D	D	4 (PSP)
Air pollution	X	X	O	O	9 (L), 5 (PSP)
Plastics (including single-use)[c]		X	O	O*	9 (L), 2 (PSP)
Container deposit[c, d]	X	X	O	O*	7 (L), 2 (PSP)
Litter[c]	X	X	O	O*	9 (L), 2 (PSP)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; d = container deposit scheme has not commenced; e = national 5R policy drafted; N/A = not applicable; C = preparation has commenced; D = document prepared but not endorsed; O = endorsed document no longer current; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; # = national strategy under development, a Solid Waste Management Master Plan 2018–2027 was published by Suva City Council; * = part of an integrated policy, strategy or plan; 1 = for POPs only; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for COP amendments.

[266] Progress assessment not reviewed and validated by Fiji.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	0.63[b]	10
No. of marine pollution incidents				ND	1	11
No. of port waste reception facilities[a]				1	1	
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				57	ND	
No. of national or municipal composting programmes[a]				1[c]	1[c]	13, 14, 16
No. of national or state container deposit programmes				0	0[d]	7
No. of national EPR programmes for used oil				0	0[e]	17
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection[a]				1[f]	1[f]	18
Waste collection coverage (% of population)				ND	100[g] (urban)	10
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				5[h]	ND	
Quantity of asbestos stockpiles (m^2)				2305	6,250 removed during PacWaste project[i]	
Quantity of healthcare waste stockpiles (tonnes)				0	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				100	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				ND	ND[j]	20
No. of water and environmental quality monitoring programmes				0	ND	
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 adjusted urban and rural estimate; c = '1' indicates composting programmes operational, in municipal (city/town council) areas – Suva, Lautoka, Sigatoka; d = legal framework for container deposit exists but a scheme is not yet in place; e = EPR scheme run by one supplier for its products only; f = '1' indicates user-pays systems in place – levies included within city/town council rates; g = Suva only; h = 1 temporary unregulated dump, 4 authorised open dumps; i = this indicator is rated as 'improved' based on the removal of asbestos; j = Fiji has wastewater treatment plants that treat sewage to secondary standards, but % treated in unknown.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 3 activities progressed: Solid Waste Management Tracking System implemented by Lautoka City Council.	14
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management.	3 of 7 activities progressed: Environment Management (Budget Amendment) Act 2019 passed, banning the manufacture, sale, supply and distribution of thin plastic bags (less than 50 microns); development of national healthcare and asbestos waste strategies supported by the PacWaste project; national 5R policy drafted; Solid Waste Management Master Plan 2018–2027 published by Suva City Council; development of municipal waste management master plan (13 Councils) underway, with the support of JICA (J-PRISM II), to result in each municipality having their own plan including an extension of their waste collection service to rural areas outside of their municipal boundaries; permits required for operation of landfills or recycling facilities, under the Environment Management (Waste Disposal and Recycling) Regulations 2007.	9, 12, 19, 21, 23
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: national recycling association established in partnership with the private sector, supported by SPREP and JICA/J-PRISM II.	22
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: 3R projects led by Suva City, Lautoka City, Nadi Town, Sigatoka Town Councils, in partnership with the Department of Environment and JICA/J-PRISM.	13, 14, 15, 16
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	2 of 3 activities progressed: Clean Schools programmes run by Suva City, Lautoka City, Nadi Town and Sigatoka Town Councils, in partnership with the Ministry of Education, Department of Environment and JICA/J-PRISM; compost sales regularly monitored by Lautoka City Council.	13, 14, 15, 16, 21
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Fiji.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 7 activities progressed: high temperature incinerator installed and commissioned for Lautoka District Hospital during the PacWaste project.	19
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 2 activities progressed.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: Clean Schools programmes run by Suva City, Lautoka City, Nadi Town and Sigatoka Town Councils, in partnership with the Ministry of Education, Department of Environment and JICA/J-PRISM.	13, 14, 15, 16
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	2 of 2 activities progressed: participated in CPRTs 2016 and 2018 with JICA/J-PRISM assistance. 1 officer self-funded attendance to CPRT 2018.	21
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: participated in Pacific-to-Pacific twinning arrangements during the PacWaste project – Fiji and Nauru collaborated on landfill rehabilitation and Vanuatu, Fiji and Tuvalu collaborated on disaster waste management; participated in a sub-regional workshop on disaster waste management.	19, 22
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] Republic of Fiji (2011) Fiji National Solid Waste Management Strategy 2011–2014, https://doefiji.files.wordpress.com/2013/10/nswms_2011_-2014.pdf

[3] https://www.sprep.org/att/publication/000556_IWP_PTR48.pdf

[4] https://www.sprep.org/attachments/Fiji_Draft_NATPLAN_Feb_2001.pdf

[5] https://www.fiji.gov.fj/Media-Centre/News/ENVIRONMENT-STAKEHOLDERS-MEET-TO-DISCUSS-AIR-POLLUTION

[6] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx

[7] https://doefiji.files.wordpress.com/2013/10/environment_management_container_deposit_regulations_2011.pdf

[9] https://www.laws.gov.fj/LawsAsMade

[10] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[11] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%2012.3.2_rev.1%20-%20Review%20of%20PACPLAN.pdf

[12] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.

[13] http://suvacity.org/

[14] https://www.sprep.org/attachments/Publications/Presentation/cprt-2018/2-shalend-tracking-improvement-waste-management-lautoka.pdf

[15] http://naditowncouncil.com.fj/2016/

[16] https://www.sigatokatown.com.fi/

[17] Araspring Ltd. (2018) Used Oil Report – Fiji, Niue, Kiribati, Vanuatu, SCL, https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf

[18] Pacific Region Infrastructure Facility (2018) Pacific Region Solid Waste Management and Recycling. Pacific Country and Territory Profiles, https://www.theprif.org/documents/regional/urban-development-waste-management/pacific-region-solid-waste-management-and

[19] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished

[20] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

[21] JICA, J-PRISM II team, pers. comm., 26 June 2020

[22] Guinto, M B., Solid Waste Management Adviser, SPREP, pers. comm., 4 June 2020

[23] https://www.sprep.org/attachments/Publications/Newsletters/j-prism-buzz-issue7.pdf

FRENCH POLYNESIA: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[267]

Overview

SPREP has had limited engagement with French Polynesia during the first implementation phase of CP2025 (2016–2019). Consequently, it has been difficult to determine the extent to which French Polynesia has adopted and followed the strategy.

Based on available data/information, French Polynesia's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: new regulation introduced to prevent pollution at sea (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 1 indicator has improved (water quality monitoring operational), 3 remain unchanged/stable, progress is undetermined for 10 indicators due to data being available for 1 year only, and 6 indicators have no data for assessing progress (Table 2). Note, 2 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 2 (environmental monitoring, Clean Pacific Roundtable participation); limited progress achieved for 3; and no progress for 10 strategic actions (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of an integrated WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Implementation of WCP prevention and reduction programmes;
3. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance;
4. Management of hazardous waste, including development of inventories; and
5. Development and implementation of routine monitoring and reporting, especially for WCP management activities.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for French Polynesia. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	ND	ND		ND	
Healthcare waste	ND	ND		ND	
Other hazardous waste	ND	X[1]		ND	2 (L)
Liquid waste	ND	X[1]		ND	2 (L)
Chemicals	ND	ND		ND	
Oil spill contingency	N/A	N/A	X	ND	
Air pollution	ND	ND		ND	
Plastics (including single-use)[c]	ND	ND		ND	
Container deposit[c]	ND	ND		ND	
Litter[c]	ND	ND		ND	

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2020 L, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; ND = no data; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; 1 = waste categories covered under new regulation to prevent pollution at sea, Decree N°684 of 18 November 2019.

[267] Progress assessment not reviewed and validated by French Polynesia.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	1.36[b]	3
No. of marine pollution incidents				1	ND	
No. of port waste reception facilities[a]				1	1	10
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				39	ND	
No. of national or municipal composting programmes[a]				1	1[c]	4, 5
No. of national or state container deposit programmes				0	0[d]	6
No. of national EPR programmes for used oil				1	ND	
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection				1	ND	
Waste collection coverage (% of population)				100 (urban) 51 (national)	ND	
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				88[e]	ND	
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				0	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				ND	ND[f]	4, 5
No. of water and environmental quality monitoring programmes				0	1[g]	7
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 adjusted estimate, and value represents total solid waste generated, not only MSW; c = '1' indicates composting programmes operational – sludge and grease from wastewater treatment recycled into compost (source 4), municipal green waste collected and composted (source 5); d = deposit-refund scheme in place for locally produced beer but there is no formal container deposit programme; e = includes temporary, unregulated and open dumps; f = two companies are involved with secondary wastewater treatment, but % of treated water is unknown; g = '1' indicates water quality monitoring in the Opunohu lagoon, Moorea.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 3 activities progressed: water quality monitored in the Opunohu lagoon, Moorea, by the Centre de Recherches Insulaires et Observatoire de l'Environnement (CRIOBE).	7
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	0 of 4 activities progressed.	
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: pilot project for waste management by professionals (garages and careening workshops) developed on the islands of Raiatea and Tahaa during the INTEGRE project, in collaboration with the French Polynesian Chamber of Commerce, Industry, Services and Crafts.	8
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 8 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 3 activities progressed: solutions for recovering biodegradable organic waste and for bioconversions with production of renewable energy (methanation) studied by Technival, with government support.	5
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	0 of 3 activities progressed.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	0 of 8 activities progressed.	
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: water quality monitored in the Opunohu lagoon, Moorea, by the Centre de Recherches Insulaires et Observatoire de l'Environnement (CRIOBE).	7
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 2 activities progressed.	
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	2 of 2 activities progressed: participated in CPRTs 2016 and 2018; self-funded a delegate in 2018.	9

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	0 of 3 activities progressed.	
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] http://www.jrcc.pf/wp-content/uploads/2020/01/20191118-decree-surnav-pf-clipperton.pdf

[3] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[4] https://www.polynesienne-des-eaux.pf/

[5] http://www.technival.pf/

[6] Watkins E. et al. (2018) Towards greener taxes and subsidies in Pacific Island Countries and Territories (PICTs), SPC, https://ieep.eu/uploads/articles/attachments/bd2711c8-b5e5-40ea-b2c4-a2e6b0705db6/Greener%20taxes%20and%20subsidies%20in%20PICTs%20final.pdf?v=63690680677

[7] https://www.instrumentation.co.uk/connected-systems-to-monitor-water-quality-in-french-polynesia/

[8] https://integre.spc.int/en/regional-actions/waste-management#territories-declinaisons

[9] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

[10] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

GUAM: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[268]

Overview

Based on available data/information, Guam's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: new law passed in 2018 banning the distribution and use of disposable plastic bags (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 6 indicators remain unchanged/stable, progress is undetermined for 5 indicators due to data being available for 1 year only, and 9 indicators have no data for assessing progress (Table 2). Note, 4 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 3 (environmental monitoring and reporting, Clean Pacific Roundtable participation, national/regional cooperation and coordination); limited progress achieved for 4; and no progress for 7 strategic actions. Activities under 1 strategic action were not applicable to Guam (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of public-private partnerships, especially for container deposit and EPR programmes;
2. Implementation of WCP prevention and reduction programmes;
3. Management of hazardous waste, including development of inventories;
4. Expansion of routine monitoring and reporting, especially for WCP management activities; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Guam. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X	X	2, 3 (L), 5 (PSP)
Healthcare waste	X	X		ND	
Other hazardous waste	X	X		ND	2, 3 (L)
Liquid waste	X	X		ND	2, 3 (L)
Chemicals	X	X		ND	2, 3 (L)
Oil spill contingency	N/A	N/A	X	ND	
Air pollution	X	X		ND	2, 3 (L)
Plastics (including single-use)[c, d]		X		X*	2, 3 (L), 5 (PSP)
Container deposit[c, e]	X	X		X*	2, 4 (L), 5 (PSP)
Litter[c]	X	X		X*	2, 3 (L), 5 (PSP)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; d = law passed in 2018 banning the distribution and use of disposable plastic bags, to come into effect 1 January 2021; e = enacted in 2010, amended in 2013, but not yet implemented; N/A = not applicable; ND = no data; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; * = part of the Guam Zero Waste Plan (solid waste plan).

[268] Progress assessment not reviewed and validated by Guam.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				ND	2.39[b]	5
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	14
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	39[c]	7
No. of national or municipal composting programmes[a]				1[d]	1[e]	8
No. of national or state container deposit programmes				0[f]	0[f]	2, 4
No. of national EPR programme for used oil				0	ND	
No. of national EPR programme for e-waste				0	ND	
No. of national or state user-pays systems for waste collection[a]				1[g]	1[g]	9
Waste collection coverage (% of population)[a]				100	100[h]	9
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				ND	ND	
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	ND[i]	10
No. of water and environmental quality monitoring programmes[a]				1[j]	1[j]	3
No. of national chemicals and pollution inventories				ND	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = Guam EPA data, no date indicated but data is pre-2014. For comparison, 2016 adjusted figure in source 6 is 2.26 kg/person/day; c = rate for 2017, for all eligible waste (aluminium cans, cardboard, mixed paper, e-waste, ferrous and nonferrous metals, tires, automotive batteries, plastics, mulched composted material and food waste); d = composting programme operational at the University of Guam; e = '1' indicates government composting programme operational, biosolids composting demonstration project; f = legislation in place, CDP not yet implemented; g = '1' indicates user-pays waste collection is in place; h = 100% coverage assumed, with the Guam Solid Waste Authority providing curb-side collection services plus residential transfer stations for those who do not pay for curb-side collection; i = one wastewater treatment plant (WWTP) upgraded to secondary treatment in 2019, other WWTPs provide primary treatment; j = '1' indicates a number of EPA monitoring programmes are operational.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	Strengthen institutional capacity		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 3 activities progressed: recreational marine waters analysed weekly for microbiological quality and public advisories issued by the EPA; freshwater rivers, streams and estuaries monitored regularly by the EPA to determine the microbiological, physical and chemical quality of the water.	3
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	1 of 4 activities progressed: new law passed banning the distribution and use of disposable plastic bags.	2, 3
B.	Promote public-private partnerships		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	Implement sustainable best practices in WCP management		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: household hazardous waste collection program operated by EPA, collecting used lead acid batteries, used paint and used oil for safe disposal.	3
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 3 activities progressed: demonstration/pilot project conducted by Guam EPA, Port Authority Guam and Landscape Management Systems Guam to show that Guam's wastewater solids can be composted with locally produced wood chips to generate high quality compost.	8
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Guam.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	0 of 6 activities progressed.	
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: recreational marine waters analysed weekly for microbiological quality and public advisories issued by the EPA; freshwater rivers, streams and estuaries monitored regularly by the EPA to determine the microbiological, physical and chemical quality of the water.	3
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 2 activities progressed.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018.	13
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	2 of 3 activities progressed: Guam EPA hosted the 2019 Pacific Islands Environment Conference, including workshops and presentations on waste management; Zero Waste Guam Working Group established with representatives from the EPA, Bureau of Statistics and Plans, Port Authority of Guam and Department of Public Works, to develop and make recommendations for the adoption and implementation of the Guam Zero Waste Master Plan.	11, 12
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] http://www.guamcourts.org/index.asp

[3] http://epa.guam.gov/

[4] https://www.guampdn.com/story/news/local/2019/05/12/environmental-laws-guam-fail-enforce-current-bills/1149375001/

[5] https://issuu.com/guamepa/docs/guam_zero_waste_plan__final__-_volu

[6] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[7] http://epa.guam.gov/guam-recycles-day-to-celebrate-america-recycles-day-on-november-14/

[8] https://zerowasteguam.eco/biosolids-composting/

[9] https://www.guamsolidwasteauthority.com/

[10] https://guamwaterworks.org/operations-maintenance/

[11] https://www.guampdn.com/story/news/local/2019/12/29/gov-lou-leon-guerrero-creates-zero-waste-guam-working-group/2771107001/

[12] http://epa.guam.gov/for-immediate-release-save-the-date-pacific-islands-environmental-conference-is-june-26-2019/

[13] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

[14] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

KIRIBATI: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[269]

Overview

Based on available data/information, Kiribati's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: National Implementation Plan submitted to the Stockholm Convention Secretariat; and new laws passed banning single-use plastics (shopping bags, ice bags, nappies), and addressing toxic and hazardous substances for internal and marine waters, and littering/rubbish dumping on public highways (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 2 indicators have improved (asbestos removed, national chemicals inventory prepared); 1 indicator has deteriorated (used oil stockpile increased); 6 indicators remain unchanged/stable; progress is undetermined for 7 indicators due to data being available for 1 year only; and 4 indicators have no data for assessing progress (Table 2). Note, 2 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 2 (Clean Pacific Roundtable participation), limited progress achieved for 5, and no progress for 7 strategic actions. Activities under 1 strategic action were not applicable to Kiribati (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Finalisation of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Implementation of WCP prevention and reduction programmes;
3. Management of hazardous waste, including development of inventories;
4. Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Kiribati. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	D*	D*	3 (L), 2 (PSP)
Healthcare waste			D*	D*	2 (PSP)
Other hazardous waste			D*	D*	2 (PSP)
Liquid waste	X	X	X*	X	3 (L), 2 (PSP)
Chemicals			C[1]	X[1^]	2, 15 (PSP)
Oil spill contingency	N/A	N/A	D	D	18 (PSP)
Air pollution	X	X			3 (L)
Plastics (including single-use)[c]		X		D*	2 (L), 2 (PSP)
Container deposit[c]	X	X		D*	4 (L), 2 (PSP)
Litter[c]	X	X		D*	3 (L), 2 (PSP)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; X = enacted (L) or endorsed (PSP) and current; C = preparation has commenced; D = document prepared but not endorsed (PSP); blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated PSP; 1 = for POPs only; ^ = chemical waste is also addressed in the draft Kiribati Waste Management Resource Recovery Strategy 2020–2029.

[269] Progress assessment not reviewed and validated by Kiribati.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				ND	0.86[b]	2, 5, 20
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	6
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	89[c]	7
No. of national or municipal composting programmes				1[d]	ND	
No. of national or state container deposit programmes[a]				1	1	2, 7
No. of national EPR programmes for used oil				0	0[e]	17
No. of national EPR programmes for e-waste				0	0	2
No. of national or state user-pays systems for waste collection[a]				1[f]	1[f]	2, 7
Waste collection coverage (% of population)				100% (urban) 54% (national)	ND	
Waste capture rate (= amount collected/amount generated) (%)				ND	76	2
No. of temporary, unregulated and open dumps				ND	2 (open dumps)	2
Quantity of asbestos stockpiles (m^2)				39,992	280 removed during PacWaste[g]	9
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				8	64	8
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	17
No. of water and environmental quality monitoring programmes				0	ND	
No. of national chemicals and pollution inventories				0	1[h]	2

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 adjusted estimate, calculated based on an urban regional per capita average of 1.3 kg/person/day and rural regional per capita average of 0.5 kg/person/day. For comparison, a 2017 survey conducted at a community area in Bikenibeu, South Tarawa, estimated a household only waste generation rate of 0.4 kg/person/day; c = recycling rate for container deposit/advance disposal scheme covering aluminium cans, PET bottles, lead-acid batteries – source data year unknown; d = '1' indicates a composting programme is operational through the J-PRISM I project; e = EPR scheme run by one supplier for its products only; f = '1' indicates user-pays systems are in place – service charges levied by Councils and Green Bag programme, however, recovery of service charges is very low; g = this indicator is rated as 'improved' based on the removal of asbestos; h = chemicals inventory prepared for the National Implementation Plan submitted under the Stockholm Convention.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	Strengthen institutional capacity		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	0 of 3 activities progressed.	
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	2 of 7 activities progressed: Kiribati Waste Management Resource Recovery Strategy 2020–2029 drafted (WMRRS), in alignment with CP2025, with the support of NZ MFAT, SPREP and UNEP; institutional arrangements for WCP management reviewed during development of WMRRS; national healthcare and asbestos waste strategies developed with the support of the PacWaste project; National Implementation Plan finalised and submitted to the Stockholm Convention Secretariat; Kiribati Customs Act 2019 enacted, banning single-use plastics (shopping bags, ice bags, nappies) – ban to be effective from 1 October 2020; Maritime Act 2017 enacted, addressing toxic and hazardous substances for internal and marine waters; Public Highways Protection Act 2018 enacted, addressing littering/rubbish dumping on public highways.	2, 9, 15, 20
B.	Promote public-private partnerships		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: workshop with private sector representatives hosted by the Environment and Conservation Division to identify pathways and solutions for addressing waste and chemicals pollution.	10
C.	Implement sustainable best practices in WCP management		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 8 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 2 activities progressed: 3R+Return programme implemented in some primary schools, South Tarawa.	2
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Kiribati.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 7 activities progressed: in conjunction with the installation of a new high temperature waste incinerator, healthcare pilot developed to support HCWM officer to improve healthcare hazardous waste management during the PacWaste project.	11
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 1 activity progressed.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: public/schools/community awareness programmes delivered by the Environment Outreach Unit to support the Regional Clean Pacific Programme; 3R+Return programme implemented in some primary schools, South Tarawa.	2, 12
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018.	19
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed (in multiple ways): participated in a Pacific-to-Pacific twinning arrangement with RMI and Tuvalu for knowledge exchange on atoll waste management under the PacWaste project; presented progress with KAOKI MAANGE (Return Rubbish) SYSTEM at 2018 CPRT; convened the first "Kiribati Boboto Technical Dialogue" on waste management issues with representatives from different govt agencies, Church groups, NGOs, communities, State Owned Enterprises and the private sector.	9, 13, 14
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] Government of Kiribati (2020) DRAFT Kiribati Waste Management Resource Recovery Strategy 2020–2029
[3] http://www.environment.gov.ki/wp-content/uploads/2016/09/Environment-Act-assented-14-Sept-.pdf
[4] https://www.parliament.gov.ki/docs/acts/2004/SpecialFund(WasteMaterialRecovery)Act2004.pdf
[5] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317
[6] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[7] Pacific Region Infrastructure Facility (2018) Pacific Region Solid Waste Management and Recycling. Pacific Country and Territory Profiles, https://www.theprif.org/documents/regional/urban-development-waste-management/pacific-region-solid-waste-management-and
[8] Haynes D., Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[9] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[10] http://www.environment.gov.ki/?page_id=50
[11] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Annual Work Programme and Budget, https://www.sprep.org/sprep-meeting/28th-sprep-meeting-of-officials
[12] http://www.environment.gov.ki/?page_id=46
[13] https://www.sprep.org/attachments/Publications/Presentation/cprt-2018/2-kaoki-maange.pdf
[14] https://kiribati-data.sprep.org/story/national-solid-waste-management-dialogue-kiribati
[15] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[16] Araspring Ltd. (2018) Used Oil Report – Fiji, Niue, Kiribati, Vanuatu, SCL, https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf
[17] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[18] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[19] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[20] Pulefou, T., Environment and Conservation Division - Ministry of Environment, Lands and Agriculture, pers. comm., 25 July 2020

NAURU: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[270]

Overview

Based on available data/information, Nauru's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: National Solid Waste Management Strategy 2017-2026 finalised (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 3 indicators have improved (composting and user-pays waste collection operational; asbestos removed); 1 has deteriorated (used oil stockpile increased); 6 remain unchanged/stable; progress is undetermined for 3 indicators due to data being available for 1 year only; and 7 indicators have no data for assessing progress (Table 2).
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 1 (Clean Pacific Roundtable participation), limited progress achieved for 4, and no progress for 9 strategic actions. Activities under 1 strategic action were not applicable to Nauru (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of practical and enforceable WCP legislation;
2. Development of public-private partnerships, especially for container deposit, EPR and recycling programmes;
3. Implementation of WCP prevention and reduction programmes;
4. Management of hazardous waste, including development of inventories; and
5. Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Nauru. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste			D	X	2 (PSP)
Healthcare waste					
Other hazardous waste					
Liquid waste			D*	ND	
Chemicals			C[1^]	C[1^]	3 (PSP)
Oil spill contingency	N/A	N/A	D	D	9 (PSP)
Air pollution					
Plastics (including single-use)[c]					
Container deposit[c]					
Litter[c]	X	X			2 (L)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; C = preparation has commenced; D = document prepared but not endorsed; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; 1 = for POPs only; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for COP amendments.

[270] Progress assessment not reviewed and validated by Nauru.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators	2014	2020	Sources[A]
Per capita generation of municipal solid waste (kg/person/day)	ND	1.3[b]	6
No. of marine pollution incidents	ND	ND	
No. of port waste reception facilities	0	0	9
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)	ND	ND	
No. of national or municipal composting programmes	0	1[c]	4
No. of national or state container deposit programmes	0	0	2
No. of national EPR programmes for used oil	0	0	2
No. of national EPR programmes for e-waste	0	0	2
No. of national or state user-pays systems for waste collection	0	1[d]	4
Waste collection coverage (% of population)	ND	ND	
Waste capture rate (= amount collected/amount generated) (%)	ND	ND	
No. of temporary, unregulated and open dumps	1[e]	1[e]	2, 4
Quantity of asbestos stockpiles (m^2)	52,874	3,400 removed under PacWaste[f]	5
Quantity of healthcare waste stockpiles (tonnes)	0	ND	
Quantity of e-waste stockpiles (tonnes)	ND	ND	
Quantity of used oil stockpiles (m^3)	30[g]	100	8
Quantity of pharmaceutical and chemical stockpiles (tonnes)	ND	ND	
Urban sewage treated to secondary standards (%)	0	0	7
No. of water and environmental quality monitoring programmes	0	ND	
No. of national chemicals and pollution inventories	ND	ND	

Improved | Undetermined | Unchanged/stable | No data | Deteriorated

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 adjusted estimate, based on an urban regional per capita average of 1.3 kg/person/day; c = '1' indicates composting programme operational; d = waste entering the dumpsite from community or business collections is recorded and billed each month; e = open dump; f = this indicator is rated as 'improved' based on the removal of asbestos; g = this is the CP2025 Table 11 figure, but according to source 8 the 2014 national stockpile for Nauru was 46 m^3.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	0 of 3 activities progressed.	
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	1 of 7 activities progressed: National Solid Waste Management Strategy 2017-2026 finalised and endorsed, with technical support from SPREP; development of asbestos and healthcare waste strategies supported by the PacWaste project.	2, 5
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 8 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 3 activities progressed: options for scaling up composting investigated, and new composting site layout proposed.	4
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Nauru.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	2 of 7 activities progressed: options investigated and actions proposed to improve the design of the Nauru dumpsite; expansion of resource recovery activities investigated; new high temperature incinerator for proper healthcare waste disposal installed and commissioned during the PacWaste project.	4, 5
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 1 activity progressed.	
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018.	10

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no activities progressed)		
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: participated in landfill rehabilitation knowledge exchange through a Pacific-to-Pacific twinning initiative with Fiji.	5
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] Republic of Nauru (2017) National Solid Waste Management Strategy 2017-2026

[3] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx

[4] Tonkin & Taylor Ltd (2018) Waste Management System Operations and Policy - Preliminary Advice. Nauru Department of Industry, Commerce and the Environment

[5] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished

[6] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[7] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

[8] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports

[9] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

[10] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

NEW CALEDONIA: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[271]

Overview

SPREP has had limited engagement with New Caledonia during the first implementation phase of CP2025 (2016–2019). Consequently, it has been difficult to determine the extent to which New Caledonia has adopted and followed the strategy.

Based on available data/information, New Caledonia's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: territory-wide air quality controls and a ban on single-use plastics introduced (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 5 indicators remain unchanged/stable, progress is undetermined for 8 indicators due to data being available for 1 year only, and 7 indicators have no data for assessing progress (Table 2). Note, four of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 1 (Clean Pacific Roundtable participation), limited progress achieved for 6, and no progress for 8 strategic actions (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Management of hazardous waste, including development of inventories;
3. Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment;
4. Implementation of WCP prevention and reduction programmes; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for New Caledonia. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X	X[1]	2, 3, 4 (L), 2 (PSP)
Healthcare waste	X	X	O	ND	15 (L)
Other hazardous waste	X	X	X	ND	2, 3, 4 (L)
Liquid waste	X	X			
Chemicals	X	X			2, 15 (L)
Oil spill contingency	N/A	N/A	X	ND	
Air pollution		X			8 (L)
Plastics (including single-use)[c]		X			9 (L)
Container deposit[c]					
Litter[c]					

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; ND = no data; X = enacted (L) or endorsed (PSP) and current; O = endorsed document no longer current; blank cells indicate WCP categories not addressed in L or PSP; 1 = separate plans for the Southern and Northern Provinces.

[271] Progress assessment not reviewed and validated by New Caledonia.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	1.07[b]	11
No. of marine pollution incidents				ND	1	6
No. of port waste reception facilities[a]				1	1	18
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	41[c]	7
No. of national or municipal composting programmes				1[d]	ND	
No. of national or state container deposit programmes				0	0	
No. of national EPR programmes for used oil[a]				1	1	10
No. of national EPR programmes for e-waste[a]				1	1	10
No. of national or state user-pays systems for waste collection[a]				1	1[e]	7
Waste collection coverage (% of population)				100 (urban) 67 (national)	75 (urban)[f]	3
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				> 211[g, h]	ND	7
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				ND	ND[i]	16
No. of water and environmental quality monitoring programmes				0	ND	
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 adjusted estimate, based on an urban regional per capita average of 1.3kg/person/day and a rural regional per capita average of 0.5 kg/person/day; c = average rate for 2016 for five EPR sectors in the Southern Province (batteries, oils, tyres, vehicles, electrical/electronic equipment); d = '1' indicates composting programme operational; e = user-pays system in the Southern Province; f = coverage rate for the Northern Province only; g = includes temporary unregulated and open dumps; h = in 2008, 100 illegal dumps and irregular deposits identified in the Southern Province, 7 open dumpsites fully or partially rehabilitated between 2015-2019; i = NC does treat wastewater to secondary standards, but no data available for % treated.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	0 of 4 activities progressed.	
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	1 of 4 activities progressed: Provincial Scheme for Waste Prevention and Management 2018-2022 developed by the Southern Province; territory-wide air quality controls and a ban on single-use plastics introduced; shared water policy (PEP) developed and adopted by Congress including objectives to protect catchment areas, move towards zero discharge of untreated water by 2045, and improve environmental monitoring of aquatic environments.	8, 9, 12, 13, 14
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: EPR schemes well-established across New Caledonia for single-use batteries, lead-acid batteries, end-of-life vehicles, used oil, tyres and electrical/electronic equipment.	10
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 4 activities progressed: EPR schemes well-established across New Caledonia for single-use batteries, lead-acid batteries, end-of-life vehicles, used oil, tyres and electrical/electronic equipment.	10
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	0 of 3 activities progressed.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 7 activities progressed: 5 open dumpsites in the Southern Province fully or partially rehabilitated between 2016-2019, and Dumbéa Rivière recycling centre constructed and opened.	7
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 1 activity progressed.	
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: guide developed for managing business waste in the Southern Province.	7

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
F. Promote regional and national cooperation			
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRT 2018.	17
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: 11th Pacific Water and Wastewater Conference hosted in 2018.	5
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] https://www.province-sud.nc/codenv#_8a8186916e916e53016e91a2d7720bf6

[3] https://www.province-nord.nc/environnement/gestion-dechets

[4] https://www.province-iles.nc/engagement/developpement-durable-et-recherche-appliquee

[5] https://gouv.nc/actualites/02-08-2018/le-pacifique-se-penche-sur-leau-noumea

[6] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%2012.3.2_rev.1%20-%20Review%20of%20PACPLAN.pdf

[7] https://www.province-sud.nc/element-thematique/gestion-dechets#page-content

[8] https://www.rnz.co.nz/international/pacific-news/322228/new-caledonia-wants-to-tackle-air-pollution

[9] https://www.rnz.co.nz/international/pacific-news/395700/single-use-plastic-bag-ban-starts-in-new-caledonia

[10] https://www.trecodec.nc/

[11] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[12] https://www.province-sud.nc/demarches/alternatives-plastique

[13] https://gouv.nc/actualites/19-10-2018/une-politique-de-leau-en-partage

[14] https://gouv.nc/actualites/21-02-2019/politique-de-leau-partagee-feu-vert-du-gouvernement

[15] Duveau, S. (2018) New Caledonia Profile: Development of a Pacific Integrated Waste and Pollution Management Strategy, unpublished

[16] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

[17] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

[18] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

NIUE: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[272]

Overview

Based on available data/information, Niue's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: NATPLAN (National Marine Spill Contingency Plan) updated; Customs Import Prohibition (Plastic Shopping Bags) Order approved by Cabinet under the authority of the Niue Customs Act 1966 (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 1 indicator has improved (asbestos removed); 1 has deteriorated (used oil stockpile increased); 8 remain unchanged/stable; progress is undetermined for 3 indicators due to data being available for 1 year only; and 7 indicators have no data for assessing progress (Table 2). Note, 2 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 1 (Clean Pacific Roundtable participation), limited progress achieved for 5, and no progress for 9 strategic actions (Table 3).

Based on the progress assessment results, five key activity areas that require further work are:

1. Development of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Development of public-private partnerships, especially for container deposit, EPR and recycling programmes;
3. Management of hazardous waste, including development of inventories;
4. Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Niue. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	D*	O*	3 (L), 2 (PSP)
Healthcare waste			D*	O*	2 (PSP)
Other hazardous waste	X	X	D*	O*	3 (L), 2 (PSP)
Liquid waste	X	X	-	O*	3, 6 (L), 2 (PSP)
Chemicals	X	X	C[1^]	C[1^]	4 (L), 5 (PSP)
Oil spill contingency	N/A	N/A	D	X	16 (PSP)
Air pollution					
Plastics (including single-use)[c]		X[2]			13 (L)
Container deposit[c]					
Litter[c]					

a = the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; C = preparation has commenced; D = document prepared but not endorsed; O = document no longer current; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; 1 = for POPs only; 2 = plastic shopping bags prohibition order; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for recent COP amendments.

[272] Progress assessment not reviewed and validated by Niue.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	1.14[b]	9
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	16
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND	
No. of national or municipal composting programmes[a]				1[c]	1[d]	14
No. of national or state container deposit programmes				0	0	17
No. of national EPR programmes for used oil				0	0	10
No. of national EPR programmes for e-waste				0	0	17
No. of national or state user-pays systems for waste collection				0	0	17
Waste collection coverage (% of population)[a]				100	100	17
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				3[f]	ND	
Quantity of asbestos stockpiles (m^2)				46,428	3 x 20 ft containers removed during PacWaste project[g]	11
Quantity of healthcare waste stockpiles (tonnes)				0.02	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				4	~10	12
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	15
No. of water and environmental quality monitoring programmes				ND	ND	
No. of national chemicals and pollution inventories				ND	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 estimate based on income groups in source 9 (Fig. 2.6, pg 27), and calculation of the average value across upper-middle and high-income countries; c = demonstration composting programme launched in 2015 through the Pacific POPs Release Reduction project (source 7), but no details available to determine if it has continued beyond the initial three years; d = green waste shredding machine being trialled; f = authorised open dumps only; g = this indicator is rated as 'improved' based on the removal of asbestos.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	0 of 3 activities progressed.	
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	2 of 7 activities progressed: Customs Import Prohibition (Plastic Shopping Bags) Order approved by Cabinet under the authority of the Niue Customs Act 1966; development of a national asbestos waste strategy supported by the PacWaste project; NATPLAN (National Marine Spill Contingency Plan) updated.	11, 13, 16
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: Niue Recycling Facility built so waste from imported goods can be collected and exported for recycling offshore.	8, 14
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 3 activities progressed: green waste shredding machine trialled at landfill site to reduce the volume of green waste and transform it for composting.	8, 14
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	0 of 3 activities progressed.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 8 activities progressed: new high temperature incinerator installed for the proper disposal of healthcare waste (Niue Foou Hospital) during the PacWaste project.	11
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 2 activities progressed.	
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: PacWaste collaborated with and supported the Government of Niue's asbestos programme and launched a national public asbestos awareness-raising campaign.	11

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
F. Promote regional and national cooperation			
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRT 2018.	17
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	0 of 3 activities progressed.	
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] https://www.sprep.org/attachments/Niue_Waste_Management_Strategy_4Mar2011-low_res_2.pdf

[3] http://extwprlegs1.fao.org/docs/pdf/niu181112.pdf

[4] http://www.gov.nu/wb/media/Volume%203.pdf

[5] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx

[6] http://www.gov.nu/wb/media/Act%20317%20Water%20Act%202012.pdf

[7] https://www.sprep.org/news/making-waste-useful-niue

[8] https://www.rnz.co.nz/international/pacific-news/364704/niue-recycling-plant-to-be-ready-at-end-of-2019

[9] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[10] https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf

[11] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished

[12] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports

[13] https://tvniue.com/2020/03/niue-bans-importation-of-plastic-shopping-bags/

[14] https://www.sprep.org/news/new-waste-initiatives-niue-horizon

[15] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

[16] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

[17] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

PALAU: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[273]

Overview

Based on available data/information, Palau's overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: a new National Solid Waste Management Strategy developed and aligned with CP2025, and a Plastic Bag Use Reduction law enacted (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 3 indicators have improved (EPR programme for used oil, user-pays system for waste collection, and water quality monitoring operational); 1 indicator has deteriorated (used oil stockpile increased); 4 remain unchanged/stable; progress is undetermined for 9 indicators due to data being available for 1 year only; and 3 indicators have no data for assessing progress (Table 2). Note, 3 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (WCP data collection and management, resource recovery, environmental monitoring, human capacity development, Clean Pacific Roundtable participation); limited progress achieved for 6; and no progress for 3 strategic actions. Activities under 1 strategic action were not applicable to Palau (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of public-private partnerships, especially for EPR programmes (e.g. e-waste);
2. Implementation of WCP prevention and reduction programmes;
3. Management of hazardous waste, including development of inventories;
4. Expansion of routine monitoring and reporting, especially for WCP management activities and the receiving environment; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Palau. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X*	X*	3, 8 (L), 2 (PSP)
Healthcare waste			X*	X*	2 (PSP)
Other hazardous waste	X	X	X*	X*	4 (L), 2 (PSP)
Liquid waste	X	X	X*		3, 8 (L)
Chemicals	X	X	C[1^]	C[1^]	3, 8 (L), 11 (PSP)
Oil spill contingency	N/A	N/A	D	D	15 (PSP)
Air pollution	X	X			3, 8 (L)
Plastics (including single-use)[c]		X		X*	3 (L), 2 (PSP)
Container deposit[c]	X	X		X*	3 (L), 2 (PSP)
Litter[c]	X	X		X*[2]	3, 8 (L), 2 (PSP)

a = some of the waste/pollution categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 & 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; X = enacted (L) or endorsed (PSP) and current; C = preparation has commenced; D = prepared but not yet endorsed; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; 1 = POPs only; 2 = marine litter; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for recent COP amendments.

[273] Progress assessment not reviewed and validated by Palau.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				ND	2.0[b, c]	2, 3
No. of marine pollution incidents				5[d]	ND	
No. of port waste reception facilities				0	0	15
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	78[e]	2
No. of national or municipal composting programmes[a]				1[f]	1[f]	3
No. of national or state container deposit programmes[a]				1	1	3
No. of national EPR programmes for used oil				0	1	3
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection				0	1[g]	3
Waste collection coverage (% of population)[a]				100 (urban) 77 (national)	100 (urban)	2
Waste capture rate (= amount collected/amount generated) (%)				ND	24[h]	2
No. of temporary, unregulated and open dumps				12[i]	7[j]	3
Quantity of asbestos stockpiles (m^2)				2,514	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				551	1,135[k]	3
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	12
No. of water and environmental quality monitoring programmes				0	1[l]	5
No. of national chemicals and pollution inventories				1	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2017 estimate for Koror and Babeldaob only; c = for comparison, 2019 estimate for 11 states in Palau using projected population figure of 18,196 and waste collection (not generation) figure of 34,236 kg/day is 1.89 kg/person/day (source 3, Table 6); d = 5 verified ship-sourced marine pollution incidents recorded by SPREP; e = 2016 recycling rate covering PET bottles, aluminium and steel cans, and glass bottles; f = '1' indicates composting programme is operational at Koror State Recycling Center; g = '1' indicates a user-pays waste collection system is in place, but for Ngatpang state only; h = rate for Koror and Babeldaob; i = temporary, unregulated and open dumps; j = open dumpsites only; j = this stockpile includes all forms of waste oil (i.e. it also includes used cooking oil, not just petroleum oils and hydraulic fluids), mixed and stored in large concrete tanks; k = mixed waste oil (includes lubricating and cooking oils); l = '1' indicates EQPB monitoring of marine water quality in limited locations and river water quality monitoring under R2R project.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	Strengthen institutional capacity		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 4 activities progressed: waste amount and composition, waste disposal, and recycling surveys completed with the support of JICA (J-PRISM II); marine water quality monitored by EQPB; river water quality monitored in Melekeok through the Palau Ridge-to-Reef Integrated Waters (R2R IW) project in partnership with the Belau Watershed Alliance (BWA); surveys, monitoring and evaluation of waste segregation stations conducted by the Solid Waste Management Office (SWMO), Koror State Government.	5, 13
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	3 of 8 activities progressed: comprehensive solid waste management strategy developed, aligned with CP2025, with the support of SPREP and JICA (J-PRISM II); Plastic Bag Use Reduction law enacted; institutional arrangements reviewed and recommendations for improvement developed, as part of new waste management strategy; development of a national healthcare waste strategy supported by the PacWaste project.	2, 3, 7
B.	Promote public-private partnerships		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	Implement sustainable best practices in WCP management		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: tire shredding operation commenced; plastics converted to fuel at Koror State Recycling Center; Waste Segregation Stations program operated by SWMO, Koror State Government; Container Deposit Programme operational.	3, 13
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	2 of 3 activities progressed: composting bins provided to 40 households for participation in a food waste composting project, conducted by Koror State Government; WCP education/environmental awareness delivered in schools.	3
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Palau.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	2 of 7 activities progressed: new Aimeliik landfill site being constructed under JICA's grant assistance; concept paper prepared for developing a 'Transportation Station' at the M-Dock landfill site that will provide for waste segregation; 10 state-wide waste collection plan under development with the support of JICA (J-PRISM II).	2, 14
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: marine water quality monitored by EQPB; river water quality monitored in Melekeok through the Palau Ridge-to-Reef Integrated Waters (R2R IW) project in partnership with the Belau Watershed Alliance (BWA).	5

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 1 activity progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs.	9, 14
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: public awareness campaigns relating to solid waste management issues delivered by the national government and Koror state government.	3
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018 with JICA (J-PRISM) assistance.	6
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: government officers from Tuvalu invited to a SWM workshop organised by Palauan government officials; government officers presented on SWM and 3R activities during the second and third J-PRISM II steering committee meetings; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; participated in sub-regional workshops (JICA/J-PRISM II) on sanitary landfill design and operation, and disaster waste management.	6, 10, 14
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	1 of 1 activity progressed: annual report published on beverage container recycling programme by the Bureau of Public Works (N.B. strategic action is rated as "limited progress" due to the limited nature of the reporting, i.e. it does not capture progress across all areas of WCP management)	14

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] Republic of Palau (2017) National Solid Waste Management Strategy: The Roadmap Towards a Clean and Safe Palau, 2017 to 2026, https://www.sprep.org/j-prism-2/report-and-materials

[3] Asia Pacific Waste Consultants (2019) Palau – Waste Audit Report. Analysis of waste generation, recycling and disposal data collected in November 2019, unpublished

[4] https://www.palaugov.pw/epqb

[5] Gupta A. (2019) 2019 State of Environment Report, Republic of Palau, National Environmental Protection Council, https://palau-data.sprep.org/system/files/2019%20SOE%20Palau.pdf

[6] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

[7] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished

[8] http://kororstategov.com/laws.html

[9] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf

[10] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II), Group 1, Project Completion Report 2 (Phase 2), Kokusai Kogyo Co., Ltd. EX Research Institute Ltd., unpublished

[11] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx

[12] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf

[13] http://kororstategov.com/swmo/index.html

[14] JICA, J-PRISM II team, pers. comm., 26 June 2020

[15] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

PAPUA NEW GUINEA: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[274]

Overview

Based on available data/information, Papua New Guinea's overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: National Capital District Waste Management Plan 2016–2025 completed; Kokopo Waste Management Strategy and Action Plan 2019–2024 completed; NATPLAN (National Marine Spill Contingency Plan) updated (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 1 indicator has improved (chemical inventories in place), 8 indicators remain unchanged/stable, progress is undetermined for 7 indicators due to data being available for 1 year only, and 4 indicators have no data for assessing progress (Table 2). Note, two of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 8 (WCP data collection and management; development of WCP policies, plans; WCP stockpiles management; environmental monitoring; human capacity development; WCP education; Clean Pacific Roundtable participation; national and regional cooperation); limited progress achieved for 2; and no progress for 5 strategic actions (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Finalisation of an integrated national WCP policy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Development of practical and enforceable WCP legislation;
3. Development of public-private partnerships, especially for container deposit, EPR and recycling programmes;
4. Implementation of WCP prevention and reduction programmes; and
5. Development and expansion of routine monitoring and reporting, especially for the receiving environment.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Papua New Guinea. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X[d]	X[d]		C[d, e]	2, 3 (L), 4, 11, 17, 18 (PSP)
Healthcare waste	X	X	X*[f]	X*[f]	3 (L), 8 (PSP)
Other hazardous waste	X	X			2 (L)
Liquid waste	X	X	X*	X*[, g]	2, 5 (L), 18 (PSP)
Chemicals	X	X	C[1]	D[1]^	2, 5 (L), 18 (PSP)
Oil spill contingency	N/A	N/A	D	X	18 (PSP)
Air pollution	X	X	X*	X*	3 (L), 18 (PSP)
Plastics (including single-use)[c]	X[h]	X[h]	X	C	6, 7 (L), 18 (PSP)
Container deposit[c]					
Litter[c]	X	X	X*	X*	3 (L), 18 (PSP)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1, except where indicated otherwise; c = new category, not referred to in CP2025; d = PNG does not have a specific regulatory framework for solid waste management, but a National Waste and Chemical Management Policy and a National Waste Management Strategy have been drafted; e = "Guide to Develop Municipal Solid Waste Management Plan for urban local levels governments (ULLGs), Papua New Guinea", 2nd edition under revision. First SWM Plan prepared by Kokopo-Vunamami ULLG, and National Capital District Waste Management Plan 2016–2025 published for Port Moresby; f = National Health Service Standards for Papua New Guinea 2011-2020 covers healthcare waste. This was not noted in CP2025; g = Trade Waste Policy, Eda Ranu/Water PNG Ltd; h = regulations are in place to ban plastic bags but they have been ineffective and new legislation is being drafted; C = preparation has commenced; D = document prepared but not endorsed; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; 1 = for POPs only; ^ = National Implementation Plan (Stockholm Convention) updated and should be transmitted by end of 2020.

[274] Progress assessment reviewed and validated by Papua New Guinea.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	1.1[b]	17
No. of marine pollution incidents				ND	2	18
No. of port waste reception facilities[a]				1	1	19
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND[c]	17
No. of national or municipal composting programmes[a]				1[d]	1[e]	11
No. of national or state container deposit programmes				0	0	18
No. of national EPR programmes for used oil				0	0[f]	13
No. of national EPR programmes for e-waste				0	0	18
No. of national or state user-pays systems for waste collection				ND	1[g]	18
Waste collection coverage (% of population)				ND	67[h]	11
Waste capture rate (= amount collected/amount generated) (%)				ND	55[i]	17
No. of temporary, unregulated and open dumps				> 21[j]	> 21[j]	18
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	4.5[k]	20
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	16
No. of water and environmental quality monitoring programmes				0	0[l]	18
No. of national chemicals and pollution inventories				0	1[m]	18

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = this estimate was calculated as the average of per capita MSW generation values across 5 areas in PNG – NCDC 0.70 kg/p/day, Alotau ULLG 1.28 kg/p/day, Goroka ULLG 1.33 kg/p/day, Kokopo-Vunamami ULLG 1.15 kg/p/day, Lae ULLG 1.04 kg/p/day. All data are from 2018 J-PRISM II waste flow surveys; c = 2018 J-PRISM II waste flow surveys determined a recycling rate of 3.1% for PNG based on the formula: (amt recycled, reused, returned/amt waste generated) x 100; d = pilot-scale composting, for Port Moresby market waste (J-PRISM I project); e = pilot-scale composting, for Kokopo market waste (J-PRISM II project); f = EPR scheme run by one supplier for its products only; g = '1' indicates user-pays systems in place – tipping fee, sticker and salary deduction systems; h = estimate for Port Moresby only; i = this estimate was calculated as the average of waste capture rate values across 5 areas in PNG – NCDC 66.8%, Alotau ULLG 65.3%, Goroka ULLG 45.3%, Kokopo-Vunamami ULLG 49.1%, Lae ULLG 49.4%. All data are from 2018 J-PRISM II waste flow surveys; j = temporary unregulated dumps only; k = 2015 stockpile estimate; l = no government monitoring programmes identified but water and environmental quality monitoring is conducted by large companies in the mining, oil and gas industries, as required under their environment permit conditions; m = '1' indicates inventories are in place, for POPs and mercury.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A. Strengthen institutional capacity			
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 3 activities progressed: with support from JICA (J-PRISM II), a task-force team within the Waste Management Division (WMD) of the National Capital District Commission (NCDC), built a waste data management system to share data among related NCDC departments; waste audit conducted under the initiative of the Goroka ULLG with the support of JICA (J-PRISM II).	11, 17
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	5 of 8 activities progressed: NATPLAN (National Marine Spill Contingency Plans) updated by National Maritime Safety Authority in 2017; draft National Healthcare Waste Management Policy and Guideline for Medical and Health Facilities in PNG developed; with support from JICA (J-PRISM II), institutional arrangements for waste management reviewed and agreement reached among all relevant ministries about implementation responsibilities at provincial and local government levels; "Guide to Develop Municipal Solid Waste Management (SWM) Plan for urban local levels governments (ULLGs), Papua New Guinea" developed by the Conservation and Environment Protection Authority (CEPA); National Capital District Waste Management Plan 2016–2025 completed for Port Moresby; Kokopo Waste Management Strategy and Action Plan 2019–2024 completed; baseline analysis for SWM Plan completed by Goroka ULLG; draft and roadmap developed by CEPA for a National Waste Management Strategy (NWMS), and first national and regional consultation workshops held; discussions held between CEPA and the National Department of Health on implementation, enforcement and monitoring for the NWMS through cross-sectoral collaboration; protection mechanisms improved for Jomard Passage, now declared a Particularly Sensitive Sea Area (PSSA); National Implementation Plan (Stockholm Convention) updated.	11, 12, 14, 17, 18
B. Promote public-private partnerships			
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C. Implement sustainable best practices in WCP management			
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 7 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 3 activities progressed: market waste composting pilot project implemented in Kokopo/Vunamami ULLG, in partnership with the ENBP market authority and the St. Francis Takubar Primary school and with support from JICA (J-PRISM II).	11
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	1 of 2 activities progressed: DDT stockpiles in Kokopo identified and safeguarded, with support from SPREP and UNEP.	18
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	0 of 3 activities progressed.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 8 activities progressed: Kokopo disposal site rehabilitation plan developed and endorsed by Kokopo Vunamami ULLG; weighbridge installed at Baruni Disposal Site and Materials Recovery Facility plan in progress, Port Moresby, with the support of JICA/J-PRISM II.	11, 18
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: initial discussions held to utilise the SPREP Inform project for monitoring and reporting.	18
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 2 activities progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs.	17
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	2 of 4 activities progressed: environment education awareness programmes supported by JICA/J-PRISM II, especially in Kokopo and Alotau; other programmes including the Coastal Clean-up Campaign and annual World Environment Day led by CEPA.	18
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018 with JICA (J-PRISM) assistance.	21
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	2 of 3 activities progressed: city-city cooperation programme signed between NCDC-Goroka, and NCDC-Kokopo, and capacity development programme initiated with support from JICA (J-PRISM II), including data collection and analysis; attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; establishment of technical working group led by CEPA for development of the NWCMP; ToR developed for the National Coordination Committee (NWMC) and first meeting held; participated in training (JICA/J-PRISM II) on landfill management.	11, 17, 18
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] http://www.pngcepa.com/wp-content/uploads/2018/07/Env-Prescribed-Activities-Regulation-2002.pdf
[3] http://www.paclii.org/pg/legis/num_act/
[4] https://www.thenational.com.pg/policy-on-waste-needed/
[5] http://www.pngcepa.com/wp-content/uploads/2018/07/Env-Water-Quality-Criteria-Regulation-2002.pdf
[6] https://postcourier.com.pg/environment-levy-imposed-plastic-bags/
[7] http://www.pngcepa.com/2019/02/13/efforts-to-impose-complete-ban-on-plastic-bags-progressing-well-cepa/
[8] https://www.mindbank.info/item/1670
[9] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[10] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[11] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.
[12] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[13] https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf
[14] https://www.sprep.org/attachments/2017SM28/Noumea%20Convention/English/14NC_WP.4.1%20Report%20by%20Secretariat%20(Final%20Draft).pdf
[15] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[16] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[17] JICA, J-PRISM II team, pers. comm., 26 June 2020
[18] Conservation and Environment Protection Authority, Papua New Guinea, pers. comm., 25 June 2020
[19] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[20] Data extracted from ULO Audit Report under the GEFPAS POPs Project, by Conservation and Environment Protection Authority
[21] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

REPUBLIC OF THE MARSHALL ISLANDS (RMI): CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[275]

Overview

Based on available data/information, RMI's overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: Solid Waste Management Plan aligned with CP2025 endorsed for Kwajalein Atoll, and a new law enacted establishing a container deposit system and banning single-use plastics (Styrofoam cups and plates, disposable plastic cups and plates, and plastic shopping bags) (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 4 indicators have improved (container deposit programme and user-pays waste collection system operational, urban waste collection coverage increased, asbestos removed); 2 have deteriorated (per capita municipal solid waste generation increased, used oil stockpile increased); 3 remain unchanged/stable; progress is undetermined for 6 indicators due to data being available for 1 year only; and 5 indicators have no data for assessing progress (Table 2). Note, one of the unchanged/stable indicators actually reflects positive progress, given its good 2014 baseline.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (WCP data collection and management, resource recovery, environmental monitoring, human capacity development, Clean Pacific Roundtable participation); limited progress achieved for 6; and no progress for 3 strategic actions. Activities under 1 strategic action were not applicable to RMI (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Finalisation of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Development of public-private partnerships, especially for EPR programmes;
3. Implementation of WCP prevention and reduction programmes;
4. Management of hazardous waste, including development of inventories; and
5. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for RMI. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of national waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	D*	C#	4 (L), 2, 13, 19 (PSP)
Healthcare waste	X	X	D*	C#*	4 (L), 19 (PSP)
Other hazardous waste	X	X	D*	C#*	4 (L), 19 (PSP)
Liquid waste	X	X	X*	X*	4 (L), 8 (PSP)
Chemicals	X	X	C1^	C1^	4 (L), 3 (PSP)
Oil spill contingency	N/A	N/A	D	D	20 (PSP)
Air pollution	X	X			5 (L)
Plastics (including (single-use)[c]		X		C#*	6 (L), 19 (PSP)
Container deposit[c]		X		C#*	6 (L), 2, 19 (PSP)
Litter[c]	X	X		C#*	7 (L), 19 (PSP)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; ND = no data; C = preparation has commenced; D = document prepared but not endorsed; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; 1 = for POPs only; * = part of an integrated policy, strategy or plan; # = development of a National Waste Management Strategy is underway. A Solid Waste Management (SWM) Plan has been endorsed for Kwajalein Atoll, and a SWM Plan for Majuro has been drafted; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for COP amendments.

[275] Progress assessment not reviewed and validated by the Republic of the Marshall Islands.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				1.1[b]	1.3[c]	2, 9
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	20
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND[d]	2, 9
No. of national or municipal composting programmes[a]				1	1	10
No. of national or state container deposit programmes				0	1	6
No. of national EPR programmes for used oil				0	ND	
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection				0	1[e]	10
Waste collection coverage (% of population)				66 (urban) 49 (national)	91 (urban)[f]	2, 9
Waste capture rate (= amount collected/amount generated) (%)				ND	56[g]	2, 9
No. of temporary, unregulated and open dumps				25	ND	
Quantity of asbestos stockpiles (m^2)				860	160 removed during PacWaste project[h]	10
Quantity of healthcare waste stockpiles (tonnes)				76	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				1108	2,633[i]	11
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	17
No. of water and environmental quality monitoring programmes				ND	1[j]	12
No. of national chemicals and pollution inventories				ND	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = Majuro only; c = 2017 estimate based on an average of the estimated generation rates for Majuro (1.4 kg/person/day) and Ebeye 1.2 (kg/person/day); d = 2017 waste recycling rates available for Majuro (8.7%) and Ebeye (7.8%) based on a different formula: (amt recycled, reused, returned/amt generated waste) x 100; e = pre-paid garbage bag system, Majuro; f = 2017 estimate based on an average of the collection coverage rates for Majuro (82%) and Ebeye (100%); g = 2017 estimate based on an average of the capture rates for Majuro (50.8%) and Ebeye (60.8%); h = this indicator is rated as 'improved' based on the removal of asbestos; i = 2018 estimate, based on stockpiles recorded in Majuro (2,433) and Kwajalein (200); j = water quality monitoring of Laura Village coastal sites under R2R project.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A. Strengthen institutional capacity			
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 3 activities progressed: waste amount and composition, waste disposal, and recycling surveys completed for Majuro and Kwajalein with the support of JICA/J-PRISM; water quality monitored for Laura Village coastal sites (pathogens and physical parameters) under R2R project.	12
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	3 of 7 activities progressed: Solid Waste Management Plan aligned with CP2025 developed and endorsed for Kwajalein Atoll with the support of JICA (J-PRISM II); institutional arrangements reviewed and recommendations for improvement developed, as part of Solid Waste Management Plan for Kwajalein Atoll; new law enacted, banning single-use plastics (Styrofoam cups and plates, disposable plastic cups and plates, and plastic shopping bags) and establishing a container deposit system, with the support of JICA (J-PRISM II); draft Pacific Medical Waste Management Strategy reviewed during PacWaste training.	6, 10, 13
B. Promote public-private partnerships			
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: collaboration developed with Majuro Atoll Waste Company (MAWC), supported by government, to implement a cost effective waste management program for management of residential collection, disposal and recycling; launch of ULAB collection and international export system, in partnership with the private sector and State-owned Enterprises; the MEC established a partnership agreement with the RMI Government through the PacWaste project for a buy-back scheme enabling compliant transboundary movement of ULABs.	10, 18, 22
C. Implement sustainable best practices in WCP management			
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: ULAB Buy-Back Scheme established by Majuro Energy Company MEC and overseen by Majuro Atoll Waste Company MAWC; new law enacted, banning single-use plastics (Styrofoam cups and plates, disposable plastic cups and plates, and plastic shopping bags) and establishing a container deposit system, with the support of JICA (J-PRISM II).	10, 13
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 2 activities progressed: successful education platform for best practice in waste management established through the Clean Schools Program led by MAWC, Majuro Atoll Local Governments, the Environmental Protection Agency (EPA) and the Public School Service (supported by PacWaste through WUTMI); information about the Iokwe Bag incorporated into school-based outreach activities delivered by the EPA.	14, 15
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to RMI.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	2 of 7 activities progressed: healthcare waste practices improved through a training programme delivered during the PacWaste project; Mediburn incinerator at Ebeye repaired during the PacWaste project; disposal systems introduced to manage healthcare waste generated by Majuro Hospital and Ebeye Hospital; improvement works undertaken at the Public Final Disposal Site, Ebeye, for segregation of recyclables; a variety of landfill rehabilitation measures implemented in Majuro, including scrap metal export, green waste diversion, use of equipment to assist in waste processing/diversion.	2, 10
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: water quality monitored for Laura Village coastal sites (pathogens and physical parameters) under R2R project.	12
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 1 activity progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs.	16, 21
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	1 of 4 activities progressed: education, awareness and engagement activities delivered through the PacWaste project, including an asbestos awareness-raising campaign.	10
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	2 of 2 activities progressed: participated in CPRTs 2016 and 2018 with JICA (J-PRISM) assistance; self-funded a delegate in 2018.	21, 22
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: knowledge and atoll waste management practices exchanged through a Pacific-to-Pacific twinning arrangement between the Republic of the Marshall Islands, Tuvalu and Kiribati during the PacWaste project; attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; participated in sub-regional workshops (JICA/J-PRISM II) on sanitary landfill design and operation, and disaster waste management.	15, 21, 22
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025, https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] Kwajalein Atoll Local Government (2018) Kwajalein Atoll Solid Waste Management Plan, 2019–2028 (Action Plan: 2019-2023)

[3] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx

[4] http://rmicourts.org/selected-regulations/

[5] https://rmiparliament.org/cms/images/LEGISLATION/PRINCIPAL/1984/1984-0031/NationalEnvironmentalProtectionAct1984_2.pdf

[6] https://rmiparliament.org/cms/images/LEGISLATION/PRINCIPAL/2016/2016-0017/StyrofoamCupsandPlatesandPlasticProductsProhibitionandContainerDepositAct2016_2.pdf

[7] https://rmiparliament.org/cms/images/LEGISLATION/PRINCIPAL/1982/1982-0002/LitteringAct1982_1.pdf
[8] https://rmi-data.sprep.org/system/files/Water%20%20Sanitation%20Policy-approved%20version%281%29.pdf
[9] JICA (2017) Result of Baseline Surveys (Draft) Majuro Atoll, Aug 7, 2017 JICA Expert Team, JPRISM II, unpublished
[10] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[11] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[12] https://www.pacific-r2r.org/sites/default/files/2020-03/Project_Progress_Marshalls.pdf
[13] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II), Group 1, Project Completion Report 2 (Phase 2), Kokusai Kogyo Co., Ltd. EX Research Institute Ltd., unpublished
[14] https://www.sprep.org/attachments/PacWaste_News_Issue_06.pdf
[15] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report, unpublished
[16] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[17] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[18] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Work Programme and Budget, https://www.sprep.org/attachments/2017SM28/Officials/English/WP%205.2.Att.1.rev.1-2016%20PMER%20final.pdf
[19] Republic of the Marshall Islands (2019), National Waste Management Strategy, 2020–2029, unpublished draft
[20] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[21] JICA, J-PRISM II team, pers. comm., 26 June 2020
[22] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

SAMOA: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[276]

Overview

Based on available data/information, Samoa's overall CP2025 progress is rated as 'good':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: National Waste Management Strategy (2019-2023) developed and aligned with CP2025; Water for Life: Water and Sanitation Sector Plan 2016-2020 developed; NATPLAN (National Marine Spill Contingency Plan) updated; healthcare waste management plan reviewed and implemented; National Implementation Plan for POPs reviewed and updated; and a new law passed banning plastic shopping and packing bags, and plastic straws (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 5 indicators have improved (recycling rate increased, EPR programmes operational for used oil and e-waste, asbestos removed, used oil stockpile reduced to zero); 1 has deteriorated (national waste collection coverage decreased); 4 remain unchanged/stable; progress is undetermined for 3 indicators due to data being available for 1 year only; and 7 indicators have no data for assessing progress (Table 2). Note, 2 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 9 (WCP data collection and management; development of WCP strategies, plans and legislation; public-private partnerships; resource recovery; user-pays waste collection; environmental monitoring and reporting; human capacity development; Clean Pacific Roundtable participation; national and regional cooperation); limited progress achieved for 2; and no progress for 4 strategic actions (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Implementation of WCP prevention and reduction programmes;
2. Management of hazardous waste, including development of inventories;
3. Further development and expansion of routine monitoring and reporting, especially for WCP management activities and the receiving environment;
4. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance; and
5. Further development and expansion of WCP education and behavioural-change programmes.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Samoa. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	D*	X	2 (L), 7 (PSP)
Healthcare waste			X	X	21 (PSP)
Other hazardous waste	X	X	D*	X*#	2 (L), 7, 21 (PSP)
Liquid waste	X	X	X	X	2 (L), 2 (PSP)
Chemicals	X	X	C[1]	X[1]	2 (L), 4, 7 (PSP)
Oil spill contingency	N/A	N/A	D	X	18 (PSP)
Air pollution					
Plastics (including single-use)[c]	X[d]	X[e]		X*	5, 6 (L), 7 (PSP)
Container deposit[c]				X*	7 (PSP)
Litter[c]	X	X		X*	2 (L), 7 (PSP)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; d = *Plastic Bag Prohibition on Importation Regulation 2006* prohibited the importation of non-biodegradable plastic bags; e = *Waste (Plastic Bag) Management Regulations 2018* repealed the 2006 regulations and now prohibit the import, manufacture, export, sale and distribution of plastic shopping and packing bags (irrespective of biodegradability) and plastic straws; N/A = not applicable; C = preparation has commenced; D = document prepared but not endorsed; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; 1 = for POPs only; # = Minamata Initial Assessment Report on Mercury developed in 2018.

[276] Progress assessment reviewed and validated by Samoa.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	1.06[b]	7
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities[a]				1	1	18
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				36	44[c]	7
No. of national or municipal composting programmes[a]				1[d]	1[e]	21
No. of national or state container deposit programmes				0	0[f]	9
No. of national EPR programmes for used oil				0	1	13, 21
No. of national EPR programmes for e-waste				0	1	12
No. of national or state user-pays systems for waste collection				0	0	8
Waste collection coverage (% of population)				100	61 (national)[g]	7
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				ND	ND	
Quantity of asbestos stockpiles (m^2)				5,260	100 removed during PacWaste project[h]	11
Quantity of healthcare waste stockpiles (tonnes)[a]				0.2	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				8.4	0	10
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				ND	ND[i]	17
No. of water and environmental quality monitoring programmes				ND	1[j]	21
No. of national chemicals and pollution inventories				ND	1[k]	21

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = this figure is an underestimate as it is a 2017 household (not municipal) waste generation estimate; c = recycling ratio for aluminium cans for households in Upolu; d = '1' indicates small-scale composting programme operational through the Ministry of Natural Resources and Environment; e = MNRE working in partnership with a private company for composting at Tafaigata Landfill; f = one private sector CDS; g = 2017 estimated collection coverage for Upolu based on track taken by waste collection contractor; h = this indicator is rated as 'improved' based on the removal of asbestos; i = some wastewater is treated to secondary standards but % treated is unknown; j = water quality monitoring conducted at landfills; k = '1' indicates inventory completed for Minamata Initial Assessment Report on Mercury, and inventory updated for NIP for POPs.

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Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A. Strengthen institutional capacity			
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 3 activities progressed: waste amount and composition, waste disposal, and recycling surveys completed with the support of JICA (J-PRISM II); framework for waste collection monitoring system designed with the support of JICA (J-PRISM II); inventory completed for Minamata Initial Assessment on Mercury; inventory updated for the review and update of the National Implementation Plan for POPs; water quality testing conducted at landfills by the Water Resources Division, MNRE.	8, 21
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	4 of 8 activities progressed: National Waste Management Strategy (2019-2023) developed in alignment with CP2025, with the support of SPREP and JICA (J-PRISM II); institutional arrangements for waste management reviewed during the development of the NWMS; Water for Life: Water and Sanitation Sector Plan 2016-2020 developed; new law passed banning plastic shopping and packing bags and plastic straws; NATPLAN (National Marine Spill Contingency Plan) updated; healthcare waste management plan reviewed and implemented; National Implementation Plan for POPs reviewed and updated.	2, 7, 11, 18, 21
B. Promote public-private partnerships			
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	2 of 3 activities progressed: public-private partnership developed between Ministry of Natural Resources and Environment (MNRE), Samoa Stationary and Books, and HP New Zealand for e-waste (HP toners and ink cartridges) collection and export for proper disposal and recycling; Samoa Recycling and Waste Management Association (SRWMA) launched and SRWMA Strategic Plan 2018 – 2023 developed with the support of SPREP and JICA (J-PRISM II); public-private partnership for a Waste Oil Management Program developed between SRWMA and MNRE with support from J-PRISM II, SPREP, SWIRE Shipping Company and Blue Scope Fiji, where Hyundai and Nissan are conducting collection and storage of used oil for shipment.	12, 13, 21
C. Implement sustainable best practices in WCP management			
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: e-waste (HP toners and ink cartridges) collected and exported (see strategic action 3).	12
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	2 of 4 activities progressed: EPR programme established between HP New Zealand, MNRE, Samoa Stationary and Books for e-waste (HP toners and ink cartridges) collection and export; 'Clean Schools' programme conducted in 3 schools and a study visit to the landfill site conducted for 4 schools; education for schools also progressed through the Greening of the Games (Pacific Games) campaign.	12, 18, 19
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	1 of 1 activity progressed: MNRE, with the support of JICA (J-PRISM II), analysed user-pays systems in Tonga, Vanuatu and New Zealand; investigated user-pays legal frameworks and stakeholder profiles; conducted a study tour to Vanuatu, Tonga and Fiji; and prepared options to introduce a user-pays waste collection system in Samoa.	8
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	2 of 8 activities progressed: intermediate bulk containers procured for used oil storage; Vaiaata landfill improved under the J-PRISM project.	20, 21
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: water quality testing conducted at landfills by the Water Resources Division, MNRE	21
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 1 activity progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs.	16, 19
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018 with the support of JICA (J-PRISM II).	20
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	2 of 3 activities progressed: Steering Committee established to monitor the implementation of the National Solid Waste Management Strategy and coordinate technical working groups; MNRE and SPREP initiated the Greening of the Games (Pacific Games) campaign, to reduce the use of single-use plastics at sporting events (and promote carbon footprint offsets); 10th Pacific Water and Wastewater Conference and Expo 2017 hosted by the Samoa Water Authority in collaboration with MNRE and other water and sanitation sector partners; attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; participated in a sub-regional workshop on disaster waste management.	3, 14, 15, 19, 20
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] https://www.mnre.gov.ws/publications/

[3] https://www.mnre.gov.ws/wp-content/uploads/2017/08/July-newsletter.pdf

[4] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx

[5] http://www.fao.org/faolex/results/details/en/c/LEX-FAOC084075

[6] https://www.cms.int/sites/default/files/document/2019_CMS_National_Report_Samoa.pdf

[7] Ministry of Natural Resources and Environment (2019) National Waste Management Strategy (2019-2023), https://www.sprep.org/j-prism-2/report-and-materials
[8] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.
[9] Pacific Region Infrastructure Facility (2018) Pacific Region Solid Waste Management and Recycling. Pacific Country and Territory Profiles, https://www.theprif.org/documents/regional/urban-development-waste-management/pacific-region-solid-waste-management-and
[10] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[11] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[12] https://www.mnre.gov.ws/wp-content/uploads/2019/07/Feb-March-Newsletter.pdf
[13] https://www.sprep.org/j-prism-2/report-and-materials
[14] https://www.sprep.org/news/samoas-leaves-a-legacy-for-the-greening-of-future-pacific-games
[15] https://www.mnre.gov.ws/wp-content/uploads/2017/08/Newsletter_June_final_4.pdf
[16] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[17] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[18] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[19] JICA, J-PRISM II team, pers. comm., 26 June 2020
[20] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[21] Apo, S., Solid Waste Management Officer and Siaosi F., Chemical/Hazardous Waste Management Officer, Ministry of Natural Resources and Environment, Samoa, pers. comm., 24 June 2020

SOLOMON ISLANDS: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[277]

Overview

Based on available data/information, the Solomon Islands' overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: National Waste Management and Pollution Control Strategy 2016–2024 developed and aligned with CP2025 (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 3 indicators have improved (user-pays waste collection and water quality monitoring operational; asbestos removed); 1 indicator has deteriorated (urban waste collection coverage decreased); 5 remain unchanged/stable; progress is undetermined for 6 indicators due to data being available for 1 year only; and 5 indicators have no data for assessing progress (Table 2). Note, 1 of the unchanged/stable indicators actually reflects positive progress, given its good 2014 baseline.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (WCP data collection and management; public-private partnerships; environmental monitoring; human capacity development; Clean Pacific Roundtable participation); limited progress achieved for 6; and no progress for 4 strategic actions (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Implementation of WCP prevention and reduction programmes;
2. Management of hazardous waste, including development of inventories;
3. Development and implementation of routine monitoring and reporting, especially for WCP management activities;
4. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance; and
5. Implementation of WCP education and behavioural-change programmes.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for the Solomon Islands. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemical and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X*	X*+	2, 3 (L), 2, 18 (PSP)
Healthcare waste			D*	D*^	2 (PSP)
Other hazardous waste				X*	2, 4 (PSP)
Liquid waste	X	X	X[1]	X*	3 (L), 2 (PSP)
Chemicals	X	X	C[2#]	C[2#]	2, 4 (L), 16, 20 (PSP)
Oil spill contingency	N/A	N/A	D	D	
Air pollution					
Plastics (including single-use)[c]				C	2 (PSP)
Container deposit[c]		C		C	19 (L), 19 (PSP)
Litter[c]					

a = some of the waste/pollution categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; X = enacted (L) or endorsed (PSP) and current; C = preparation has commenced; D = prepared but not endorsed (PSP); blank cells indicate WCP categories not addressed in L or PSP; 1 = for sanitation only; 2 = POPs only; * = part of an integrated policy, strategy or plan; + = in addition to the National Waste Management and Pollution Control Strategy, Honiara City Council has published a Solid Waste Management Plan 2018–2027; ^ = healthcare waste is referred to under the National Waste Management and Pollution Control Strategy, which also makes reference to a draft healthcare waste policy; # = National Implementation Plan (Stockholm Convention) prepared in 2018, but transmission is not recorded on the Convention Secretariat website.

[277] Progress assessment reviewed and validated by the Solomon Islands.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/ day)				ND	0.88[b, c]	5
No. of marine pollution incidents				ND	1	7
No. of port waste reception facilities				0	0	8
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND[d]	
No. of national or municipal composting programmes[a]				1[d]	1[e]	6
No. of national or state container deposit programmes				0	0[f]	6
No. of national EPR programmes for used oil				0	0[g]	9
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection[a]				0	1[h]	6
Waste collection coverage (% of population)				60 (urban) 12 (national)	51 (urban)[i]	6
Waste capture rate (= amount collected/amount generated) (%)				ND	41[j]	6
No. of temporary, unregulated and open dumps				> 3[k]	ND	
Quantity of asbestos stockpiles (m^2)				3,150	500 removed during PacWaste project[l]	12
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	10
No. of water and environmental quality monitoring programmes				0	1[m]	13
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2016 adjusted estimate based on the average of a 2014 data range, 0.75 – 1.0 kg/person/day; c = for comparison, 2018 waste disposal (not generation) estimate determined for Honiara was 0.32 kg/person/day (source 6); d = 7.2% recycling rate was determined using a different formula: (amt recycled, reused/generated waste) x 100; e = '1' indicates composting programmes operational; f = one private company has a CDS for glass bottles in Honiara; g = EPR scheme run by one supplier for its products only; h = trade refuse fees paid by businesses, under Trade Refuse Agreements with Honiara City Council; i = mid-point of reported collection coverage range, 42–60%. The midpoint, 51%, was chosen for reporting in this table and for inclusion in the regional analysis; j = mid-point of waste capture rate range, 37–45%, based on comparative data from JICA and APWC; k = number of authorised open dumps only, ND for other dumps; l = this indicator is rated as 'improved' based on the removal of asbestos; m = '1' indicates water and sediment quality monitoring program under R2R project.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	Strengthen institutional capacity		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 4 activities progressed: waste audit conducted for Tulagi under the initiative of the Ministry of Environment, Climate Change, Disaster Management and Meteorology, Central Provincial Government and Honiara City Council with the support of JICA (J-PRISM II); water and sediment quality monitoring program established along the Mataniko River and at adjacent coastal sites under R2R Project.	13, 18
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	3 of 7 activities progressed: National Waste Management and Pollution Control Strategy 2016– 2024 developed and aligned with CP2025, with the support of JICA (J-PRISM II); institutional arrangements reviewed and recommendations for improvement developed, as part of National Waste Management and Pollution Control Strategy; development of national healthcare and asbestos waste strategies supported by the PacWaste project; Solid Waste Management Plan 2018–2027 published by Honiara City Council; National Implementation Plan (Stockholm Convention) prepared in 2018.	2, 8, 12, 18, 20
B.	Promote public-private partnerships		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	2 of 3 activities progressed: public–private partnership established between Sol Power Solomon Islands Ltd (SPSIL) and the Environment and Conservation Division (ECD) of the Solomon Islands Government to recover household solar batteries; Solomon Islands Recycling and Waste Management Association launched with the support of JICA (J-PRISM II).	12, 15
C.	Implement sustainable best practices in WCP management		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 2 activities progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 9 activities progressed: pre-feasibility study on Container Deposit System (CDS) conducted by JICA (J-PRISM II).	11, 19
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 3 activities progressed: Eco School 3Rs pilot project promoted in Honiara schools with the support of J-PRISM.	17
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	1 of 3 activities progressed: study conducted on economic measures for maintaining effective solid waste management with the support of J-PRISM II.	11
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	3 of 9 activities progressed: three high temperature incinerators installed and commissioned at the Honiara Hospital, Kiluufi Hospital and Kirakira Hospital, and one installed at the Helena Goldie Hospital under the PacWaste project; landfill operation manual for Ranadi disposal site developed with the support of J-PRISM II; new "Waste Management & Control Division" established by Honiara City Council.	11, 12, 18
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: water and sediment quality monitoring program established along the Mataniko River and at adjacent coastal sites under R2R Project.	13

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
D.	Develop human capacity		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 2 activities progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs; participated in annual JICA short course training.	14, 18
E.	Improve dissemination of outcomes and experiences in WCP management		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	Promote regional and national cooperation		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018 with the support of JICA (J-PRISM II); co-shared the cost for participation with JICA (J-PRISM II) in 2018.	8
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: Honiara City Council, in cooperation with MECDM and Provincial Centres, led human and institutional capacity development initiatives targeting towns/cities, to share good practices and strengthen capacity nation-wide (e.g. with waste audits); attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; participated in sub-regional workshops (JICA/J-PRISM II) on landfill management in PNG, and on disaster waste management in Samoa; attended disaster waste management training in Japan.	8, 18
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] SPREP (2017) Solomon Islands: waste management and pollution control strategy 2017-2026. Apia, Samoa

[3] http://parliament.gov.sb/index.php?q=node/1137#tab-1

[4] https://www.sprep.org/attachments/Publications/Presentation/cprt-2018/1-national-issues-hazardous-waste-management.pdf

[5] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[6] Asia Pacific Waste Consultants (APWC) (2019) Waste Data Report – Solomon Islands. Analysis of waste generation and disposal data collected in November 2018, https://www.cefas.co.uk/clip/resources/reports/south-pacific-clip-reports/

[7] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%2012.3.2_rev.1%20-%20Review%20of%20PACPLAN.pdf

[8] SPREP Waste Management and Pollution Control programme, pers. comm., 25 June 2020

[9] Asia Pacific Waste Consultants (APWC) (2019) Port Reception Waste Facilities Review – Solomon Islands https://www.cefas.co.uk/clip/resources/reports/south-pacific-clip-reports/

[10] SPREP (2019) Solomon Islands State of Environment Report 2019. Apia, Samoa.

[11] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.

[12] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished

[13] https://www.pacific-r2r.org/sites/default/files/2020-03/Project_Progress_Solomon.pdf

[14] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[15] J-PRISM II Newsletter No. 7, https://www.sprep.org/j-prism-2/report-and-materials
[16] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[17] https://honiaracitycouncil.com/index.php/health-and-environment/waste-2/eco-school-3rs-pilot-project/
[18] JICA, J-PRISM II team, pers. comm., 26 June 2020
[19] J-PRISM II (2019) A Pre-Feasibility Study to Introduce a Container Deposit Scheme into the Solomon Islands
[20] Solomon Islands Government (2018) National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants

TOKELAU: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[278]

Overview

SPREP has had very limited engagement with Tokelau during the first implementation phase of CP2025 (2016–2019). Consequently, it has been difficult to determine to the extent to which Tokelau has adopted and followed the strategy.

Based on available data/information, Tokelau's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: no progress identified (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 0 indicators have improved, 4 remain unchanged/stable, progress is undetermined for 9 indicators due to data being available for 1 year only, and 7 indicators have no data for assessing progress (Table 2). Note, 1 of the unchanged/stable indicators actually reflects positive progress, given its good 2014 baseline.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 1 (Clean Pacific Roundtable participation), limited progress achieved for 2, and no progress for 11 strategic actions. Activities under 1 strategic action were not applicable to Tokelau (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of an integrated WCP strategy and action plan that is aligned with CP2025 and includes a reporting framework;
2. Development and implementation of WCP prevention and reduction programmes;
3. Management of hazardous waste, including development of inventories;
4. Development and implementation of routine monitoring and reporting, especially for the receiving environment; and
5. Development and implementation of WCP education and behavioural-change programmes.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Tokelau. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X*	ND	2 (L)
Healthcare waste	ND	ND	X*	ND	
Other hazardous waste	ND	ND	X*	ND	
Liquid waste	X^	X^	X*	ND	2 (L)
Chemicals	ND	ND	ND	ND	
Oil spill contingency	N/A	N/A	D	D	9 (PSP)
Air pollution	ND	ND	ND	ND	
Plastics (including single-use)[c]	ND	ND	ND	ND	
Container deposit[c]	ND	ND	ND	ND	
Litter[c]	ND	ND	ND	ND	

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L and 2020 L, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; ND = no data; D = document prepared but not endorsed; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; ^ = sewage and marine oil spills; * = part of an integrated policy, strategy or plan.

[278] Progress assessment not reviewed and validated by Tokelau.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	0.69[b]	3
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	9
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND	
No. of national or municipal composting programmes				0	0[c]	5
No. of national or state container deposit programmes				0	ND	
No. of national EPR programmes for used oil				0	ND	
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection				0	ND	
Waste collection coverage (% of population)[a]				100	99[d]	4
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				3[e]	ND	
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				6	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	8
No. of water and environmental quality monitoring programmes				0	ND	
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = estimate based on income groups in source 4 (Fig. 2.6, pg 27), using the 2016 average value for upper middle income countries; c = organic waste fed to pigs; d = source 4 reports 99% coverage – this is very close to 100%, which may have been a rounded-up value, so this indicator is deemed unchanged; e = authorised open dumps.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 4 activities progressed: greenhouse gas emissions estimated for the waste sector and reported as part of New Zealand's greenhouse gas emissions inventory.	5
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	0 of 6 activities progressed.	
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: Memorandum of Understanding signed between the Department of Economic Development, Natural Resources and Environment (EDNRE) and the Pacific Recycle Co. Ltd Samoa, to cooperate on waste management – resulting in collection and export of metal waste.	7
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 8 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	0 of 2 activities progressed.	
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Tokelau.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	0 of 6 activities progressed.	
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 1 activity progressed.	
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018.	6

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	0 of 3 activities progressed.	
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] http://www.paclii.org/tk/indices/legis/2016-laws.html
[3] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317
[4] Tokelau National Statistics Office and Stats NZ (2017). Profile of Tokelau: 2016 Tokelau Census of Population and Dwellings. Available from www.tokelau.org.nz and www.stats.govt.nz.
[5] Ministry for the Environment, New Zealand Government (2020) New Zealand's Greenhouse Gas Inventory 1990–2018, Vol. 1, Chapter 8 https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/new-zealands-greenhouse-gas-inventory-1990-2018-vol-1.pdf
[6] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[7] https://www.tokelau.org.nz/Bulletin/December+2017/Solid+Waste+Management+MOU+Signed+between+Tokelau+EDNRE+and+Pacific++Recycle+Co.+Ltd.html
[8] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[9] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

TONGA: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[279]

Overview

Based on available data/information, Tonga's overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: Tonga does not have a national waste management strategy aligned with CP2025, however, the Combined Utilities Business Plan 2018-2022 was developed with a detailed business plan for Tonga's Waste Authority Ltd; NATPLAN (National Marine Spill Contingency Plan) updated (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 1 indicator has improved (asbestos removed), 4 remain unchanged/stable, progress is undetermined for 8 indicators due to data being available for 1 year only, and 7 indicators have no data for assessing progress (Table 2). Note, 1 of the unchanged/stable indicators actually reflects positive progress, given its good 2014 baseline.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (development of national policies, strategies, plans; user-pays waste collection; environmental monitoring; human capacity development; Clean Pacific Roundtable participation); limited progress achieved for 3; and no progress for 7 strategic actions (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development of an integrated national WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Development of public-private partnerships, especially for container deposit, EPR and recycling programmes;
3. Implementation of WCP prevention and reduction programmes;
4. Management of hazardous waste, including development of inventories; and
5. Development and implementation of routine monitoring and reporting, especially for WCP management activities.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Tonga. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	D*		2 (L), 5, 6, 7 (PSP)[e]
Healthcare waste	X	X			2 (L)
Other hazardous waste	X	X	D*		2 (L)
Liquid waste	X	X	D*		2 (L)
Chemicals	X	X	C[1]	C[1^]	2 (L), 4 (PSP)
Oil spill contingency	N/A	N/A	X	X	17 (PSP)
Air pollution	X	X			2 (L)
Plastics (including single-use)[c]	X[d]	X[d]			3 (L)
Container deposit[c]					
Litter[c]	X	X			2 (L)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; d = customs levy on the importation of plastic bags and disposable plastic containers; e = Tonga does not have a dedicated national waste management strategy or plan, but waste management is addressed in the Tonga National Strategic Development Framework 2015-2025 and Tonga National Infrastructure Investment Plan. The Combined Utilities Business Plan 2018-2022 includes a section focused on Tonga's Waste Authority Ltd; N/A = not applicable; C = preparation has commenced; D = document prepared but not endorsed; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; 1 = for POPs only; ^ = National Implementation Plan (Stockholm Convention) is yet to be updated to account for recent COP amendments.

[279] Progress assessment not reviewed and validated by Tonga.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	1.4[b]	8
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	17
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				9	ND	
No. of national or municipal composting programmes				0	ND	
No. of national or state container deposit programmes				0	ND	
No. of national EPR programmes for used oil				0	0[c]	9
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection[a]				1[d, e]	1[d, f]	12
Waste collection coverage (% of population)				100 (urban) 71 (national)[g]	ND	
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				ND	ND	
Quantity of asbestos stockpiles (m^2)				4,850	6,880 removed during PacWaste project[h]	10
Quantity of healthcare waste stockpiles (tonnes)[a]				0	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				ND	0	15
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	16
No. of water and environmental quality monitoring programmes				ND	ND	
No. of national chemicals and pollution inventories				ND	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = 2011/2012 estimate for Vava'u; c = EPR scheme run by one supplier for its products only; d = '1' indicates user-pays system in place; e = Tongatapu only; f = user-pays system now covers Tongatapu and Vava'u; g = Tongatapu data only; h = this indicator is rated as 'improved' based on the removal of asbestos.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 3 activities progressed: assessment and monitoring methodology developed to report waste volume and water quality under Ridge to Reef project (unknown if monitoring programme is operational).	11
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	3 of 6 activities progressed: NATPLAN (National Marine Spill Contingency Plan) updated; development of national healthcare and asbestos waste management strategies supported by the PacWaste project; Combined Utilities Business Plan 2018-2022 developed with a detailed business plan for Tonga's Waste Authority Ltd.	6, 10, 17
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 8 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	0 of 2 activities progressed.	
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	2 of 3 activities progressed: with support from JICA under J-PRISM II, Tonga Waste Authority Limited (WAL) investigated and implemented the expansion of user-pays waste management services to Vava'u; stakeholder meetings conducted by WAL to build support and awareness for the Vava'u service.	12
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	3 of 8 activities progressed: with support from JICA under J-PRISM II, Kalaka landfill improved and a landfill operation manual developed by WAL to extend the facility's life; new manager appointed at WAL to address accounts, public relations and disposal sites operation, and to assist with expanding service provision to the outer islands; "Ha'apai Waste Management Service Plan" and "'Eua Waste Management Service Plan" developed by WAL, to support expansion of services to the outer islands; three high temperature incinerators installed and commissioned for three hospitals (Vaiola Hospital, Niu'eiki Hospital and Niu'ui Hospital) through the PacWaste project.	10, 12, 14
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: assessment and monitoring methodology developed to report water quality under Ridge to Reef project (unknown if monitoring programme is operational).	11

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 2 activities progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs.	13, 18
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	10
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRTs 2016 and 2018 with JICA (J-PRISM) assistance; 1 officer self-funded attendance to CPRT 2018.	19
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; participated in a sub-regional (JICA/J-PRISM II) workshop on disaster waste management.	18, 19
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] https://ago.gov.to/cms/
[3] http://extwprlegs1.fao.org/docs/pdf/ton136449.pdf
[4] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[5] https://www.theprif.org/documents/tonga/infrastructure-planning-and-management/tonga-national-infrastructure-investment-plan
[6] http://prdrse4all.spc.int/sites/default/files/final_combined_business_plan_2018_2022.pdf
[7] http://extwprlegs1.fao.org/docs/pdf/ton168846.pdf
[8] https://www.sprep.org/attachments/j-prism/Waste%20Characterization%20Report/Tonga/Development%20Plan_SWM%20(1).pdf
[9] https://www.sprep.org/attachments/used-oil-mission-report-fiji-kiribati-niue-vanuatu-scl.pdf
[10] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[11] https://www.pacific-r2r.org/sites/default/files/2020-03/Project_Progress_Tonga.pdf
[12] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.
[13] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[14] https://www.sprep.org/attachments/Publications/Newsletters/j-prism-buzz-3.pdf
[15] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[16] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[17] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020
[18] JICA, J-PRISM II team, pers. comm., 26 June 2020
[19] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020

TUVALU: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[280]

Overview

Based on available data/information, Tuvalu's overall CP2025 progress is rated as 'good':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: Tuvalu Integrated Waste Policy and Action Plan developed and aligned with CP2025; UPOPs National Action Plan developed; and the Waste Management Act 2017, Waste Management (Litter and Waste Control) Regulation 2018, Waste Management (Prohibition on the Importation of Single-Use Plastic) Regulation 2019 and Waste Management (Levy Deposit) Regulation 2019 enacted (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 7 indicators have improved (composting, container deposit programme, EPR for used oil, water quality monitoring operational; national waste collection coverage increased; number of open dumps and used oil stockpile decreased); 4 indicators remain unchanged/stable; progress is undetermined for 7 due to data being available for 1 year only; and 2 indicators have no data for assessing progress (Table 2).
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 11 (WCP data collection and management; development of WCP legislation, strategies, plans; best practice occupational health and safety; resource recovery; improvement of WCP infrastructure; environmental monitoring; human capacity development; WCP education and behavioural change; Clean Pacific Roundtable participation; monitoring of CP2025 activities); limited progress achieved for 3; and no progress for 1 strategic action (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Implementation of WCP prevention and reduction programmes;
2. Management of hazardous waste, including development of inventories;
3. Expansion of routine monitoring and reporting, especially for the receiving environment;
4. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance; and
5. Further development and expansion of WCP education and behavioural-change programmes.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Tuvalu. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	O	X*	14 (L), 2 (PSP)
Healthcare waste	X	X		X*	14 (L), 2 (PSP)
Other hazardous waste	X	X		X*	14 (L), 2 (PSP)
Liquid waste	X	X	X*	X*	14 (L), 2 (PSP)
Chemicals	X	X	C[1]	X[1^]	14 (L), 15 (PSP)
Oil spill contingency	N/A	N/A	D	D	3 (PSP)
Air pollution	X	X			14 (L)
Plastics (including single-use)[c]		X		X*	6 (L)
Container deposit[c]		X		X*	6 (L), 2 (PSP)
Litter[c]	X	X		X*[2]	14 (L), 2 (PSP)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; C = preparation has commenced; D = document prepared but not endorsed; O = endorsed document no longer current; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; 1 = for POPs only; 2 = marine litter * = part of an integrated policy, strategy or plan; ^ = UPOPs National Action Plan developed but National Implementation Plan (Stockholm Convention) is yet to be updated to account for COP amendments.

[280] Progress assessment reviewed and validated by Tuvalu.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	0.49[b]	4, 7
No. of marine pollution incidents				ND	0	5
No. of port waste reception facilities				0	0	5
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				15	ND	
No. of national or municipal composting programmes				0	1[c]	6
No. of national or state container deposit programmes				0	1	11
No. of national EPR programmes for used oil				0	1	6
No. of national EPR programmes for e-waste				0	0	6
No. of national or state user-pays systems for waste collection				0	0[d]	6, 9
Waste collection coverage (% of population)				100 (urban) 47 (national)	100 (urban) 80 (national)	6
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				9[e]	8[e]	6
Quantity of asbestos stockpiles (m^2)				251[f]	ND	
Quantity of healthcare waste stockpiles (tonnes)				0	ND	
Quantity of e-waste stockpiles (tonnes)				ND	4.54	7
Quantity of used oil stockpiles (m^3)				2.5[g]	2.4	7
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	8
No. of water and environmental quality monitoring programmes				0	1[h]	6
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = Tuvalu estimate based on 2019 Funafuti overall waste generation estimate of 2,904 kg/day (source 7), 2017 Funafuti population figure of 6,320 (source 4), and 2017 Vaitupu waste generation estimate of 704 kg/day (reported in source 7) and 2017 Vaitupu population estimate of 1,061 (source 4); c = '1' indicates composting programme operational; d = Tuvalu has opted for a waste levy rather than a user-pays waste collection system (e.g. prepaid bags), as the waste levy can be easily added to any imported items that contribute highly to the waste generation rate; e = authorised open dumps (no soil cover); f = Funafuti only; g = the CP2025 Table 11 figure was 14.5 m^3, but according to source 17 the 2014 national stockpile for Tuvalu was 2.5 m^3; h = '1' indicates coastal waters monitoring under Ridge to Reef project.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	2 of 4 activities progressed: used oil shipped to Fiji and data recorded; baseline waste surveys completed for all islands; Tuvalu Waste Information System developed by Dept Waste Management (DWM), with waste data recorded daily for quarterly and annual reporting; coastal waters monitored, including testing of lagoon waters surrounding Funafuti Waste Landfill under R2R Project.	6, 13
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	4 of 7 activities progressed: Tuvalu Integrated Waste Policy and Action Plan 2017-2026 developed; organisational structure revised and new positions recruited for DWM; Waste Management Act 2017 in force, supported by Litter and Waste Control Regulations 2017; two Regulations developed, Single Use Plastic Import Prohibition and Waste Management (Levy Deposit); waste by-laws in place for 7 out of 8 outer islands; development of a national healthcare waste strategy supported by the PacWaste project; UPOPs National Action Plan developed; DWM and Disaster Management Agency initiated development of a national disaster waste management plan.	6, 12, 16
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: Waste Management and Recyclers Association established.	9
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	1 of 2 activities progressed: PPE use training and enforcement led by DWM; occupational and Public Health and Safety incidents reduced by 50% between 2018 and 2019.	6, 9
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	2 of 9 activities progressed: Waste Management (Levy Deposit) Regulation enacted; discussions held between DWM and relevant government agencies about enforcing legal provisions to prolong the lifespan of goods, and about options for shops when products are close to expiry dates.	6
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	3 of 4 activities progressed: green waste collected twice/week by DWM, shredded and sold to Taiwan vegetable garden; green waste collection being introduced to outer islands; partnership developed between DWM, Taiwanese Development Program and Dept of Lands to establish a dry-litter piggery trial site under R2R project; CBA and M&E tools used to improve green waste management; compost sold by Funafuti green waste programme increased by at least 5% in 2018 and 2019; public awareness waste management programmes delivered by DWM, targeting preschools and primary schools.	6, 9, 10
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	1 of 3 activities progressed: Waste User Pay Feasibility Study completed by DWM, but Tuvalu has opted for a waste levy rather than a user-pays waste collection system (e.g. prepaid bags), as the waste levy can be easily added to any imported items that contribute highly to the waste generation rate.	6, 9

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	6 of 9 activities progressed: equipment and spare parts inventory, and infrastructure management and maintenance plan completed by DWM; rehabilitation plan developed for Funafuti dumpsite and related training conducted for workers; designs developed to improve outer islands' disposal sites and new fences completed (4 islands); used oil storage containers procured; disposal and treatment systems investigated for liquid waste; high temperature, dual-chamber incinerator installed for healthcare waste (PacWaste project), with Dept of Health agreeing to gradually absorb operating costs; DWM budget forecast increase of 100% by 2020 (from 2016 baseline).	6, 12
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	1 of 1 activity progressed: coastal waters monitored, including testing of lagoon waters surrounding Funafuti Waste Landfill under R2R Project.	6, 13
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	1 of 2 activities progressed: training needs assessed by DWM for waste and other relevant sectors for all islands.	6
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	2 of 4 activities progressed: public awareness programmes delivered by DWM; ongoing weekly and monthly clean-up campaigns involving all govt agencies; women's groups producing alternatives to single-use plastic products.	6
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	2 of 2 activities progressed: participated in CPRTs 2016 and 2018; self-funded a delegate in 2018.	5
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	2 of 3 activities progressed: Waste Management Coordinating, Waste Levy, and Used Lubricating Oil Committees established and operational; Waste Management (Prohibition on the Importation of Single Use Plastic) Regulation 2019 subcommittee operational, to oversee the implementation of the Regulation at the national level; attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; participated in a sub-regional workshop on disaster waste management.	5, 6, 9, 18
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	1 of 1 activity progressed: 2 reviews completed by DWM of Integrated Waste Policy and Action Plan 2017-2026; regular reporting to Cabinet by DWM.	6

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] Government of Tuvalu (2016) Tuvalu Integrated Waste Policy and Action Plan: Towards Cleaner and Healthier Islands 2017 – 2026

[3] https://www.sprep.org/attachments/Tuvalu_Draft_NATPLAN_March2011.pdf

[4] Central Statistics Division Ministry of Finance, Economic Planning and Industries (n.d.) Tuvalu Population & Housing Mini-Census 2017: Preliminary Report, https://tuvalu.prism.spc.int/index.php/tuvalu-documents

[5] SPREP Waste Management and Pollution Control programme, pers. comm., 25 June 2020

[6] Government of Tuvalu (2019) The 2nd Annual Review of the Implementation Status of Tuvalu's Integrated Waste Policy and Action Plan 2017-2026

[7] Asia Pacific Waste Consultants (2019) Tuvalu – Waste Audit Report. Pacific Region Infrastructure Facility
[8] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[9] Kaua W., Department of Waste Management, Ministry of Local Government and Agriculture, Tuvalu, pers. comm., 25 June 2020
[10] SPREP (2017) Performance Monitoring and Evaluation Report on the 2016 Annual Work Programme and Budget, https://www.sprep.org/sprep-meeting/28th-sprep-meeting-of-officials
[11] https://www.sprep.org/sites/default/files/documents/publications/pwp-factsheet-waste-funding-system.pdf
[12] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[13] https://www.pacific-r2r.org/sites/default/files/2020-03/Project_Progress_Tuvalu.pdf
[14] https://tuvalu-legislation.tv/cms/
[15] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[16] https://www.sprep.org/gefpaspops/gefpas-reports
[17] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[18] JICA, J-PRISM II team, pers. comm., 26 June 2020

VANUATU: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[281]

Overview

Based on available data/information, Vanuatu's overall CP2025 progress is rated as 'fair':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: National Waste Management and Pollution Control Strategy and Implementation Plan 2016-2020 revised and aligned with CP2025; UPOPs National Action Plan developed; National Implementation Plan submitted to the Stockholm Convention Secretariat; and three orders made under the *Waste Management Act No. 24 of 2014* addressing single use plastics, littering and licensing of private waste operators (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 2 indicators have improved (waste collection coverage increased, asbestos removed); 1 has deteriorated (per capita generation of municipal solid waste increased); 8 remain unchanged/stable; progress is undetermined for 5 indicators due to data being available for 1 year only; and 4 indicators have no data for assessing progress (Table 2). Note, 3 of the unchanged/stable indicators actually reflect positive progress, given their good 2014 baselines.
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 5 (development of WCP strategies, plans, legislation; resource recovery; human capacity development; Clean Pacific Roundtable participation; monitoring of CP2025 activities); limited progress achieved for 5; and no progress for 4 strategic actions. Activities under 1 strategic action were not applicable to Vanuatu (Table 3).

Based on the progress assessment results, five activity areas that require further work are:

1. Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment;
2. Implementation of WCP prevention and reduction programmes;
3. Improvement of WCP management infrastructure, working towards sustainable operation and maintenance;
4. Management of hazardous waste, including development of inventories; and
5. Further development and expansion of WCP education and behavioural-change programmes.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Vanuatu. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X*	X*^	3 (L), 2, 7 (PSP)
Healthcare waste	X	X	X*	X*	3, 6 (L), 2 (PSP)
Other hazardous waste	X	X			3 (L), 2 (PSP)
Liquid waste	X	X	X*	X*[1]	3 (L), 2 (PSP)
Chemicals	X	X		X[2]	3 (L), 5, 18 (PSP)
Oil spill contingency	N/A	N/A	D	D	20 (PSP)
Air pollution	X	X		X*[3]	3 (L) 2 (PSP)
Plastics (including single-use)[c]		X			4 (L)
Container deposit[c]					
Litter[c]	X	X			4 (L)

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L, 2020 L and 2020 PSP only, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; D = document prepared but not endorsed; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP; * = part of an integrated policy, strategy or plan; ^ = in addition to the National Waste Management and Pollution Control Strategy, an Annual Solid Waste Management Plan 2019 was published by Port Vila Municipal Council; 1 = pollutants discharged to wastewater; 2 = for POPs only; 3 = mainly emissions from vehicles.

[281] Progress assessment not reviewed and validated by Vanuatu.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				1.3[b]	1.46[c, d]	7
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	20
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				37	ND	
No. of national or municipal composting programmes[a]				1[e]	1[e]	8
No. of national or state container deposit programmes				0	0[f]	8
No. of national EPR programmes for used oil				0	0[g]	9
No. of national EPR programmes for e-waste				0	0	
No. of national or state user-pays systems for waste collection[a]				1[h]	1[h, i]	8
Waste collection coverage (% of population)				50 (urban)[j] 12 (national)	~100 (urban)[j] ~50 (Luganville)	8
Waste capture rate (= amount collected/amount generated) (%)				ND	50[k]	8
No. of temporary, unregulated and open dumps				ND	ND	
Quantity of asbestos stockpiles (m^2)				19,330	6,250 removed under PacWaste project[l]	
Quantity of healthcare waste stockpiles (tonnes)				0	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)[a]				0	0[m]	10
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				0	0	17
No. of water and environmental quality monitoring programmes				0	ND	
No. of national chemicals and pollution inventories				0	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = unchanged/stable indicator actually reflects good progress, given the 2014 baseline; b = Luganville only; c = estimate based on 2016-17 waste flow determined for Shefa Province and Port Vila Municipal Council (see Table 3-5 in source 7 for figures); d = for comparison, 2018 waste disposal estimate determined for Port Vila was 0.47 kg/person/day (source 8); e = '1' indicates composting programme(s) operational, note, in 2014 there were municipal composting programmes in both Luganville and Port Vila, but in 2019, municipal composting continued in Luganville only; f = two private sector CDPs but no formal programme; g = EPR scheme run by one supplier for its products only; h = '1' indicates user-pays waste collection system is operational; i = prepaid bag systems, Port Vila and Luganville municipalities; j = Port Vila only, with estimated participation rate in prepaid bag scheme used as a proxy for coverage; k = mid-point of waste capture rate range, 30–70%, based on comparative data from JICA and APWC; l = this indicator is rated as 'improved' based on the removal of asbestos; m = stockpile data from 2018.

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	1 of 3 activities progressed: waste audit for Port Vila conducted under the initiative of the Department of Environmental Protection and Conservation (DEPC) and Port Vila Municipal Council (PVMC) with the support of JICA (J-PRISM II).	19
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	5 of 7 activities progressed: National Waste Management and Pollution Control Strategy and Implementation Plan 2016-2020 revised and aligned with CP2025; UPOPs National Action Plan developed; National Implementation Plan submitted to the Stockholm Convention Secretariat; three orders made under the *Waste Management Act No. 24 of 2014* addressing single use plastics, littering and licensing of private waste operators; Port Vila Municipal Council Annual Solid Waste Management Plan 2019 published; institutional arrangements reviewed and recommendations for improvement developed, as part of National Waste Management and Pollution Control Strategy; development of national healthcare and asbestos waste strategies supported by the PacWaste project; draft disaster waste management plan developed with the support of JICA (J-PRISM II).	2, 4, 5, 7, 11, 19
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	1 of 3 activities progressed: Vanuatu Recycling and Waste Management Association launched with the support of JICA (J-PRISM II).	12
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	1 of 8 activities progressed: Container Deposit Scheme (CDS) pre-feasibility study conducted by JICA (J-PRISM II) and CDS technical working group established.	14
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	2 of 2 activities progressed: large-scale organics waste bin installed at the main market house in Luganville for composting; Clean School Program promoted on a small scale as a pilot project; school environmental education guidebook (including waste management) published.	8, 13, 14
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Vanuatu.	

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	3 of 8 activities progressed: landfill guideline developed, to be implemented for any proposed landfill as a condition under the EIA process; targeted rehabilitation of Bouffa landfill completed during the PacWaste project, including construction of a new access road, repair of damaged gas ventilation facilities and creation of a safe disposal area for asbestos; conceptual design developed for improvement of Bouffa Landfill, including establishment of a landfill management system, recycling yard and stock yard for disaster waste; high temperature healthcare waste incinerators installed in four hospitals, with installation supported by training, during the PacWaste project (Port Vila Central Hospital, Lenakel Hospital, Northern District Hospital, Lolowai Hospital); new septage treatment facility built for safe and secure treatment and disposal of septic tank waste.	11, 13, 15
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	2 of 2 activities progressed: capacity building needs assessment completed with JICA/J-PRISM II between 2017 to 2019, to identify training and human resource exchange needs; enforcement officers, a police officer, 12 municipal wardens, provincial compliance officer, planner, and area secretary within Shefa province trained to enforce waste management regulations.	13, 16, 19
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	2 of 2 activities progressed: participated in CPRTs 2016 and 2018; self-funded a delegate in 2018.	19
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: DEPC supported Municipal Councils and Provincial Government Councils with development of their annual Waste Management Plans through a process of information sharing and consultation; attended annual J-PRISM II Steering Committee Meetings, as a regional platform to share practices and project progress; held annual national J-PRISM II Joint-Coordination-Committee Meetings to share project progress and good practices with all stakeholders; participated in sub-regional (in Samoa) and national workshops (JICA/J-PRISM II) on disaster waste management.	19
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	1 of 1 activity progressed: progress monitoring of NWMPCS evaluated and summarised by DEPC in 2017, 2018 and 2019, which informed a detailed action plan for the following year.	13, 14

Sources:

[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025
https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy

[2] (2016) National Waste Management and Pollution Control Strategy and Implementation Plan 2016-2020, https://environment.gov.vu/images/Waste.Management/NWMS-IP%202016-2020.pdf
[3] http://www.paclii.org/countries/vu.html
[4] https://environment.gov.vu/images/Environmental.Protection/Official-Gazette-No.-10-of-2018-dated-2-February-2018.pdf
[5] https://www.sprep.org/gefpaspops/gefpas-reports
[6] https://www.sprep.org/attachments/Publications/EMG/sprep-legislative-review-vanuatu.pdf
[7] Port Vila Municipal Council, Department of Environment and Pollution Control, Japan International Cooperation Agency (2019) Annual Solid Waste Management Plan (ASWMP) In Year 2019, https://depc.gov.vu/images/Waste.Management/Waste.Management.Planning/PVMC_Annual_SWM__Plan_2019.pdf
[8] Asia Pacific Waste Consultants (APWC) (2019) Waste Data Report – Vanuatu. Analysis of waste generation and disposal data collected in November 2018, https://www.cefas.co.uk/clip/resources/reports/south-pacific-clip-reports/
[9] Asia Pacific Waste Consultants (APWC) (2019) Port Reception Waste Facilities Review – Vanuatu, https://www.cefas.co.uk/clip/resources/reports/south-pacific-clip-reports/
[10] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[11] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[12] https://environment.gov.vu/index.php/news-events/193-launch-of-the-vanuatu-recycling-and-waste-management-association-in-port-vila-vanuatu
[13] https://depc.gov.vu/images/Waste.Management/Public_Version_NWMPCS_Action_Plan_in_2019.pdf
[14] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.
[15] https://www.gov.vu/en/public-information/302-new-septage-treatment-plant
[16] https://www.sprep.org/sites/default/files/29-SPREP-Meeting/New/Eng/WP%205.3.%20Att.1%20-%20Progress%20towards%20achievement%20of%20the%202018_19_PIP%20Strategic%20Outcomes.pdf
[17] https://www.pwwa.ws/wp-content/uploads/2020/01/PWWA-Seven-Years-of-Benchmarking_2018-FINAL-DRAFT.pdf
[18] http://chm.pops.int/Implementation/NationalImplementationPlans/NIPTransmission/tabid/253/Default.aspx
[19] JICA, J-PRISM II team, pers. comm., 26 June 2020
[20] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

WALLIS AND FUTUNA: CLEANER PACIFIC 2025 (CP2025) PROGRESS ASSESSMENT, 2016-2019[282]

Overview

Based on available data/information, Wallis and Futuna's overall CP2025 progress is rated as 'limited':

- *National legislation, policies, strategies, plans for waste, chemicals and pollution (WCP)*: new territorial environmental code introduced, imposing a tax on imported beverages (Table 1).
- *Twenty CP2025 performance indicators*: with reference to 2014 baseline information, 1 indicator has improved (composting programme operational), 1 remains unchanged/stable, progress is undetermined for 8 indicators due to data being available for 1 year only, and 10 indicators have no data for assessing progress (Table 2).
- *Implementation Plan 2016-2019, fifteen strategic actions*: good progress achieved for 1 (Clean Pacific Roundtable participation), limited progress achieved for 4, and no progress for 9 strategic actions. Activities under 1 strategic action were not applicable to Wallis and Futuna (Table 3).

Based on the progress assessment results, five key activity areas that require further work are:

1. Development of an integrated WCP strategy and action plan that is aligned with CP2025, and includes a reporting framework;
2. Development of public-private partnerships, especially for EPR programmes;
3. Implementation of WCP prevention and reduction programmes;
4. Management of hazardous waste, including development of inventories; and
5. Development and implementation of routine monitoring and reporting, especially for WCP management activities and the receiving environment.

Results

Tables 1, 2 and 3, below, document key findings from the CP2025 progress assessment for Wallis and Futuna. Where appropriate and feasible, progress has been assessed with reference to baselines recorded in CP2025.

Table 1: Status of waste, chemicals and pollution (WCP) legislation, policies, strategies, plans

	Legislation (L)[a]		Policies, strategies, plans (PSP)		Sources[b]
	2016	2020	2016	2020	
Solid waste	X	X	X	ND	4 (L)
Healthcare waste	ND	ND	X	ND	
Other hazardous waste	X	X	X	ND	4 (L)
Liquid waste	X	X		ND	4 (L)
Chemicals	X	X		ND	4 (L)
Oil spill contingency	N/A	N/A	X	ND	
Air pollution	X	X		ND	4 (L)
Plastics (including single-use)[c]	ND	ND		ND	
Container deposit[c]	-	X		ND	2 (L)
Litter[c]	ND	ND		ND	

a = some of the WCP categories do not have specific laws, but are covered under general laws to varying degrees; b = information/data sources for 2016 L and 2020 L, 2016 PSP data from source 1; c = new category, not referred to in CP2025; N/A = not applicable; ND = no data; X = enacted (L) or endorsed (PSP) and current; blank cells indicate WCP categories not addressed in L or PSP.

[282] Progress assessment not reviewed and validated by Wallis and Futuna.

Table 2: Progress assessment, CP2025 performance indicators

Performance indicators				2014	2020	Sources[A]
	Improved		Undetermined			
	Unchanged/stable		No data			
	Deteriorated					
Per capita generation of municipal solid waste (kg/person/day)				ND	0.69[a]	3
No. of marine pollution incidents				ND	ND	
No. of port waste reception facilities				0	0	8
Waste recycling rate (= amt recycled, reused, returned/amt recyclable) (%)				ND	ND	
No. of national or municipal composting programmes				1	ND	
No. of national or state container deposit programmes				0	1	2
No. of national EPR programmes for used oil				0	ND	
No. of national EPR programmes for e-waste				0	ND	
No. of national or state user-pays systems for waste collection				0	ND	
Waste collection coverage (% of population)				100	ND	
Waste capture rate (= amount collected/amount generated) (%)				ND	ND	
No. of temporary, unregulated and open dumps				1[b]	ND	
Quantity of asbestos stockpiles (m^2)				ND	ND	
Quantity of healthcare waste stockpiles (tonnes)				ND	ND	
Quantity of e-waste stockpiles (tonnes)				ND	ND	
Quantity of used oil stockpiles (m^3)				100[c]	ND	
Quantity of pharmaceutical and chemical stockpiles (tonnes)				ND	ND	
Urban sewage treated to secondary standards (%)				ND	ND	
No. of water and environmental quality monitoring programmes				ND	ND	
No. of national chemicals and pollution inventories				ND	ND	

A = 2020 data sources only, 2014 data from source 1; EPR = Extended Producer Responsibility; ND = no data; a = estimate based on 2016 average value for upper middle income countries in source 3 (Fig. 2.6, pg 27); b = authorised open dump; c = likely underestimate given the INTEGRE project (2014-2018) exported 200 m^3 of used oil to New Zealand (source 5).

Table 3: Progress assessment, CP2025 Implementation Plan 2016-2019 strategic actions and linked activities

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
A.	*Strengthen institutional capacity*		
1.	SPREP, PICTs and partners shall undertake regular WCP data collection and management, including storage, interpretation, dissemination and sharing	0 of 3 activities progressed.	
2.	PICTs, supported by SPREP and partners, shall develop and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best practice WCP management	1 of 4 activities progressed: new territorial environmental code introduced, imposing a tax on imported beverages.	2
B.	*Promote public-private partnerships*		
3.	SPREP, PICTs and partners shall strengthen existing and develop new public-private partnerships including through strengthened public-private partnership frameworks	0 of 3 activities progressed.	
C.	*Implement sustainable best practices in WCP management*		
4.	SPREP, PICTs and partners shall implement best practice occupational health and safety measures for formal and informal workers in the WCP management sectors	0 of 1 activity progressed.	
5.	PICTs, supported by SPREP and partners, shall implement WCP prevention and reduction programmes	0 of 8 activities progressed.	
6.	PICTs, supported by SPREP and partners, shall implement resource recovery programmes	1 of 4 activities progressed: recycling and waste management awareness promoted to high school students by the Department of the Environment and the INTEGRE project.	6
7.	PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practices	0 of 2 activities progressed.	
8.	PICTs, supported by SPREP and partners, will expand user-pays WCP collection services	N/A to Wallis and Futuna.	
9.	PICTs, supported by SPREP and partners, shall improve WCP management infrastructure and support sustainable operation and maintenance	1 of 6 activities progressed: Nanu'u landfill closed, fenced and revegetated, and a new Technical Burial Centre established for waste management.	5
10.	PICTs, supported by SPREP and partners, shall implement best practice environmental monitoring and reporting programmes	0 of 1 activity progressed.	
D.	*Develop human capacity*		
11.	SPREP, PICTs and partners shall implement sustainable human capacity development programmes for WCP management stakeholders	0 of 1 activity progressed.	
E.	*Improve dissemination of outcomes and experiences in WCP management*		
12.	SPREP, PICTs and partners shall utilise project outcomes to implement regional and national WCP education and behavioural-change programmes	0 of 4 activities progressed.	
F.	*Promote regional and national cooperation*		
13.	SPREP, PICTs and partners shall establish a regional Clean Pacific Roundtable to coordinate and facilitate waste management and pollution-control dialogue and networking in the region	1 of 2 activities progressed: participated in CPRT 2018.	7

Strategic actions		Summary of activities	Sources
	Good progress (≥ half of linked activities progressed)		
	Limited progress (< half of linked activities progressed)		
	No progress (no linked activities progressed)		
14.	SPREP, PICTs and partners shall strengthen national and regional cooperation and coordination on waste and pollution management activities	1 of 3 activities progressed: 'Recycling waste for zero waste' side event hosted by Wallis and Futuna at the 29th SPREP Meeting of Officials, to share the territory's experience with imposing a tax on imported beverages.	2
15.	SPREP, PICTs and partners shall cooperate to ensure timely monitoring of the Pacific Regional Waste and Pollution Management Strategy 2016–2025	0 of 1 activity progressed.	

Sources:
[1] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025 https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] https://www.sprep.org/news/wallis-and-futunas-innovative-ecological-taxation
[3] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317
[4] http://www.wallis-et-futuna.gouv.fr/Publications/Publications-administratives
[5] https://integre.spc.int/en/regional-actions/waste-management#territories-declinaisons
[6] https://integre.spc.int/en/the-project/all-events/wallis-and-futuna/262-visit-of-the-landfill-center-of-wallis-by-the-students-of-mala-e-s-high-school
[7] Guinto M B., Solid Waste Management Adviser, SPREP, pers. comm., 29 June 2020
[8] Talouli A., Pollution Adviser, SPREP, pers. comm., 25 June 2020

Appendix 5: Tables from CP2025, updated with new data

TABLE 11: WASTE GENERATION AND COMPOSITION IN PACIFIC ISLAND COUNTRIES AND TERRITORIES

Country/territory	State, municipality or island	Year	Data source	Waste generation rate			Household waste composition, by weight (%)							
				Household waste (kg/p/day)	Commercial/ non-household waste (kg/p/day)	Total urban MSW (kg/p/day)[A]	Organics (food & yard waste)	Paper (including cardboard)	Plastics	Glass & ceramics	Metal	Textiles and rubber	Other residues	Total[L]
American Samoa		2016	1			0.94[B]								
CNMI	Saipan	2018	2			2.6[C]								
Cook Islands		2016	1			1.14[D]								
FSM	Pohnpei^	2017	3	0.74	0.41	1.15	34.9	20.3	15.8	2.6	8.1	5.7	12.6	100
	Yap	2017	3	0.83	0.46	1.29	64.1	9	9.2	0.4	6.4	2 (textiles)	8.8	100
	Chuuk	2017	3	0.58	0.34	0.92								
	Kosrae	2017	3	0.77	0.36	1.13	23.2	17.5	29.5	5.5	13.7	3.4 (textiles)	7.1	100
Fiji		2016	1			0.63[B]								
French Polynesia		2016	1			1.36[E]								
Guam		No date	4			2.39								
Kiribati		2016	1, 5			0.86[B]	55[F]	5	13	3	3	3	18	100
Nauru		2016	1			1.3[C]								
New Caledonia		2016	1			1.07[B]								
Niue		2016	1			1.14[D]								
Palau	Koror and Babeldaob	2017	6			2.0	55	6.5	8	4.5	7.5	1	17	99.5
Papua New Guinea		2016	1			0.47[B]								
Republic of the Marshall Islands	Majuro and Ebeye	2017	7, 8, 9	0.87[G]		1.3[G]	34[H]	20.5	15.8	3.2	9.6	5.1	11.8	100
Samoa		2017	10	1.06		1.06[I]	57	5	6	23	2	1	4	98
Solomon Islands		2016	1			0.88								
Tokelau		2016	1			0.69[J]								
Tonga	Vava'u	2011/12	11			1.4	51.5[K]	7.4	13.4	5.9 (glass)	9	4.1 (textiles & ceramics)	8.9	100
Tuvalu	Funafuti, Vaitupu	2017, 2019	12, 13			0.49								
Vanuatu	Shefa Province, Port	2016-17	14			1.46	49	5	19	2	8	2 (textiles)	14	99

Country/territory	State, municipality or island	Year	Data source	Waste generation rate			Household waste composition, by weight (%)							
				Household waste (kg/p/day)	Commercial/ non-household waste (kg/p/day)	Total urban MSW (kg/p/day)[A]	Organics (food & yard waste)	Paper (including cardboard)	Plastics	Glass & ceramics	Metal	Textiles and rubber	Other residues	Total[L]
	Vila Municipal Council													
Wallis and Futuna		2016	1			0.69[J]								
Unweighted mean (n = 6, household waste; n = 21, MSW; n = 9, waste composition)				0.8	0.4	1.2	47.1	10.7	14.4	5.6	7.5	3.0	11.4	99.7
For comparison, unweighted mean, CP2025 (n = 14, household waste; n = 5, MSW; n = 15, waste composition)				0.5		1.3	43.6	10.9	16.5	5.5	10	4.2	9.3	100

^ = waste composition figures reported for discharged waste, not generated waste; A = municipal solid waste includes household, commercial and institutional waste; B = urban and rural estimate; C = urban estimate only; D = 2016 estimate based on income groups in source 1 (Fig. 2.6, pg 27), and calculation of the average value across upper-middle and high-income countries; E = value represents total solid waste generated, not only MSW; F = waste composition estimates for Bikenibeu, South Tarawa only (see source 5); G = calculated as an average of the estimated generation rates for Majuro and Ebeye; H = all waste composition data is for Majuro only; I = this figure is an underestimate as it is a household (not municipal) waste generation estimate; J = estimate based on income groups in source 1 (Fig. 2.6, pg 27), using the 2016 average value for upper-middle income countries; K = waste composition estimates for Neiafu town only; L = rounding of waste category estimates means the total ≠ 100; blank cells indicate no data available. NOTE: Refer to individual country and territory profiles for additional background notes and explanations regarding the determination of MSW (kg/p/day) estimates.

Sources

[1] Kaza S., Yao L., Bhada-Tata P., Woerden F. (2018) What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank, https://openknowledge.worldbank.org/handle/10986/30317

[2] https://opd.gov.mp/library/ccr/2019-department-of-public-works-citizen-centric-report/

[3] Pohnpei State Solid Waste Management Strategy 2020 – 2029 (Action Plan: 2020-2024), Yap State Solid Waste Management Strategy 2018 – 2027 (Action Plan: 2018-2022), Chuuk State Solid Waste Management Strategy 2019 – 2028 (Action Plan: 2019-2023), Kosrae State Solid Waste Management Strategy 2018 – 2027 (Action Plan: 2018-2022), https://www.sprep.org/j-prism-2/report-and-materials

[4] https://issuu.com/guamepa/docs/guam_zero_waste_plan__final__-_volu

[5] Government of Kiribati (2020) DRAFT Kiribati Waste Management Resource Recovery Strategy 2020–2029

[6] Republic of Palau (2017) National Solid Waste Management Strategy: The Roadmap Towards a Clean and Safe Palau, 2017 to 2026

[7] JICA (2017) Result of Baseline Surveys (Draft) Majuro Atoll, Aug 7, 2017 JICA Expert Team, JPRISM II, unpublished

[8] Kwajalein Atoll Local Government (2018) Kwajalein Atoll Solid Waste Management Plan, 2019–2028 (Action Plan: 2019-2023)

[9] Republic of the Marshall Islands (2019), National Waste Management Strategy, 2020–2029, unpublished draft

[10] Ministry of Natural Resources and Environment (2019) National Waste Management Strategy (2019-2023), https://www.sprep.org/j-prism-2/report-and-materials

[11] https://www.sprep.org/attachments/j-prism/Waste%20Characterization%20Report/Tonga/Development%20Plan_SWM%20(1).pdf

[12] Asia Pacific Waste Consultants (2019) Tuvalu – Waste Audit Report. Pacific Region Infrastructure Facility

[13] Central Statistics Division Ministry of Finance, Economic Planning and Industries (n.d.) Tuvalu Population & Housing Mini-Census 2017: Preliminary Report, https://tuvalu.prism.spc.int/index.php/tuvalu-documents

[14] Port Vila Municipal Council, Department of Environment and Pollution Control, Japan International Cooperation Agency (2019) Annual Solid Waste Management Plan (ASWMP) In Year 2019, https://depc.gov.vu/images/Waste.Management/Waste.Management.Planning/PVMC_Annual_SWM__Plan_2019.pdf

TABLE 12: ORGANIC WASTE MANAGEMENT PROGRAMMES IN PACIFIC ISLAND COUNTRIES AND TERRITORIES

Country/territory	Total no. organic waste management programmes			
	2014[a]	2020[b]	Source[c]	2020 data comments
American Samoa	No known programme	1	2	AS-EPA Piggery Compliance Program has approved the Dry Litter Piggery and Wash Down Piggery designs that include composting.
CNMI	No known programme	0	3	Currently, Department of Public Works – Solid Waste Division has no composting programme in place
Cook Islands	1	ND		
FSM	2	4	4	Each state has a composting programme
Fiji	5	3	5	Composting programmes in several municipal areas: Suva, Lautoka, Sigatoka
French Polynesia	1	2	6	Sludge and grease from wastewater treatment recycled into compost; municipal green waste collected and composted
Guam	1	1	7	Biosolids composting demonstration project
Kiribati	1	ND		
Nauru	No known programme	1	8	
New Caledonia	5	ND		
Niue	1	1	9	Green waste shredding machine being trialled
Palau	1	1	10	Composting programme at Koror State Recycling Center
PNG	1	1	11	Pilot-scale composting programme for Kokopo market waste (J-PRISM II project)
RMI	1	1	12	
Samoa	2	1	13	MNRE working in partnership with a private company for composting at Tafaigata Landfill
Solomon Islands	2	1	14	Kastom Garden Association composting programme in Honiara; green waste from Auki (Malaita Province) markets composted at a local farm; Keep Honiara Healthy campaign, Honiara City Council, promotes home composting
Tokelau	Majority of organic waste fed to animals or placed around plants	0	15	Organic waste fed to pigs
Tonga	No known programme	ND		
Tuvalu	No known programme	1	16	Funafuti, green waste collected twice/week by Department of Waste Management
Vanuatu	2	1	17	Composting programme in Luganville operated by the municipal council
Wallis and Futuna	1	ND		
Total	27	19		

ND = no data; a = CP2025 baseline data; b = latest available data; c = 2020 data only, 2014 data from source 1.

Sources:

[1] Secretariat of the Pacific Regional Environment Programme (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025.
[2] https://www.epa.as.gov/piggeries
[3] Office of Planning and Development, CNMI (2019) Resources Report: Planning for Sustainability in the Commonwealth of the Northern Mariana Islands (Working draft) https://opd.gov.mp/wp-content/uploads/opd/ResourcesReport_workingdraft0901.pdf
[4] Pedrus P., Deputy Assistant Secretary, Waste Management & Pollution Control Unit, Division of ES&D, Department of Environment, Climate Change, & Emergency Management, National Government, FSM, pers. comm., 28 June 2020
[5] http://suvacity.org/; https://www.sprep.org/attachments/Publications/Presentation/cprt-2018/2-shalend-tracking-improvement-waste-management-lautoka.pdf; https://www.sigatokatown.com.fj/
[6] https://www.polynesienne-des-eaux.pf/; http://www.technival.pf/
[7] https://zerowasteguam.eco/biosolids-composting/
[8] Tonkin & Taylor Ltd (2018) Waste Management System Operations and Policy - Preliminary Advice. Nauru Department of Industry, Commerce and the Environment
[9] https://www.sprep.org/news/new-waste-initiatives-niue-horizon
[10] Asia Pacific Waste Consultants (2019) Palau – Waste Audit Report. Analysis of waste generation, recycling and disposal data collected in November 2019, unpublished
[11] JICA (2020) Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries Phase II (J-PRISM II) (Group 2), Project Completion Report (2nd Term), Kokusai Kogyo Co., Ltd. Yachiyo Engineering Co., Ltd.
[12] SPREP (2018) Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports, unpublished
[13] Apo, S., Solid Waste Management Officer and Siaosi F., Chemical/Hazardous Waste Management Officer, Ministry of Natural Resources and Environment, Samoa, pers. comm., 24 June 2020
[14] Asia Pacific Waste Consultants (APWC) (2019) Waste Data Report – Solomon Islands https://www.cefas.co.uk/clip/resources/reports/south-pacific-clip-reports/. N.B. report data collected in 2018.
[15] Ministry for the Environment, New Zealand Government (2020) New Zealand's Greenhouse Gas Inventory 1990–2018, Vol. 1, Chapter 8 https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/new-zealands-greenhouse-gas-inventory-1990-2018-vol-1.pdf
[16] Government of Tuvalu (2019) The 2nd Annual Review of the Implementation Status of Tuvalu's Integrated Waste Policy and Action Plan 2017-2026
[17] Asia Pacific Waste Consultants (APWC) (2019) Waste Data Report – Vanuatu. Analysis of waste generation and disposal data collected in November 2018, https://www.cefas.co.uk/clip/resources/reports/south-pacific-clip-reports/

TABLE 13: RECYCLING RATES IN PACIFIC ISLAND COUNTRIES AND TERRITORIES

Country/territory	Year	Recycling rate (%)	Data source	Comments
FSM	2016/2017	68[a, c]	1	Aluminium cans, glass bottles, PET bottles for beverages and cooking oil
Guam	2017	39[b]	2	aluminium cans, cardboard, mixed paper, e-waste, ferrous and nonferrous metals, tires, automotive batteries, plastics, mulched composted material and food waste
Kiribati	No date	89[b]	3	aluminium cans, PET bottles, lead acid batteries
New Caledonia	2016	41[b]	4	batteries, oils, tyres, vehicles, electrical/electronic equipment
Palau	2016	78[a]	5	PET bottles, aluminium & steel cans, glass bottles
Samoa (Upolu)	2017	44[b]	6	Aluminium cans
Unweighted mean		60	-	-
For comparison, unweighted mean recycling rate, CP2025		32[d]	7	-

a = Recycling rate based on the number of containers/items redeemed; b = no information available on how the recycling rate was determined; c = national recycling rate calculated on the basis of total number of containers/items redeemed across CDPs in Pohnpei, Yap, Kosrae; d = average of recycling rates (% values) reported for FJ, SA, TO, TV, VU, FP. Note that the recycling rates in CP2025 were based on tonnes of waste recycled/reused locally.

Sources:

[1] Pohnpei State Solid Waste Management Strategy 2020 – 2029 (Action Plan: 2020-2024), Yap State Solid Waste Management Strategy 2018 – 2027 (Action Plan: 2018-2022), Kosrae State Solid Waste Management Strategy 2018 – 2027 (Action Plan: 2018-2022), https://www.sprep.org/j-prism-2/report-and-materials
[2] http://epa.guam.gov/guam-recycles-day-to-celebrate-america-recycles-day-on-november-14/
[3] Pacific Region Infrastructure Facility (2018) Pacific Region Solid Waste Management and Recycling. Pacific Country and Territory Profiles, https://www.theprif.org/documents/regional/urban-development-waste-management/pacific-region-solid-waste-management-and
[4] https://www.province-sud.nc/element-thematique/gestion-dechets#page-content
[5] Republic of Palau (2017) National Solid Waste Management Strategy: The Roadmap Towards a Clean and Safe Palau, 2017 to 2026, https://www.sprep.org/j-prism-2/report-and-materials
[6] Ministry of Natural Resources and Environment (2019) National Waste Management Strategy (2019-2023), https://www.sprep.org/j-prism-2/report-and-materials
[7] SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016 – 2025, pg 22, Table 7

TABLE 14: USED OIL STOCKPILE ESTIMATES FOR PACIFIC ISLAND COUNTRIES AND TERRITORIES

Pacific island countries and territories	Stockpile estimates 2013/14[a] (Litres)	Stockpile estimates 2018[b] (Litres)
American Samoa		
CNMI		
Cook Islands	0	
FSM	1,026,682[c]	937,000[d]
Fiji	100,000	
French Polynesia		
Guam		
Kiribati	8,000	64,000[e]
Marshall Islands	1,108,350[f]	2,633,000[g]
Nauru	30,000[h]	100,000
Niue	4,000	~10,000
New Caledonia		
Palau	550,780	1,135,000[i]
Papua New Guinea		
Samoa	8,400	0
Solomon Islands		
Tokelau	6,200	
Tonga		0
Tuvalu	14,500[h]	2,400[j]
Vanuatu	0	0
Wallis and Futuna	100,000[k]	
Regional	2,956,912	4,881,400

a = source 1; b = source 2, except where another source is indicated; c = sum of Chuuk (21,650), Kosrae (47,682), Pohnpei (891,600) and Yap (65,750) stockpiles; d = estimate for Pohnpei only, note that used oil has been exported since estimate made; e = 50,000 L of used oil was exported to NZ in 2019 (source 3); f = Majuro stockpile only; g = sum of Majuro (2,433,000) and Kwajalein (200,000) stockpiles; h = according to source 2, the 2014 national stockpiles for Nauru and Tuvalu were 46,000 L and 2,500 L respectively; i = data from source 4, which indicates that the stockpile includes all forms of waste oil mixed and stored in large concrete tanks (i.e. includes used cooking oil, not just used lubricating oil); j = data from source 5; k = likely underestimate given the INTEGRE project (2014-2018) exported 200,000 L of used oil to New Zealand (source 6); blank cells indicate no data available.

Sources:

[1] Baseline figures from SPREP (2016) Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016-2025, https://www.sprep.org/publications/cleaner-pacific-2025-pacific-regional-waste-and-pollution-management-strategy
[2] Haynes D, Leney A. and O'Grady J. (2018) Report Two: Country Missions and Consultations, https://www.sprep.org/gefpaspops/gefpas-reports
[3] Government of Kiribati (2020) DRAFT Kiribati Waste Management Resource Recovery Strategy 2020–2029
[4] Asia Pacific Waste Consultants (2019) Palau – Waste Audit Report. Analysis of waste generation, recycling and disposal data collected in November 2019, unpublished
[5] Asia Pacific Waste Consultants (2019) Tuvalu – Waste Audit Report. Pacific Region Infrastructure Facility.
[6] https://integre.spc.int/en/regional-actions/waste-management#territories-declinaisons

Appendix 6: List of documents reviewed

The table below lists the main documents/websites reviewed. Additional information sources that were consulted for the regional and national level progress assessments are referenced within Appendices 3 and 4.

	Document	Source
Regional strategies and plans	Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025	https://www.sprep.org/attachments/Publications/WMPC/cleaner-pacific-strategy-2025.pdf
	Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy, Implementation Plan 2016–2025	https://www.sprep.org/attachments/Publications/WMPC/cleaner-pacific-strategy-imp-plan-2025.pdf
	Pacific Regional Action Plan Marine Litter 2018–2025	https://www.sprep.org/sites/default/files/documents/publications/MAP-Digital-small.pdf
	Pacific Ocean Pollution Prevention Programme (PACPOL) 2015–2020: Strategy and Work Plans	https://www.sprep.org/attachments/PACPOL_STRATEGY_Approved_by_20SM.pdf
	SPREP Strategic Plan 2017–2026	https://www.sprep.org/attachments/Publications/Corporate_Documents/strategic-plan-2017-2026.pdf
	2018–2019 SPREP Performance Implementation Plan and Results Framework	https://www.sprep.org/attachments/Publications/Corporate_Documents/sprep-performance-implementation-plan-results-framework-2018-19.pdf
Regional frameworks and guidelines	Waste Audit Methodology: A Common Approach	https://theprif.org/documents/regional/waste-management/waste-audit-methodology-common-approach
	Practical Guide to Solid Waste Management in Pacific Island Countries and Territories	https://www.sprep.org/publications/practical-guide-to-solid-waste-management-in-pacific-island-countries-and-territories
	Regulating plastics in Pacific Island Countries: a guide for policymakers and legislative drafters	https://www.sprep.org/publications/regulating-plastics-in-pacific-island-countries
	Pacific Wastewater Policy Statement and Framework for Action	http://www.pacificwater.org/userfiles/file/water%20publication/WastewaterPolicy.pdf http://pacificwater.org/userfiles/file/Pacific%20Wastewater%20Policy%20and%20Framework%20for%20Action.PDF
	Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management (FRDP)	http://gsd.spc.int/frdp/assets/FRDP_2016_Resilient_Dev_pacific.pdf
National policies, strategies, plans	Cook Islands: - **Cook Islands Solid Waste Management Policy 2016–2026** - **Cook Islands Single-Use Plastic Ban Policy 2018–2023** - **Cook Islands Sanitation (Wastewater Management) Policy 2016**	http://ici.gov.ck/waste

	Document	Source
	Fiji: - **National Solid Waste Management Strategy 2011-2014**	https://doefiji.files.wordpress.com/2013/10/nswms_2011_-2014.pdf
	FSM: - **Chuuk State Solid Waste Management Strategy 2019–2028** - **Kosrae State Solid Waste Management Strategy 2018–2027** - **Pohnpei State Solid Waste Management Strategy 2020–2029** - **Yap State Solid Waste Management Strategy 2018–2027**	https://www.sprep.org/j-prism-2/report-and-materials
	Guam: - **Zero Waste Plan (and technical reports)**	https://zerowasteguam.eco/
	Kiribati: - **DRAFT Kiribati Waste Management Resource Recovery Strategy 2020–2029**	Environment and Conservation Division, Ministry of Environment, Lands and Agriculture Development
	Nauru: - **National Solid Waste Management Strategy 2017–2026**	
	Niue - **National Integrated Waste Management Strategy 2010–2015**	https://www.sprep.org/attachments/Niue_Waste_Management_Strategy_4Mar2011-low_res_2.pdf
	Palau: - **National Solid Waste Management Strategy 2017–2026**	https://www.sprep.org/j-prism-2/report-and-materials
	RMI: - **Kwajalein Atoll Solid Waste Management Plan 2019–2028**	https://www.sprep.org/j-prism-2/report-and-materials
	Samoa: - **National Waste Management Strategy 2019–2023**	https://www.sprep.org/j-prism-2/report-and-materials
	Solomon Islands: - **National Waste Management and Pollution Control Strategy 2017–2026**	https://solomonislands-data.sprep.org/dataset/solomon-islands-national-waste-management-and-pollution-control-strategy-2017-2026/resource
	Tonga: - **Combined Utilities Business Plan 2018–2022**	http://prdrse4all.spc.int/sites/default/files/final_combined_business_plan_2018_2022.pdf

	Document	Source
	Tuvalu: - **Integrated Waste Policy and Action Plan: Towards Cleaner and Healthier Islands 2017–2026** - **The 2nd Annual Review of the Implementation Status of Tuvalu's Integrated Waste Policy and Action Plan 2017–2026** - **Tuvalu UPOPs National Action Plan: 2018–2022**	https://tuvalu-data.sprep.org/system/files/Tuvalu%20Integrated%20Waste%20Policy%20%26%20Action%20Plan.pdf https://tuvalu-data.sprep.org/system/files/Final%20Copy%20of%20Waste%20Policy%20Performance%20Review%20Report.pdf https://www.sprep.org/gefpaspops/gefpas-reports
	Vanuatu: - **National Waste Management and Pollution Control Strategy and Implementation Plan 2016–2020** - **Vanuatu UPOPs National Action Plan: 2018–2022**	https://environment.gov.vu/images/Waste.Management/NWMS-IP%202016-2020.pdf https://www.sprep.org/gefpaspops/gefpas-reports
Reports and papers	SPREP Meeting reports and papers: 2017, 2018, 2019	https://www.sprep.org/governance/corporate-documents
	Noumea Convention meeting reports and papers: 2017, 2019	https://www.sprep.org/governance/corporate-documents
	Waigani Convention meeting reports and papers: 2017, 2019	https://www.sprep.org/governance/corporate-documents
	2016 Clean Pacific Roundtable Outcomes Statement	SPREP WMPC Programme
	2018 Clean Pacific Roundtable Outcomes Statement	SPREP WMPC Programme
	Forty-ninth Pacific Islands Forum Communiqué, 2018	https://www.forumsec.org/wp-content/uploads/2018/09/49th-Pacific-Islands-Forum-Leaders-Communique-for-unofficial-release.pdf
	Fiftieth Pacific Islands Forum Communiqué, 2019	https://www.forumsec.org/wp-content/uploads/2019/08/50th-Pacific-Islands-Forum-Communique.pdf?fbclid=IwAR1WZvpF0MASWkCRavx6DkreOTlLWKb3t9nQHNjhDVevXIiVrTZdmW_yzUc
	What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050	http://datatopics.worldbank.org/what-a-waste/
	Solid Waste Management and Recycling: Pacific Country and Territory Profiles	https://www.theprif.org/documents/regional/urban-development-waste-management/pacific-region-solid-waste-management-and
	GEFPAS Project Resources (2016–2019) - **Consultancy report for the completion of drafting instructions for model legislation for UPOPs project** - **Consultancy report for the review of used oil regulations** - **Report 1: Desktop Review of Used Oil Management Data** - **Report 2: Country Missions and Consultations**	https://www.sprep.org/gefpaspops/gefpas-reports

	Document	Source
	- **Report 3: Work Plan of Proposed Activities and Budget** - **Report 4: Review of E-waste Related Activities in the Pacific Islands** - **Used Oil report - Fiji, Niue, Kiribati, Vanuatu**	
	Draft GEFPAS Final Report - UNPUBLISHED	SPREP WMPC Programme
	PacWaste: - **Pacific Hazardous Waste Management (PacWaste). Volume 1: Final Report – UNPUBLISHED** - **Pacific Hazardous Waste Management (PacWaste). Volume 2: Country Reports – UNPUBLISHED**	SPREP WMPC Programme
	Waste Management and Pollution Control Workshop Summary Report, 2017 – UNPUBLISHED	SPREP WMPC Programme
	INTEGRE SPC project (Waste Management Regional Action)	https://integre.spc.int/en/regional-actions/waste-management
	Team Samoa Va'a Clean-up Day, Report on Rubbish Data Collection and Recommendations	https://pacific-data.sprep.org/story/greening-pacific-games-and-beyond https://pacific-data.sprep.org/dataset/greening-pacific-games-2019
	Pacific Private Sector Development Initiative. Case Studies in Private Sector Participation: Solid Waste Management	https://www.adb.org/sites/default/files/publication/230301/pacific-solid-waste-mgt.pdf
	Pacific Water and Wastewater Association. Benchmarking 2017, Water Sector in Transition: Seven Years of Benchmarking	https://www.ib-net.org/docs/PWWA%20Seven%20Years%20of%20Benchmarking_2018%20FINAL-10July2018.pdf
	Challenges to Plastic Up-Cycling in Small Island Communities: A Palauan Tale	https://escholarship.org/uc/item/4jd2q9dc
International sustainable development frameworks	SIDS Accelerated Modalities for Action (SAMOA) Pathway	http://www.sids2014.org/index.php?menu=1537
	Sustainable Development Goals	https://www.un.org/sustainabledevelopment/sustainable-development-goals/
Other	CP2025 Implementation Plan Reporting Spreadsheet – UNPUBLISHED	SPREP WMPC Programme
	Getting to know the PacWaste Plus Programme	https://www.sprep.org/sites/default/files/pacwaste-plus/PWP%20Factsheet%20-%20Final.pdf
	PacWaste Plus Action Document	https://www.sprep.org/attachments/Publications/WMPC/pacwasteplus-action-document.pdf
	PacWaste News, Issues **4** – **7**	https://www.sprep.org/pacwaste/resources/newsletters

	Document	Source
	J-PRISM Newsletter, Issues 1 – 7	https://www.sprep.org/j-prism-2/report-and-materials

Appendix 7: Record of stakeholder consultation

Pacific island countries and territories	Survey emailed by MB (follow-up emails to prompt receipt)	Email receipt	MB replied with Skype offer (follow-up emails to reiterate support available)	Skype	Further information/ questions	MB responses to further information/ questions	Survey response received	Survey follow-up by MB
American Samoa	9/6/2020	9/6/2020	9/6/2020 (18/6/2020) (25/6/2020)					
Commonwealth of the Northern Mariana Islands	9/6/2020 (15/6/2020)							
Cook Islands	9/6/2020 (15/6/2020) (22/6/2020 – sent by SPREP)	23/6/2020	23/6/2020		23/6/2020	23/6/2020		
Federated States of Micronesia	9/6/2020	9/6/2020	9/6/2020	10/6/2020, 11/6/2020, 27/6/2020	10/6/2020, 11/6/2020, 12/6/2020, 22/6/2020, 23/6/2020	10/6/2020, 11/6/2020, 12/6/2020, 22/6/2020, 23/6/2020	28/6/2020	29/6/2020
Fiji	9/6/2020 (15/6/2020)	16/6/2020	16/6/2020 (17/6/2020) (22/6/2020)	Skype organised for 22/6/20, but cancelled by FJ due to other commitments. Rescheduled meeting held on 29/7/2020				
French Polynesia	10/6/2020, English version 29/06/2020, French version							
Guam	9/6/2020 (15/6/2020)							
Kiribati	9/6/2020 (15/6/2020)	19/6/2020	19/6/2020 (24/6/2020)				22/7/2020, a copy of the draft Kiribati Waste Management and Resource Recovery Strategy provided, in lieu of survey response	
Nauru	9/6/2020	11/6/2020	11/6/2020 (15/6/2020) (24/6/2020)					
New Caledonia	10/6/2020, English version							

Pacific island countries and territories	Survey emailed by MB (follow-up emails to prompt receipt)	Email receipt	MB replied with Skype offer (follow-up emails to reiterate support available)	Skype	Further information/ questions	MB responses to further information/ questions	Survey response received	Survey follow-up by MB
	29/06/2020, French version							
Niue	9/6/2020	9/6/2020	9/6/2020 (16/6/2020) (24/6/2020)		10/6/2020	10/6/2020		
Palau	9/6/2020 (15/6/2020)	15/6/2020	15/6/2020 (18/6/2020) (24/6/2020)					
Papua New Guinea	9/6/2020	9/6/2020	9/6/2020 (16/6/2020)	19/6/2020	17/6/2020	17/6/2020	25/6/2020	25/6/2020, 29/6/2020
Republic of the Marshall Islands	9/6/2020 (15/6/2020)	16/6/20	16/6/20	Skype organised for 24/6/20, but did not occur due to connection difficulties at RMI end. Rescheduled meeting held on 26/6/2020. An additional Skype meeting held on 26/6/20 with SPREP's RMI Technical Expert				
Samoa	9/6/2020 (15/6/2020)	15/6/2020	15/6/2020 (18/6/2020) (24/6/2020)		24/6/2020	24/6/2020	7/7/2020	
Solomon Islands	9/6/2020	11/6/2020	11/6/2020 (16/6/2020) (24/6/2020)				29/6/2020	29/6/2020
Tokelau	9/6/2020	10/6/2020	10/6/2020 (18/6/2020)					
Tonga	9/6/2020 (15/6/2020) (22/6/2020 – sent by SPREP)							
Tuvalu	9/6/2020	9/6/2020	9/6/2020 (16/6/2020)	23/6/2020			25/06/2020	25/6/2020
Vanuatu	9/6/2020 (15/6/2020) (22/6/2020 – sent by SPREP)							

Pacific island countries and territories	Survey emailed by MB (follow-up emails to prompt receipt)	Email receipt	MB replied with Skype offer (follow-up emails to reiterate support available)	Skype	Further information/ questions	MB responses to further information/ questions	Survey response received	Survey follow-up by MB
Wallis and Futuna	10/6/2020 English version 29/6/2020, French version							

Palau – Waste Audit Report

Analysis of waste generation, recycling and disposal data collected in November 2019

Palau – Image source: APWC, 2019

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Version Control History			
Version	**Author**	**Date**	**Comment**
Draft v1	Erin Cooney, Adele Petterd, Helen Cooney, Martina de Marcos	16/2/2020	First draft
Draft v1.1	Amardeep Wander	17/02/2020	Revised first draft
Final	Adele Petterd, Rosie Downey, Amardeep Wander	27/4/2020	Final version including comments from Client

Executive Summary

1

Executive Summary

The project

The United Nations Environment Programme (UNEP) and The Secretariat of the Pacific Regional Environment Programme (SPREP) are working with the Pacific Region Infrastructure Facility (PRIF) to undertake a series of waste audits throughout the Pacific and Timor-Leste. UNEP is the implementing agency for the GEF *Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS)* Programme and the Pacific Child Project which is under development. This project will provide significant value to countries to inform decision-making and assist with designing in-country project and priority waste streams.

In 2019, UNEP contracted Asia Pacific Waste Consultants (APWC) to conduct a waste audit in Palau. Baseline data was obtained in November 2019 relating to current waste management, generation and characterisation through waste audits conducted on households, commercial premises and landfills in Palau. In addition, APWC reviewed waste management practices, processes and capacity, and identified current institutional arrangements to help inform Paulus capacity to participate effectively in a regional recycling network to enable greater recovery and recycling of a number of materials currently landfilled throughout the region. This report presents the data, analysis and recommendations for readiness for Palau to join the regional recycling network.

Current waste service provisions in Palau

Waste collection services are provided to approximately 77% of the national population in Palau. Individual states are responsible for providing waste management services, however, not all collection services or waste infrastructure is equal. Koror State is home to approximately 70% of the population and is the most urbanised of all states in Palau. It also possesses the most progressive solid waste management systems in the country, servicing 100% of residents entitled to door-to-door kerbside collections once per week. There are 10 states on Babeldaob Island all providing a varying level of waste management services. Generally, households are provided with collection services once per week. Moreover, waste collection comprises of mixed household waste, except in Ngarchelong, where the state does not collect food waste. Food waste in this instance is used as feed for pigs and other household animals.

Most residents are provided with a drum to store waste for collection, except the residents of Ngeremlengu, who are provided with plastic bags for storing mixed household waste for collection.

Solid waste collection services in Palau are provided free of charge to all states except for Ngatpang, where residents are charged USD$5 per month, and Airai, where state-provided collection services are only available to senior citizens, schools and government offices. A private collection company provides collection services to households, charging a fee of USD$20 per month.

Numerous waste management systems, 3Rs (reduce, reuse and recycle) and awareness programs, legislative restrictions and infrastructure are currently in place across Palau to manage solid waste. However, despite these initiatives, it is reported that 85 to 88% of waste generated across the country currently ends up in landfill (NEPC, 2019). The Palau State of the Environment Report (SoER) 2019 states the amount of total waste generated throughout Palau is increasing at pace with gross domestic product (GDP) (NEPC, 2019). The report's findings state the increase in total waste generated is outpacing the 3R programs to reduce, reuse or recycle waste.

Palau's successful Beverage Container Deposit and Redemption Program has successfully diverted 123,101,252 imported beverage containers from landfill to date.

Palau has an active private recycling industry that is currently supporting eight recycling operators. These companies either recycle, stockpiles recyclable material such as e-waste, tyres and hazardous materials and have infrastructure and markets established. Private recycling companies play a pivotal role delivering the Beverage Container Deposit and Redemption Program.

What audit methodology did APWC use?

207 household and 39 commercial samples were collated and sorted to interpret waste generation and composition.

Samples were collected and interviews undertaken from semi-urban, regional and rural households; sampling was also carried out on commercial premises. In total, 207 household samples were collected of which 177 had matched household interviews: 76 from Koror; 81 from Babeldaob; 15 from Kayangel; and five from Angaur. Visual audits were undertaken at nine disposal sites and an in-depth quantitative audit was performed at Koror State Landfill (otherwise known as M-Dock) over a two-week period.

What were the results?

Results indicate small urban households generate 0.90 kg per household per day, regional areas 1.09 kg per household per day and rural areas 0.68 kg waste per household per day. Waste generation for commercial premises was 1.51 kg per premises per day. The composition was similar across the three sample areas.

Waste composition was similar across the three sample areas (regional, rural and small urban). The largest component of the waste for these areas was organics at 36.67%, followed by hygiene waste for regional areas, consisting of 18.36% of the regional waste stream and plastic at 16.03% for small urban and 16.07% for rural areas. Despite the small urban area (Koror State) offering on-request collection services for organics (green waste) and plastics, and a collection service to 40 households for food waste, the composition would suggest that these services are not fully utilised, with 29.99% of organic waste and 16.70% of plastics making up 46.69% of the total waste composition.

Available materials

Material currently stockpiled include:
13,739m^3 of tyres in whole form
100m^3 shredded tyres
515 end of life vehicles
1,641 batteries
1,135m^3 of mixed waste oil.

APWC analysis indicates very good recovery rates for drink containers, consistent with the Palau Deposit Beverage Container Scheme, which consists of a US$0.10 import fee to all types of beverage containers. The consumer pays an $0.10 extra per PET bottle upon purchase and receives US$0.05 upon return. From 2011 to 2019 Palau has imported 140,460,198 beverage containers, 87.64% or 123,101,252 containers have been returned as part of the scheme. APWC was able to ascertain a figure of an 85-90% recovery rate (see section 6.8). In addition, estimated recovery rates for other recyclables include motor vehicles (32%), scrap iron (38%), ferrous metal (55%) and aluminium cans in addition to aluminium, other (33%) (section 6.6).

APWC was not able to find a company currently capturing paper and cardboard for recycling, but this material alone accounts for around 33% of the waste volume in the landfill. Capturing 30% of paper/cardboard would yield 711 tonnes per year of recyclables and save 1,341 m^3 of landfill space per year if compacted to 900 kg/m^3.

In November 2019 Palau's single-use plastic bag ban took effect, prohibiting the import and distribution of plastic bags from commercial premises. Flexible/film plastics accounted for around 10% of waste volume. Film plastics are likely to be substantially composed of recyclable plastics such as LDPE, which do not currently appear to be captured in the recycling stream. A capture rate of 30% would yield 100 tonnes/year of recyclables and save 362 m^3 of landfill space annually if compacted to 900 kg/m^3

Landfill life

M-Dock landfill and other dumpsites in Palau have reached capacity. A new national landfill site in Aimeliik is under construction and is anticipated to receive waste from all states in Palau. Plans are in place to close M-Dock and all other existing dumpsites, converting them into transfer stations once the new landfill begins operating later in 2020. The project is funded by the National government through JICA funding mechanism, USD$12 million has been earmarked for the project. It is expected the landfill will be completed by June 2020.

It is expected the new landfill space will add an additional 273,800 m^3 of landfill and has a life expectancy until 2037 without changes to the current waste management practice. If all organic material was to be removed from the waste delivered to the landfill, the life expectancy is expected to extend a further four years, to 2041. The removal of 100% organics in addition to 30% cardboard would extend the capacity to 2043 and an additional one-and-a-half to two years would be added if 100% of organics, 30% cardboard, 30% PVC and 30% flexible/film plastics were removed from the waste before delivery to landfill.

Table of Contents

Tables

Figures

Acronyms

ACRONYMS	
ADB	Asian Development Bank
APWC	Asia Pacific Waste Consultants
BPH	Bureau of Public Health
BPW	Bureau of Public Works
CDL	Container Deposit Levy
CDS	Container Deposit Scheme
CLiP	Commonwealth Litter Programme
COFA	Compact of Free Association
DEH	Department of Environment and Health
DWM	Department of Waste Management
EQPB	Environmental Quality Protection Board
EU	European Union
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organisation of the United Nations
GDP	Gross Domestic Product
IMF	International Monetary Fund
HDPE	High-density Polyethylene
IUCN	International Union for Conservation of Nature
J-PRISM	Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management
JICA	Japanese International Cooperation Agency
KSG	Koror State Government
LDPE	Low-density Polyethylene
MoE	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
MoRD	Ministry of Resource and Development
MPIIC	Ministry of Public Infrastructure, Industries and Commerce
MOF	Ministry of Finance
MSW	Municipal Solid Waste
NEPC	National Environment Protection Council
NSWMS	National Solid Waste Management Strategy
NGO	Non-government Organisation
NSWMP	National Solid Waste Management Plan
OEC	Observatory of Economic Complexity
OEK	Olbiil Era Keluau
OERC	Office of Environment Response and Coordination
PALARIS	Land and Resource Information System Office, Palau
PNC	Palau National Code

ACRONYMS	
PP	Polypropylene
PET	Polyethylene Terephthalate
PICs	Pacific Island Countries
PRIF	Pacific Region Infrastructure Facility
PV	Photo-Voltaic
PVA	Palau Visitors' Authority
QHSE	Quality, Health, Safety & Environment
ROP	The Republic of Palau
SIDS	Small Island Developing States
SoER	State of the Environment Report
SPREP	Secretariat of the Pacific Regional Environment Programme
SPC	Secretariat of the Pacific Community
SWMS	Site-specific Safe Work Method Statements
SSWMAP	State Solid Waste Management Action Plan
SWM	Solid Waste Management
T/t	Tonne
UN	United Nations
UNEP	United Nations Environment Programme
uPOPs	Unintentional persistent organic pollutants
WMPC	Waste Management and Pollution Control

Introduction

2

Introduction

1.1 Project need

Capacity building within Pacific Island communities (PICs) is a key priority to help deal with the growing problem of waste management and the prevention of land- and marine-based litter. The implications of pollution on marine ecosystems have been widely studied, however the impact on human health remains poorly characterised. Human health impacts from wastes are perceived to be an emerging problem, requiring increased scrutiny and attention (Seltenrich, 2015; Ocean Conservancy and International Coastal Cleanup, 2014). There is urgency among industry, government, non-governmental organisations and environmental groups to develop tools and policies to track, capture and recycle waste (particularly plastics) before it reaches the oceans.

PICs face unique and significant obstacles in the development and implementation of sustainable waste management solutions to address and combat litter in terrestrial and marine environments. Organic waste, waste oils and waste from shipping and cruise liners also produce a unique challenge for the area. Globalisation has had a substantial impact on the amount of waste generated within communities. Increased affluence and consumer-based lifestyles are associated with a heavy reliance on imported goods. The waste challenges for island communities are considerable, due in large part to geographic location and physical size coupled with lack of suitable land availability for waste management solutions such as transfer stations, waste treatment and disposal sites, and recycling and reuse facilities. Other obstacles, including the topography and location of some communities, and resourcing and infrastructure limitations, mean that many communities have limited or no access to sustainable waste management, especially those in remote locations. As a result, waste is often dumped, burned or buried, leaving it susceptible to dispersal into the environment.

Recycling in PICs is of great importance. The total available land mass is hugely problematic for PICs, with many countries unable to extend current landfills or dumping sites nor develop new sites owing to lack of space. Immediate improvements in solid waste management systems are crucial to ensuring the health of island residents and the environment. To date, recycling initiatives such as the Beverage Container Recycling Program in Palau have had a positive impact, reducing the waste-to-landfill volume and relieving pressure on the limited end-of-life landfill space. Encouraging the '3Rs plus return' (reduce, reuse, recycle and return) prevents and minimises waste generation and pollution.

Additionally, several factors combine to make shipping services to and from PICs relatively expensive, including long distances between ports, lack of available shipping routes and low trade volumes, all of which make it difficult to take advantage of economies of scale. There is a widely variable quality of port facilities, with a general lack of major cargo-handling infrastructure mandating the use of relatively expensive, geared container vessels (i.e. with on-board cranes). Often extreme trade imbalance exists, with exports far outweighed by imports (Cleaner Pacific, 2025), leading to costly container repositioning (Asian Development Bank, 2007). These challenges combine to raise the costs of goods and the costs of returning recyclable commodities to foreign recycling facilities. In addition, poor segregation, especially in outer island communities, and an absence of local demand for local recyclable goods, have resulted in lack of market for recyclables across the Pacific.

As with many island communities, limited land resources increase the challenges of delivering and expanding current waste management systems. Palau has developed a number of systems to combat this issue, for example, a highly successful and profitable container deposit scheme (CDS). However, like its neighbours, Palau is at a critical point, with the country's only landfill and dumpsites across the country at capacity.

The Secretariat of the Pacific Regional Programme (SPREP) through the European Union funded PacWastePlus programme, and the United Nations Environment Programme (UNEP) are working with the Pacific Region Infrastructure Facility (PRIF) to undertake a series of waste audits throughout the Pacific and Timor-Leste. The studies will provide significant value to countries to inform decision-making and assist with designing in-country project and priority waste streams.

The Global Environment Facility (GEF) helps developing countries and those with economies in transition to meet the agreed incremental costs of measures designed to achieve global environmental benefits in six focal areas: biological diversity, climate change, international waters, ozone layer depletion, land degradation and chemicals and waste. An important component of almost all UN Environment GEF projects is building capacity to manage the environment in a sound manner.

The Chemicals and Health Branch plays a key role in supporting countries to implement, develop and execute chemical-related GEF projects that fit within its comparative advantage. UN Environment's comparative advantage within the GEF has been defined as:

- Scientific assessments, monitoring, early warning
- Linking science to policy (capacity building, enabling activities) at national, regional and global levels
- Innovation, technology transfer and lifting barriers
- Regional and global cooperation
- Awareness raising, advocacy, and knowledge management.

As part of its duties, the Chemicals and Waste GEF Unit supervises a portfolio of ongoing projects and develops new projects to be submitted to the GEF.

The GEF programme *Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS)* was approved in June 2019 and is composed of four child projects addressing chemicals and waste issues in the Caribbean, Pacific and Indian Ocean. UN Environment is the implementing agency for the projects in the Caribbean and Pacific, as well as the coordination project. The Pacific child Project is intended to be aligned with other concurrent regional activities, to facilitate synergies and avoid duplication.

1.2 Project Scope

The purpose of the project is to undertake baseline data collection in relation to current waste management generation and characterisation by conducting waste audits of households, commercial premises and landfills. In addition, the team reviewed current waste management practices, processes and capacity, and identify current institutional arrangements. The aim of the project was to deliver the following in collaboration with SPREP and the ADB to assess the potential role of the private sector,

particularly support for entrepreneurs in the recycling chain, and their representative associations at national and/or regional level.

- Map the requirements and needs of the Palau government and other institutions at a national and regional level, having assessed the current and intended government policies and programs in the country.
- Develop a readiness assessment to determine the country's capacity/maturity to participate effectively in the network, identify gaps and assess current resourcing and governance capabilities within the organizations.
- In collaboration with SPREP and the ADB, assess the potential role of the private sector, particularly support for entrepreneurs in the recycling chain, and their representative associations at national and/or regional level.

The project scope was focused in two areas, listed below:

1. Waste audits

Figure 1: Landfill audits at M-Dock Landfill in Koror State. (Source: APWC, 2019)

The waste audit methodology was adopted by the project partners in order to inform the feasibility of a recycling network to assess the institutional capacity of the PICs as well as provide private sector initiatives. The Palau audit is the second to use waste audit methodology developed by the consultants to determine if it is an appropriate model and delivers comparable data for all future PIC waste audits. In addition, a data-collection system has been employed which incorporates external agency requirements to facilitate data sharing between all stakeholders and PICs. All data will be uploaded to SPREP's INFORM database.

Capturing consistent, reliable, robust data within Palau is required to inform future regional decisions on recycling and recovery of used materials and the reduction of reliance on landfill. Waste audits of households, commercial premises and materials delivered to landfill was assessed by weight, count and waste type.

2. Institutional capacity assessment

An assessment of public institutions at a national and regional level was also undertaken to develop are readiness assessment to determine Palau's capacity to participate effectively in the network, identify gaps and assess current resourcing and governance capabilities. This involved undertaking extensive consultations with various government departments and the private

sector to determine the propensity for such an initiative. Perspectives on the benefits, risks and challenges of a regional recycling solution were gathered and are included within this report.

1.3 This report

Consultants Dr Amardeep Wander, Faafetai Sagapolutele, Matthew Glendenning, Johnny Toafeono and David Johnston were engaged from 4 November 2019 to conduct a scoping study to assess current waste management practices in Palau using the audit methodology approved by the Urban Development Sector Working Group; used in assessments undertaken in Tuvalu and accepted by the project partners The consultants were also employed to recommend the infrastructure and policy interventions required and to undertake an audit of the materials being generated. The project deliverables were focused in two areas listed above in 1.2 Project Scope.

This report is the final deliverable under the project. The report starts with a brief literature review summarising the current waste management practices in Palau, comments on the current infrastructure available, and provides an analysis of the waste being generated and disposed of in Palau.

The final section of the report uses data and information gathered in-county to ascertain the amount of recyclable materials that can be captured and transported to a regional recycling hub for international markets. An institutional capacity assessment was conducted on Palau's ability to capture and move this material through legislative reform has also been assessed, using a readiness matrix. The results section also provides a commentary on the use of the proposed methodology to undertake future waste audits in PICs.

2 Literature review

2.1 Background

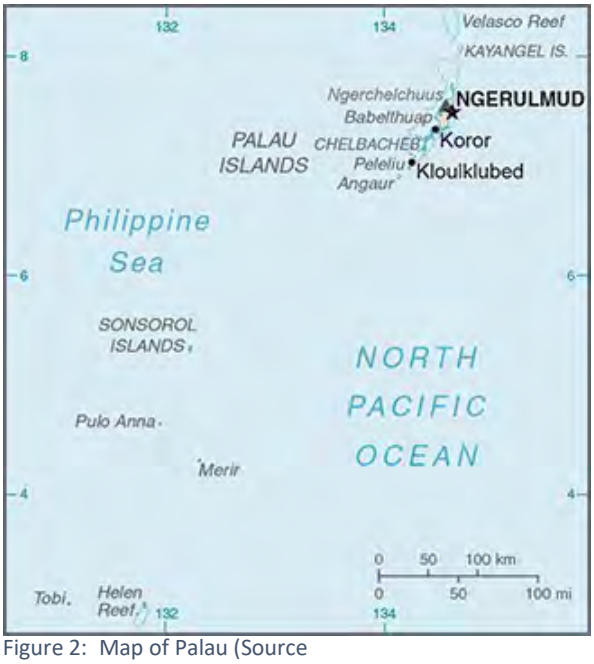


Figure 2: Map of Palau (Source https://www.cia.gov/library/publications/the-world-factbook/attachments/maps/PS-map.gif)

The Republic of Palau is part of the Caroline Islands group and is the westernmost archipelago in Oceania. It is located in the southwest corner of Micronesia in the western Pacific Ocean. Palau has approximately 340 coral and volcanic islands, eight of which are inhabited. The country has a total land area of 459 square kilometres and a coastline of 1,519 kilometres. Palau's topography varies greatly from the high, mountainous terrain of the main island of Babeldaob, to the low coral islands usually fringed by large barrier reefs.

Palau gained independence from the United States of America on 1 October 1994. The country consists of 16 state governments responsible for social welfare, economic development and environmental protection. The capital, Ngerulmund, is located on the island of Babeldaob, in the state of Melekeok. Ngerulmund has been the capital since 2006; prior to that, the city of Koror functioned as the capital. Koror is still home to almost half the nation's total population.

2.1.1 Climate

Palau's climate is equatorial, with hot, humid and rainy conditions throughout the year and a wet season from May to November. There is no real identifiable dry season, only a relative decrease in the frequency of showers and thunderstorms between the months of February and April. The average daytime temperature in the capital city of Ngerulmud is around 30°C to 31°C all year round, with average night time temperatures of 23°C to 24°C. Due to its geographic location, Palau experiences large amounts of rainfall, at approximately 3,600 millimetres per year. The rainiest months are June, July and August (the 'summer' months), although the temperature is relatively consistent throughout the year.

Palau often experiences typhoons. These typhoons, along with other less intense tropical storms, bring heavy rain and strong winds, and normally occur between April and December.

2.2 Socio-economic background

The two official languages spoken in Palau include Palauan and English.

Palau follows a quinquennial census cycle, and according to the most recent census conducted in 2015, the population of Palau was 17,661. The majority of the population (11,444) is based in the state of Koror.

According to the latest estimates from the United Nation's (UN) World Population Prospects, Palau has a 2019 population of 18,008. The population density is about 46 people per km^2 /121 per $mile^2$.

Table 1: Population of Palau's states in 2015. (Census, 2015)

State	2015 Population
Koror	11,444
Airai	2,455
Peleliu	484
Ngaraard	413
Ngaremlengui	350
Aimeliik	334
Ngarchelong	316
Ngchesar	291
Outside of Palau	284
Ngiwal	282
Melekeok	277
Ngardmau	185
Angaur	119
Kayangel	54
Sonsorol	40
Unknown	26
Hatohobei	25
TOTAL	**17,661**

In 2015 the Asian Development Bank (ADB) reported Palau as one of the most successful economies among the small PICs (ADB, 2015). The World Bank notes the GDP for 2018 was US$284 million. The country has substantial natural and cultural resources and has benefited from strong growth in tourism. However, in 2019, the International Monetary Fund (IMF) observed the economy is heavily dependent on tourism and grants, and economic growth slowed significantly during 2017 and 2018 due to lower tourism numbers (IMF, 2019). The United National Economic and Social commission of Asia and the Pacific (ESCAP) found that 24.9% of the option was living below the national poverty line[1].

[1] ESCAP Statistics Division, 2017. Statistical Yearbook for Asia and the Pacific 2017: Palau SDG Datasheet. [online] Available at: <https://www.unescap.org/sites/default/files/Palau_SYB2017.pdf>.

2.2.1 Imports and exports

Subsistence agricultural, mostly coconuts, root crops and bananas, and fishing also support the country's economy. The government of Palau is the republic's largest employer and it relies heavily on financial aid from the United States and grants for other funding institutions.

The currency used in Palau is the US dollar. The Observatory of Economic Complexity (OEC) reported that during 2017 Palau exported a total of $24 million worth of goods to Japan, Turkey, the United States, Guam and Australia (OEC, 2017). Seventy-five per cent (75%) of all exports during this period were non-filleted (whole) fresh fish totalling $18 million, followed by computers, scrap vessels, surveying equipment and delivery trucks. In the same year, imports amounting to $159 million resulted in a negative trade balance of $135 million. The top import origins include the United States, Singapore, Japan, China and South Korea. Refined petroleum ($30 million) is the largest import, followed by cars, passenger and cargo ships, beer and delivery trucks.

The Gross Domestic Product (GDP) in 2017 was $289 million, with GDP per capita at $14,800.

2.3 Stakeholders – roles and responsibilities

Table 2 below outlines the roles and responsibilities of each stakeholder managing municipal solid waste in Palau, including decision-making, implementation, compliance and monitoring, such as ongoing data collection.

Table 2: Stakeholder roles and responsibilities

Stakeholder	Responsibility
Government of Palau	
Ministry of Public Infrastructure, Industries and Commerce (MPIIC)	Through the Bureau of Public Works, MPIIC is responsible for solid waste management including infrastructure planning, public awareness of solid waste management issues and operations and management of the national landfill. This includes operating and maintaining M-Dock Landfill, conducting public awareness programs to promote 3Rs, coordinating with state governments regarding solid waste issues and overall implementation of the NSWMP.
Ministry of Health (MoH)	The Ministry of Health is responsible for the prevention and monitoring of unsanitary conditions regarding solid waste in private and public places throughout Palau. Conducting public awareness throughout Palau and treatment of medical waste by incineration.
Ministry of Education (MoE)	Ministry of Education is responsible for working in conjunction with Palau's educational institutions to incorporate educational programs and other information on sustainability practices into its curriculum.
Ministry of Finance (MoF)	The MoF is responsible for maintaining the Recycling Fund established under the *Plastic Bag Use Reduction Act*. The Ministry must separate the fund from other National Treasury funds and maintain independent records and accounts.
Ministry of Justice	The Ministry of Justice is responsible for monitoring and enforcing citations issued pursuant to the Palau National Code Chapter 35 – Littering.

Subordinated Agencies	
Bureau of Public Works (BPW)	The BPW is responsible for solid waste management in Palau under the MPIIC. General functions include: • Operating and maintaining M-Dock Landfill • Conducting public awareness programs to promote 3Rs • Coordinating with state governments regarding solid waste issues Overall implementation of the NSWMP.
Environmental Quality Protection Board (EQPB)	EQPB is a semi-autonomous agency established as an authorised policy-setting and decision-making regulatory agency under Palau National Code (PNC) Title 24, RPPL 1–58. The mandate of the EQPB is to ensure that the quality of the human environment, air, soil, and water of Palau is protected so that sound and sustainable economic and social development proceeds in a manner that will not jeopardise Palau's future possibilities or opportunities. The EQPB implements essential environmental programs to safeguard the quality of the environment and ensure proper conservation of resources. The EQPB is responsible for: • Enforcement of regulations on solid waste storage • Collection and disposal • Issuing licences to establish, modify, or operate solid waste disposal facilities • Management of hazardous waste.
Solid Waste Management Office	Established as the designated office to oversee the management of solid waste in 2014. General functions include: • Ensure that the disposal of solid wastes in the whole country is cost-effective and compliant with regulatory provisions minimising environmental and public health risks; • Coordinate and collaborate with state governments, other relevant line agencies and other countries in the region on solid waste matters of mutual interest; • Promote solid waste management initiatives geared towards prevention and reduction of wastes through education and outreach programs; • Mobilise resources to ensure the optimal utilisation of investments from the government and assistance from donors; • Provide strategic direction and legislative agenda to strengthen institutional capacity in delivering solid waste services; • Raise the profile of solid waste management to gain sustained support to the sector; and Operation and maintenance of M-Dock final disposal site.
Customs	Customs department falls under the umbrella of the Ministry of Finance. Customs is responsible for imposing the import tax upon all imported beverage contains that fall under the Beverage Containers Recycling Program
Palau Energy Administration	Responsible for acquiring and installing solar panels.

State Governments	
Koror State Solid Waste Management Office, Koror State Government	Koror State is responsible for: • Waste collection of household wastes generated in Koror State; • Various recycling facilities located next to M-Dock disposal site which were constructed and are operated by Koror state government's Solid Waste Management Office Involvement in recycling projects, collection and transportation, waste survey, composting and educational programs and material recovery. Other states are managing their own dumpsites.
10 states of Babeldaob Island	The 10 states of Babeldaob Island are responsible for: Waste collection and waste disposal; there is no specific organisation responsible for SWM. Department of public works or public health are conducting waste collection works as part of their responsibilities.
Private Sector	
Private recycling companies	Private sector is responsible for the delivery of waste management and pollution control services through a contractual relationship between private and public entities.
Palau Public Utilities Corporation	Responsible for collecting and storing waste oils.

Private sector involvement in Palau is greater than in a number of its PIC counterparts. At last count, Palau had seven private recycling companies based in Airai and Koror (see Table 20). Palau's NSWMS highlights the desire for greater future involvement from existing and new public–private partnerships, stressing that responsible agencies must nurture and strengthen these partnerships to achieve the strategy's waste activity outcomes.

The CDS provides an opportunity for the private sector to work with the Republic of Palau and its subordinate agencies to deliver a successful and profitable recycling program.

Waste service provision

3

3 Waste service provision

This section waste services provided on two Islands in Palau: Koror State, comprising of 12 hamlets and Babeldaob Island, comprising of 10 states. Two more islands, Kayangel and Angaur, were also visited and samples were collected for the purpose of the waste audit.

In 2016 it was estimated that 77% of the national population received collection services (BPW, 2016).

There are numerous waste management, recycling and awareness programs currently in place across Palau to manage solid waste (see section 10.2.10), and it is reported that 85–88% of waste generated across the country currently ends up in landfill (NEPC, 2019), despite an increase in composting and recycling. The Palau State of the Environment Report (SoER) 2019 states the amount of total waste generated throughout Palau is increasing at pace with GDP (NEPC, 2019). The report finds the increase in total waste generated is outpacing the 3R programs to reduce, reuse or recycle waste.

Palau's economy is highly dependent on the tourism sector. The Palau Visitors' Authority (PVA), Palau Chamber of Commerce and Belau Tourism Association have together attempted to raise awareness about litter prevention among tour operators and dive-shop owners. In 2018, the Reusable Water Container and Reusable Meal Container legislation was established in an effort to eradicate disposable plastic or polystyrene food containers and cups, water bottles, drinking straws.

Most products consumed in Palau are imported. It is reported that the Beverage Container Deposit and Redemption Program has successfully diverted most imported beverage containers from the landfill (NEPC, 2019). Please see section 4.1 for further information in relation to the materials and levy associated with the Beverage Container Deposit and Redemption Program.

3.1 Koror State

Koror State is home to approximately 70% of the population and is the most urbanised of all states in Palau. It also possesses the most progressive solid waste management systems in the country. In 2016, the Cleaner Pacific Strategy estimated 100% of the urban population in Koror had access to collection services. This was corroborated during the consultant's visit in 2019. The Koror State Solid Waste Management Office is responsible for conducting household collections. A number of waste management initiatives are undertaken at the currently operational landfill site in Koror.

Most literature refers to waste management initiatives operating in Koror, except for the national container deposit scheme. In 2014, the ADB reported that 'littering, illegal dumping, and burning of solid wastes around Koror are rare, which contributes to a clean surrounding environment to support tourism' (ADB, 2014). The presence of a successful beverage recycling scheme would assume that there is a reasonable level of local awareness of waste and recycling issues in Palau.

Waste segregation occurs for the most part only in the Koror State. Koror has been operating a successful 3Rs (reduce, reuse recycle) scheme and reports diverting 51% of solid waste from landfill since implementation in 2006 (Republic of Palau, 2019).

Public awareness campaigns relating to solid waste management issues have been undertaken by the national government and the Koror state government.

3.2 Babeldaob Island

Each state is responsible for waste collection and disposal on Babeldaob Island, and this responsibility usually is held by the Department of Public Works. Normally one truck with an operator and waste collector will undertake one mixed household waste collection per week; green waste collection services are generally not provided on Babeldaob.

As of 2017, there were seven open community dumpsites operated by other states in Babeldaob Island. A new semi-aerobic landfill structure using the Fukuoka Method is currently being constructed in Aimeliik State and is expected to be completed by 2020 (NEPC, 2019). With the new national landfill being constructed in Aimeliik State, these dumpsites are expected to close in 2020.

The following outlines some of the solid waste service provisions currently undertaken in Koror State, Babeldaob Island, in addition to waste management operations in Kayangel and Angaur.

3.3 Collection Schedule

Collection schedules differ between Koror State and the states of Babeldaob Island.

Koror State residents are entitled to solid waste collections once a week. Four vehicles service the state, operating Monday to Friday. Collection in the 42 segregation facilities located in seven of the 12 hamlets are carried out daily, including weekends. These segregation facilities were established in 2007 and have separate bins for storing paper, plastics, aluminium cans, glass, green waste and kitchen waste. The system was changed in 2012 when the segregation classification was reduced to mixed recyclables and residual wastes. In 2016 cages were constructed at the segregation facility located at the BPW Building and are emptied every Wednesday. These cages were still being used in 2019.

Babeldaob residents are provided with collection services once a week. The collection is for mixed household waste, except in Ngarchelong state which does not collect food waste from residents. Table 3 below highlights the collection schedules and difference in service provision.

Table 3 Waste collection schedule in Koror State & Babeldaob Island States. (source: Palau's NSWMS, BPW, 2016)

Koror State		
Day	**Items collected**	**Source**
Monday	Residual wastes	Households
	Segregated wastes	Hamlets
Tuesday	Residual wastes	Households
	Segregated wastes	Hamlets
	Green waste (by request)	Households
Wednesday	Residual wastes	Household
	Segregated wastes	Hamlets
	Segregated wastes	BPW Building
	Plastics (special collection)	Participating households and private companies
Thursday	Residual wastes	Households
	Segregated wastes	Hamlets
	Green wastes (by request)	Households
Friday	Residual wastes	Households
	Segregated wastes	Hamlets
	Food wastes	Participating households
Saturday/Sunday	Segregated waste	Hamlets
Babeldaob Island States		
Monday	Mixed household waste	Aimeliik Airai Ngeremlengui (or Tuesday) Ngiwal (and Friday) Ngarchelong
Tuesday		Ngeremlengui (or Monday) Ngchesar
Wednesday		Ngaraard
Thursday		No services
Friday		Ngiwal (and Monday)
Saturday/Sunday		No services

3.3.1 Waste Collection Method

Figure 3: Collection drums, Koror State

Door-to-door kerbside collection is supplied to households where waste collection services are provided. APWC's audit ascertained that all states except Ngeremlengui are provided with a storage drum for waste before collection; households in Ngeremlengui use plastic bags to hold mixed household waste for collection. Table 4 outlines the collection methods across Palau.

Table 4: Waste collection method across Palau

State	How is waste collected?	Where is waste stored for collection?
Koror	Door-to-door/kerbside collection and station collection	Drum in front of house Plastic bags to segregation station
Airai	Door to door and kerbside collection	Drum in front of house
Aimeliik	Station Collection	Drum
Ngatpapng	Door-to-door and kerbside collection	Drum in front of house
Ngeremlengui	Kerbside collection	Plastic bag
Ngardmau	Door-to-door and kerbside collection	Drum or plastic bag in front of house
Ngchesar	Door-to-door and kerbside collection	Drum in front of house.
Melekeok	Door-to-door and kerbside collection	Drum in front of house and road side
Ngiwal	Door-to-door and kerbside collection	Drum (state-provided) in front of house No segregation
Ngaraad	Door-to-door and kerbside collection.	Drum in front of house
Ngarchelong	Door-to-door and kerbside collection for both commercial and households	Drum in front of house
Angaur	Door-to-door and kerbside collection	Drum in front of house
Kayaangaul	Door-to-door and kerbside collection	Drum in front of house

3.3.2 Waste management staff

According to data obtained by APWC during stakeholder consultations in Palau in November 2019, there is a minimum of 143 persons working in SWM across Koror State and Babeldaob Islands. Table 5 below outlines the organisation responsible for SWM in each state and the number of staff each organisation has available to service household and commercial collections. Please note, this does not include private operators.

Table 5: Number of waste management staff in Palau. (Source: APWC Stakeholder Consultations, 2019)

State	Organisation	Number of Staff
Koror	Koror State Government- Solid Waste Management Office, Public Works	82 including 20 for operator & pick up staff
Airai	No specific organisation (Responsibility: Department of Health, Sanitation Beautification and Agriculture)	Not disclosed
Aimeliik	Public Works	3 (1 operator & 2 picking-up staff)
Ngatpang	Public Works for Landfill	2 (landfill crew)
Ngeremlengui	No specific organisation (Responsibility: Governor Office) Waste collection service is provided by Public Works	15
Ngardmau	No specific organisation (Responsibility: Governor Office)	2 + assist staff for collecting garbage
Ngchesar	No specific organisation (Public Works Department collect waste)	9
Melekeok	Public Works Department	4 (3 collectors + 1 truck driver)
Ngiwal		2 collection staff
Ngaraard	Public Works	16 (collection work, 1 driver & 1 assistant) No one at the disposal site
Ngarchelong	Road and Ground	8 (5 for collections)

3.4 Daily total waste collected

Table 6 below highlights the anticipated number of kilograms of waste collected daily across 11 states in Palau. APWC was able to determine the figure by extrapolating data from the 2015 census and factoring in projected population growth to 2019 to ascertain 2019 population and household numbers. This figure was then calculated with waste generation figures determined through APWC's audit during November 2019 to reach a daily total of waste collected figure.

Table 6: Daily total waste collected per state. (Source: APWC audit 2019)

State	Population	Household Numbers	Waste Collection kg/day
Koror	11,723	3,227	23,839
Airai	3,607	722	4,693
Aimeliik	300	80	758
Ngatpang	300	53	505
Ngeremlengui	375	93	722
Ngardmau	239	63	433
Ngchesar	200	83	614

Melekeok	303	82	614
Ngiwal	350	82	578
Ngaraard	398	126	975
Ngarchelong	401	83	505
TOTAL			34,236

Seventy per cent (70%) of the total daily waste collected (34,236 kg/day) across the 11 states is collected from Koror State, with 69% of the total population, followed by 14% or 4,693 kg/day collected in Airai, with 15% of the total population of the above group.

3.5 Equipment and maintenance

The responsibility for solid waste collection and disposal in Palau belongs with each state government, therefore the condition of equipment varies between states. This is due to the varying availability of funding, and equipment in varying stages of aging with some states owning older equipment that needs replacing, while some States have recently received new equipment.

The equipment currently used to manage municipal solid waste (MSW) across Palau is outlined in Table 7 below. Overall, the condition of waste collection equipment is noted to be generally in very good to good working order. Further details of the equipment used at M-Dock in Koror Landfill can be found in Table 9.

Table 7: Waste management equipment for collections

State	Waste Equipment	Condition	No. of years in operation
Koror	Four compactor trucks	Very good	2 years
	Two dump trucks	Very good	
Airai	One compactor truck (3 ton)		more than 4 years
	One dump truck (4 ton)		more than 8 years
Aimeliik	One compactor truck		few months (donated in 2017)
Ngatpang	One compactor truck		more than 3 years
Ngeremlengui	One compactor truck		
Ngardmau	One dump truck		approx. 9 years
Ngchesar	One compactor truck		3 years
Melekeok	One compactor truck	Broken down – not in service	+10 years
Ngiwal	Dump truck (5 ton)	Mechanical problem – not in service	13 years

	Flatbed truck (1 ton)		2 years
Ngaraard	One compactor truck (2 ton)		3 years
Ngarchelong	One dump truck (5 ton)		approx. 10 years
	New dump truck (2 ton)		purchased in 2017

* APWC was led to believe that a new compactor truck has been purchased by Melekeok. We were not able to confirm this.

3.6 Waste data collection and monitoring

According to data collected by the Division of Solid Waste Management, Bureau of Public Works and Koror State Government SWM on behalf of ROP for the Eighth Regional 3R Forum in Asia and the Pacific in 2018, there are many gaps in the availability of solid waste data. Table 8 below highlights the lack of available data held by relevant agencies in Palau. Where waste data is captured, only the export of recyclables had a good monitoring base.

Table 8: Availability of data and information on material flow and waste management in Palau 2018
(Source: Division of Solid Waste Management, BPW, 2018)

Data Type	Data availability			Monitoring base	
	Good	Very limited	No data exist	Good	Not good
Waste generation	X				X
Material flow	X				X
Cyclical use			X		
Amount of final disposal	X				X
Disposal to land			X		
Direct disposal to water			X		
Import of waste					
Export of waste					
Total landfilled waste					
Import of recyclables					
Export of recyclables	X			X	
Hazardous waste generation (solid, liquid, sludge, etc.)			X		
E-waste generation			X		

As the regulatory agency, the EQPB is responsible for monitoring waste management activities, ensuring no activity causes environmental pollution.

A review undertaken by J-PRISM in 2015 reported that monitoring at M-Dock Landfill was previously undertaken at regular intervals by the Division of Solid Waste Management, Bureau of Public Works (DSWM-BPW) and Koror State Government (KSG), after a monitoring plan was developed (BPW 2017).

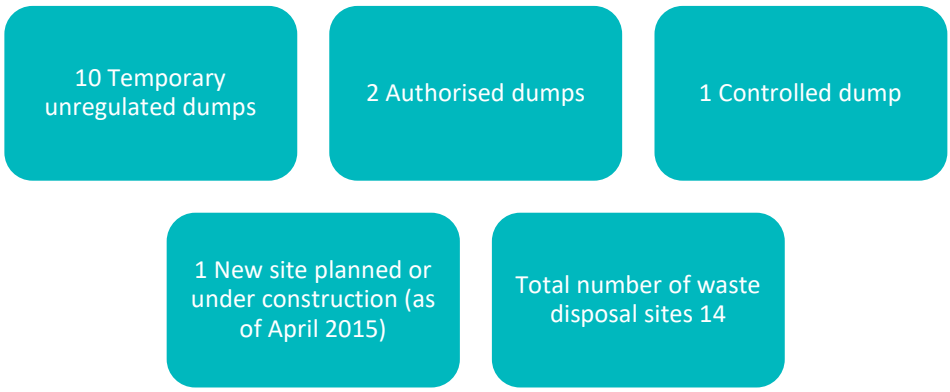
Palau's NSWMS 2017–2026 identified a need to strengthen data management and analysis by ensuring relevant waste data is generated and waste initiatives are properly documented for better-

informed decisions. It identifies that a national data base and guidelines for standard operating procedure for capturing the required data should be developed.

3.7 Waste management infrastructure

3.7.1 Landfill disposal

In 2016, the Cleaner Pacific Strategy noted that Palau had a number of landfills or dumpsites across the country, including:



Source: (SPREP, 2016).

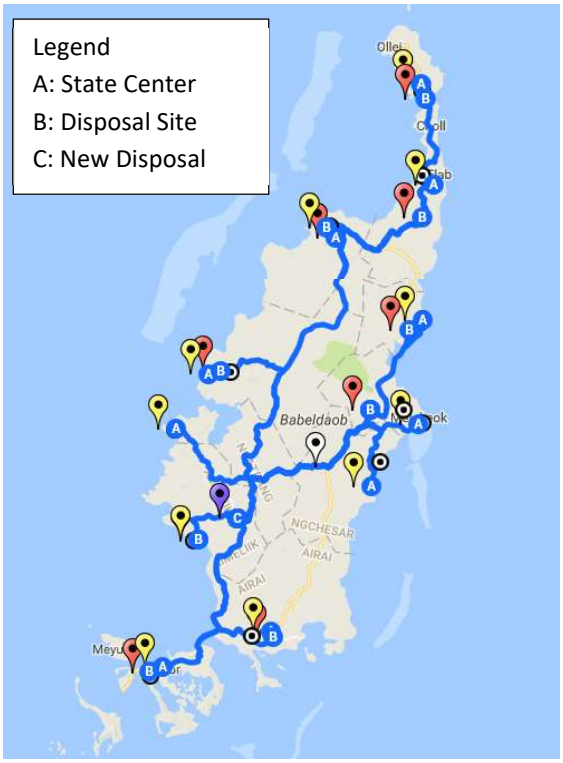


Figure 4: Location of disposal sites and route to new disposal site

The Koror State Government has made a number of investments into its solid waste management infrastructure. All residents have access to household waste collection services. Before the J-PRISM, M-Dock Landfill (the final disposal site in Koror) was estimated to be full in 2013. In 2012–2013, construction of dykes and other improvement works extended the period of operation for three years.

M-Dock Landfill services households and commercial in Koror State. In addition to M-Dock there are a number of disposal sites located in Palau. Figure 4 outlines the location of these disposal sites. An overview of the solid waste management activities conducted at each of the disposal sites is provided below.

Table 9 below highlights the equipment used to deliver waste management services at M-Dock Landfill in Koror State.

Table 9: Assets located or used at the M-Dock Landfill

Asset Description	Location/Condition
Shantui Bulldozer SD16R	landfill area, purchased in 2017
Komatsu PC-120-8 excavator	landfill area, purchased in 2016
Mitsubishi 5-ton dump truck	landfill area, purchased in 2017
Canon Image Runner copier machine	landfill container/poor
Cat bulldozer DGH series ii	landfill area/good
Nissan Vanette flatbed truck	landfill area/good
Suzuki Escudo SUV	landfill container/poor
Toyota Alphard 4DR FS van	SWM Office/new
Nissan X-Trail	SWM Chief/poor
Tyre machine	landfill area/good
Power washer 220v 2500psi	landfill area/good
Husqvarna chainsaw	landfill area/good
Makita brush cutter	landfill area/poor
Mitsubishi brush cutter	landfill area/poor
Mitsubishi brush cutter	landfill area/good
Mitsubishi brush cutter	landfill area/good
Mitsubishi brush cutter	landfill area/need parts

Asset Description	Location/Condition
Makita grinder	landfill area/new
Makita circular saw	landfill area/new
Makita power drill	landfill area/new
Submergible water pumps (3)	landfill pond/good

Table 10 below details the current status of the landfill sites across Palau at the time of the consultants' visit in November 2019. We note that these landfill sites are scheduled to be closed by mid 2020 and all waste will be diverted to the new landfill site being constructed.

APWC notes that as per the current situation, there would be value in a review of the site closure plans and remediation that occurs as a result of the closure of these sites once the remediation has been completed.

Table 10: Details of disposals sites in Palau. (Source: UNEP audit 2019 and DSW)

Disposal Site	Photos of disposal sites Source: APWC 2019	Site details	Solid Waste Management Budget
Airai		• Area: 6 ha (300 m x 200 m) push and compacted by bulldozer. • Landfill data is collected at gate. • Operator: State Public Works. • Operation (years): Approx. 30 years. • Equipment: One bulldozer (D3) + 1 excavator. • Site constraints: Less than 20 metres to the river. • Waste streams: Evidence of stockpiles of metal and tyres; A separate section exists for construction & demolition material; All cardboard is incinerated using an old incinerator. • This site set to close when the new landfill begins operation. • Site description: The site is co-located with the works shed for the Dept. of Public works for the state. • Staff: Three (3) including one at gate.	Total revenue: every year approximately $1,000,000 (2016) Own revenue: $996,000 (65%) National fund: $536,720 (35%) Total: $1,532,750
Aimeliik		• Operator: Bureau of Public Works (BPW) • Operation (year): Since 1995 • Equipment: One (1) excavator (mileage: 16,284km) km) • Size: Unknown	Revenue is residence tax and vehicle registration fee (2016) Total state budget: $2,351,342 Budget for PW: $141,752.43

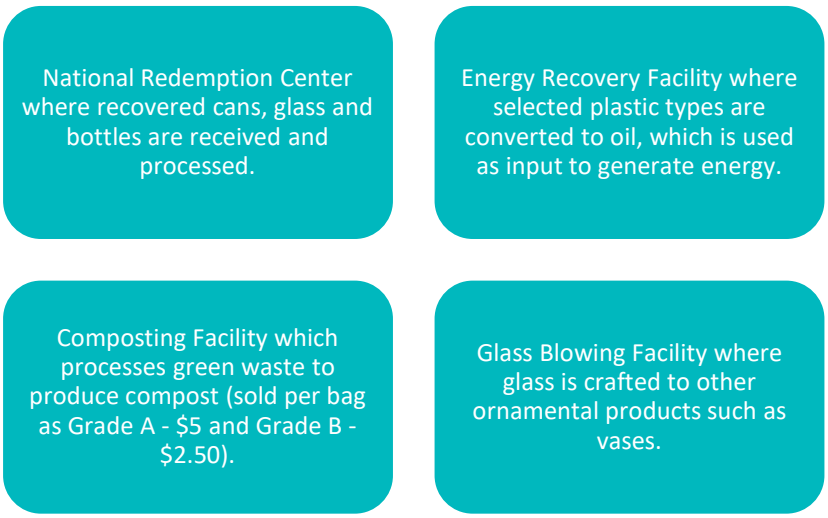
Disposal Site	Photos of disposal sites Source: APWC 2019	Site details	Solid Waste Management Budget
Angaur		• Operator: Angaur State • Size: Unknown • Unstaffed site. • Free access to any vehicle. No gate to stop dumping on waste. • No equipment for compaction or burial.	No figures available for budget.
Ngatpang		• Ngatpapng state doesn't have own disposal site. Waste collected in Ngatpapng state is disposed at Melekeok disposal site. An old dumpsite was closed. Photo of the location of the old dumpsite. The revenue from trash collection is used for transport of material to Melekeok.	Revenue of trash collection: $696 (2014), $6,657 (2015), $3,114 (2016)
Ngeremlengui		• Operation Year: Approx.15 years • Equipment: One (1) bulldozer (operated approx. 30 years). One excavator is broken.	Total budget: 2016; $646,600 (National $441,200 (68%), State $205,400 (32%) 2017; $ 620,516 (National $480,516, State $140,000) Expenditure for SWM: 2017; $1,342 (Fuel) 0.2% of state budget

Disposal Site	Photos of disposal sites Source: APWC 2019	Site details	Solid Waste Management Budget
Ngardmau		• Operator: Public Works • Operation (years): Approx. 10 years	Budget figure not available
Ngchesar		• Ngchesar state doesn't have own disposal site. Waste collected in Ngchesar state is disposed at Melekeok disposal site. An old dumpsite was closed three years ago. Photo provided is of the old dumpsite.	Total budget: $514,000 expenditure for SWM
Melekeok		• General waste is pushed back. • Scrap metal is separated, and stockpiled • Green waste is chipped and made available to the community • Operation (years): More than 10 years • Equipment: None (Equipment is shared with other operations) • Site constraints: Entrance secured with chain. Only department of public works has access. If commercial or households wish to have access, they have to seek the keys from the DPW. The department estimates around 4–5 truck movements in excess of the household collections • Staff: No staff works full time on site. Only collection workers.	Budget figure not available

Disposal Site	Photos of disposal sites Source: APWC 2019	Site details	Solid Waste Management Budget
Ngiwal		• Operator: Push a waste • Operation Year: 17 years • Equipment: One (1) loader backhoe	Budget figure not available
Ngaraard		• Waste is pushed, not compacted, and capped weekly using red clay available on site. • Site is surrounded by bushland and has households living within 200 metres. • Operation Year: 20 years • Equipment: Excavator + 2 backhoes (15 years old)	Total budget (2016): $506,678 Budget for PW (2016): $169,950.80
Ngarchelong		• Operator: State Government • Operation Year: 6 years • Equipment: One excavator	Total Revenue: $640,000 (State rev.: $140,000, National: $100,000, Other: $300,000, Fishing rights: $100,000)

3.7.2 National Recycling Center at Koror

Established and operated by the Koror State Government, the Koror State Recycling Center houses numerous recycling facilities as outlined below:



The successful recycling facility accommodates activities, which in 2017 collectively accounted for a 12% recycling rate of the generated waste in Koror and Babeldaob. Recyclables, including beverage containers, paper and cardboard, green waste, selected types of plastic (caps, PET, HDPE, LDPE and PP) and glass are segregated and processed at the centre, and residual wastes sent to landfill (BPW, 2016). See section 4 Recycling Overview for more detail on recycling rates and waste streams.

The National Redemption Center inside the recycling center is where beverage containers are dropped off and processed in different ways. It was established in 2006 through the National Law RPPL 7–24 and constructed in 2008/2009, and opened for operation in October 2011. The state government also runs 42 segregation stations around the state.

While the recycling fund from the CDL generates sufficient income to mandate the national landfills and awareness campaigns, the Koror State allocation is not sufficient to cover the operation of the Koror State recycling center and the collection services, and therefore there is a need to augment the fund with user-pay systems for collection and disposal (BPW, 2016). Currently the residents of Koror State do not pay for the provision of collection and disposal of waste.

For the Koror State Government which is running the National Recycling Center and the collection service for the state, the Compensation Fund is enough to cover the operation of the National Redemption Center including all facilities. The National Redemption Center operation is evidently a self-liquidating system. About 30% of the state's expenditure to deliver waste services are derived from the Compensation Fund with the remaining 70% from the State allocation to cover personnel and overhead costs associated with its functions.

Therefore, a use-pays system through a charge for collection services and a landfill gate fee is important for the sustainability of the waste management system for the state.

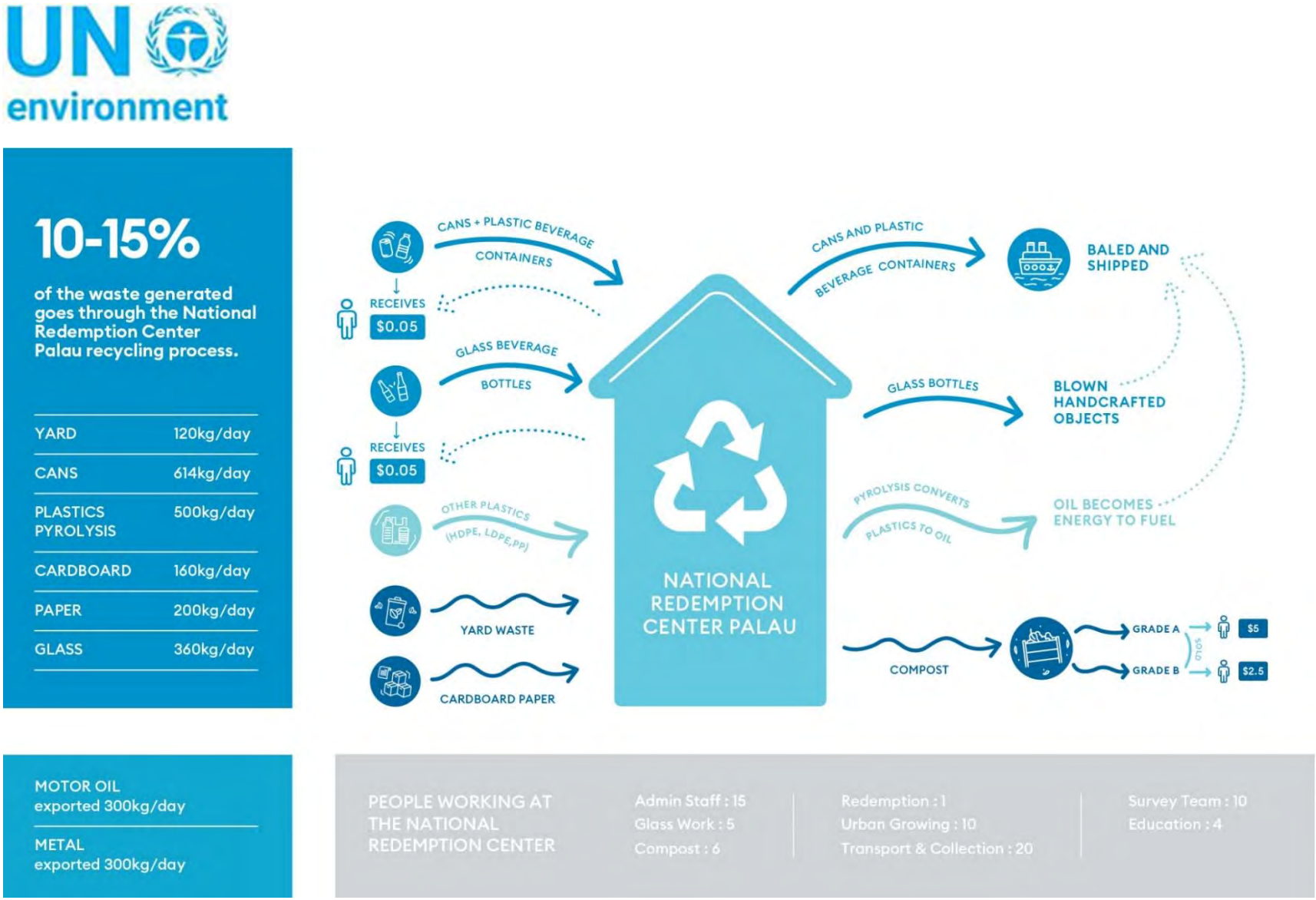


Figure 5: National Redemption Center Palau recycling process. (Source: APWC, 2019)

3.7.2.1 Return deposit levy

The law states that the following beverage containers can be redeemed by the general public for $USD0.05 (5 cents) each:

- Plastic bottles (PET)
- Aluminium cans
- Metal cans
- Glass bottles
- Tetra/army pouch

By law, beverage containers should be separated into plastic, glass and cans, and be emptied of all liquids, before handing the items in for recycling.

The centre schedules acceptable drop-off items, alternating the items to be dropped off according to days of the week; the center is closed on the weekends. A counting machine (Figure 6) has been installed to ensure the counting of containers is carried out correctly. This machine was designed by Katsuo Fuji of Koror State and is being patented. The machine uses laser technology and is operated by a Koror State worker. Money is paid to customers according to the number of containers counted by the machine.

Figure 6: Counting machine at the National Redemption cent, Palau. It counts cans, glass bottles and plastic bottles. (Source: APWC, 2019)

According to the machine's designer, the containers were initially counted manually but this process was problematic, as customers lacked trust in the accuracy of the manual count.

3.7.2.2 PET Bottles

After counting, plastic bottles (PET), aluminium and metal cans are compacted and baled to be shipped overseas. The compacting machines are shown in Figure 7. At the time of the visit, baled products were being sent to Taiwan. This has been consistently the case in recent history.

Figure 7: Baling machine at the National Redemption Center, Palau. (Source: APWC, 2019)

3.7.2.3 Glass

As part of their waste reduction strategy, the SWM office blows 10% of used glass to produce handcrafted products made from the island's waste. This project is a collaboration between the National Government Division of SWM and the Koror State SWM office, in partnership with the Palau's visitor authority, Belau Tourism Association, Palau Pottery Association and the Palau Chamber of Commerce. This project began in 2014.

This project uses 10% of the glass bottles collected through the return deposit scheme and, when the pyrolysis machine is running, it is powered by the oil produced in the pyrolysis machine. The maximum amount of material that can be accepted and processed each year is provided in Figure 5. It also intends to support the national economy by producing products made in Palau by Palauan's to promote tourism and further enhance the recycling system in Palau. A description of these products and activities is provided below.

The glass is separated into the different brands (in order to match colours and type of glass). This glass is then chipped and blown into different objects to be sold. A Japanese artisan is presently teaching the craft to the locals.

The facility also houses a glass-painting area where stained-glass paintings are produced from waste sheet glass. Figure 8 and Figure 9 show some of the items being created.

Figure 8: Crafted glass paintings created at the National Redemption Center, Palau. (Source: APWC, 2019)

Figure 9: Crafted cups, paper holders, straws and the bottles used (behind) in the National Redemption Center, Palau. (Source: APWC, 2019)

3.7.2.4 *Organic Materials*

The composting facility at the recycling center was established in 2009. The process uses chipped yard waste (waste chipped on site), some leftover food and shredded cardboard boxes and paper (Figure 10, Figure 11 and Figure 12), which are readily available materials. Quantities of material per month are provided in Figure 5. Through aerobic decomposition, which is an odourless and rapid process, it produces two types of compost varying in quantity month to month (A and B), which have been approved and are considered high quality. The compost can be used to grow and enhance different plantings, including vegetables, ornamentals, medicinal plants and fruiting trees.

Figure 10: Chipped yard materials at the National Redemption Center, Palau. (Source: APWC, 2019)

Figure 11: Paper shredder at the National Redemption Center (left) and shredded paper (right). (Source: APWC, 2019)

Figure 12: Composting chamber at the National Redemption Center, Palau. (Source: APWC, 2019)

The two types are Grade A (fine compost) and Grade B (Coarse Compost). The grade A is sold at $5 per cubic foot and the Grade B (coarse compost) $2.50 per cubic foot.

3.7.2.5 Pyrolysis Machine

The Energy Recovery Section at the recycling facility was established in 2014 to reduce the volume of waste ending in the landfill and recover oil which can be used to generate electricity. The initial machine's engine broke down in 2018 and Palau Solid Waste Management was in the process of installing a new machine (Figure 13) during the APWC's visit in 2019.

Plastics that may be recycled through this facility are HDPE (2), LDPE (4) and PP (5). Figure 16 shows an example of plastic waste being used. The machine processes up to 500 kg per day. The plastic is shredded before it is processed.

Figure 13: Pyrolysis machine's plaque at the National Redemption Center, Palau showing details. (Source: APWC, 2019)

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Figure 14: Car headlights ready to be shredded and processed in the pyrolysis machine at the National Redemption Center, Palau. (Source: APWC, 2019)

Figure 15: Shredded plastic ready for the pyrolysis machine at National Redemption Center, Palau. (Source: APWC, 2019)

Table 11 outlines the assets of Koror State Government used for waste service delivery at the National Redemption Center, Energy Recovery Center, composting facility and glass crafting facility. More information on these services can be found in section 4, Recycling.

Table 11: Assets of Koror State Government used for waste service delivery

Asset description		No. of units	Location
Garbage trucks		4	Koror State Recycling Center
Dump trucks (2 ton) – for special collection		3	Koror State Recycling Center
Single chamber compactors		4	National Redemption Center
Multi-chamber compactors		3	National Redemption Center
Glass crushers		1 big & 1 small	National Redemption Center
Electric forklift		1	National Redemption Center
Counting machine		2	National Redemption Center
Plastic recycling machines	- NVG 1000 – big (stationary)	1	Energy Recovery Center
	- NVG 100 – small (stationary)	1	Energy Recovery Center
	- BeH model – table top (portable)	4	Energy Recovery Center
Oil tanks		6	Energy Recovery Center
Batch type, waste oil treatment system		1	Energy Recovery Center
Hybrid generators		4	Energy Recovery Center
Plastic shredders		2	Energy Recovery Center
Pelletiser		1	Energy Recovery Center
Fuel trucks		2	Energy Recovery Center
Wood chippers		2	Composting Facility
Paper shredder (industrial size)		1	Composting Facility

Pay loaders	2	Composting Facility
Bulldozer	1	Composting Facility
Excavator	1	Composting Facility
Turner machine in compost tunnel	1	Composting Facility
Trommel screen & conveyor	1	Composting Facility
2-ton dump truck	1	Composting Facility
Air blowers	3	Composting Facility
Oil tank	1	Composting Facility
Glass-melting furnace	1	Glass Crafting Facility
Glory hole	1	Glass Crafting Facility
Annealing oven	1	Glass Crafting Facility

3.7.1 New National Waste Landfill

Palau is currently in the process of developing a new national landfill site located in Aimeliik State, Babeldaob Islands, funded by JICA for approximately 12 million USD (Island Times, 2018). Construction is due to be completed in June 2020. Waste from all states will be aggregated and it is expected that this landfill will improve solid waste management, changing the current collection regime. With the proposed new national landfill, it is expected that the M-Dock Landfill and the seven community open dumpsites operated in Babeldaob Island will be closed (BPW, 2016).

Figure 16: Construction underway at the national landfill in Aimeliik State. (UNEP Consultant team, November 2019)

Construction on the new, large-scale national landfill in Aimeliik State, Babeldaob Island, started in 2017 (NEPC, 2019), and is expected to be operational by 2020. It will secure 273,800 m^3 of new airspace and have a lifespan of 20 years, during which period it is estimated 210,608 tonnes of waste will be generated (MIPCC, 2018).

The new landfill site is located in a hilly area of Aimeliik State, on the north side from Koror State downtown, on grassy land with tall trees. The downstream river flows down the waterway into a jungle or a mangrove forest northward, leading to the Ngeremeduu Bay through the Tabecheding River. The water intake facilities for settlements are located in a water system completely separated from the system used for discharging leachate from the landfill site (MPIIC, 2018).

Table 12 below outlines the distance from the centre of each state in Palau to the new landfill site.

Table 12: Distance from each state to new disposal site (km)

Distance from	Koror	Airai	Aimeliik	Ngatpang	Ngeremlengui	Ngardmau	Ngchesar	Melekeok	Ngiwal	Ngaraad	Ngarchelong
Centre of state	15.7	15.0	5.3	9.2	20.5	27.3	14.9	16.1	25.1	38.2	44.0
Dump site	16.7	14.7	5.3	-	19.6	26.3	-	16.4	23.8	33.6	42.9

The design will be the 'Fukuoka' method, as seen in Figure 17, showing the semi-aerobic structure of the landfill, including leachate treatment.

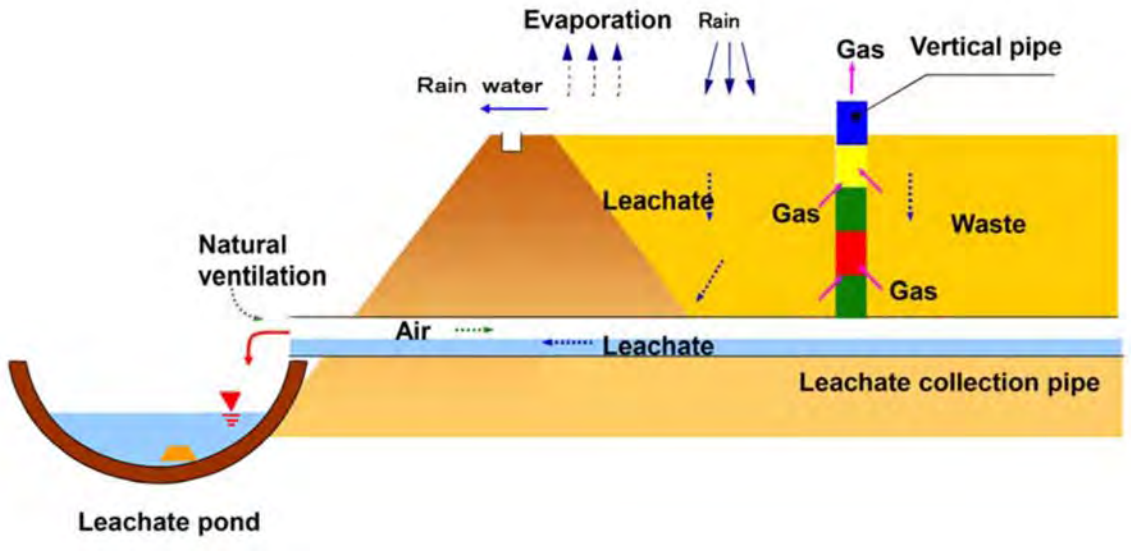


Figure 17: Conceptual figure of the semi-aerobic landfill structure. (Source: MIPCC, 2018)

3.7.2 Proposed future Transportation Station (TS)

To reduce the total amount of waste transported to the new landfill site, the construction of a transportation station and storage facility is planned to collect the states' waste, especially household waste, and segregate it into recyclable resources then dispose of the residual waste to landfill. If the

Transport Station (TS) concept receives funding and proceeds, then recoverable material will not be managed at the new landfill site. All collected materials will be brought to the TS instead, sorted and then only non-recoverable material will be sent to landfill.

The project is proposed to coincide with the opening of the new landfill at Aimeliik State and the closure of the existing landfill in Koror (August of 2020), however it lacks funding to do so. The facility is set to be constructed at the M-Dock area beside the existing landfill before completion of the new landfill construction. The facility will include a segregation system, e-waste collection system, and hazardous and medical waste treatment (SWM, 2019). Figure 18 below illustrates the facility outline and desired material flow after the transportation station is in operation.

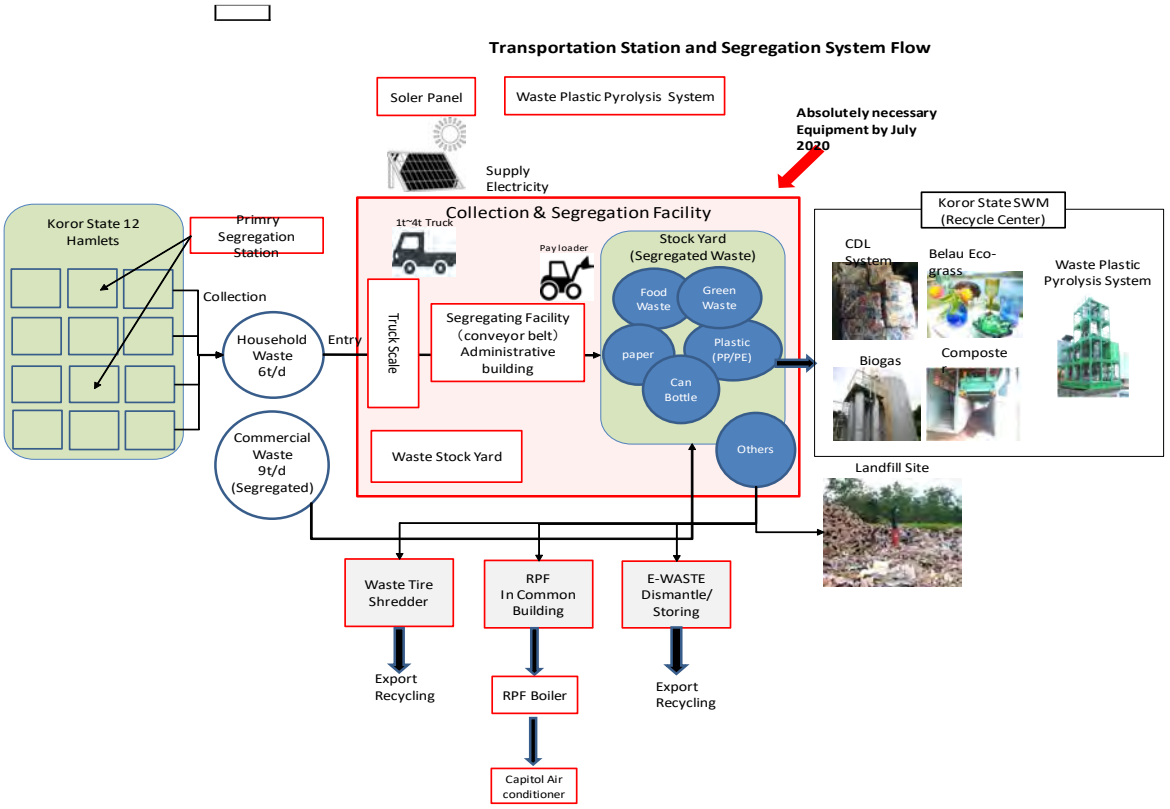


Figure 18: Flow chart of the desired resource circulation in Koror State. (Source: Solid Waste Management, 2019).

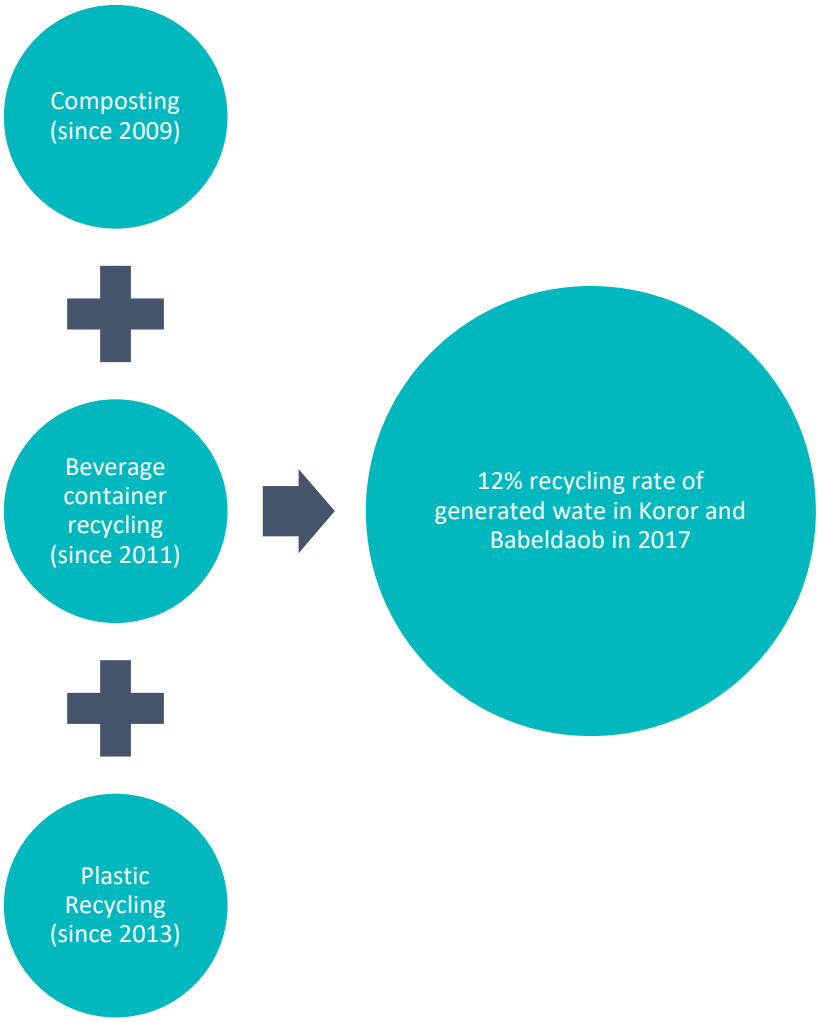
According to the BPW, household waste in Koror State will continue to be collected by BPW (see section 3.3), household waste in Babeldoab Island is to be collected by a private-sector operator consigned by BPW, and waste generated from government and public facilities is to be collected by BPW (MPIIC, 2018).

Recycling and Recovery

4

4 Recycling Overview

According to the SoER report, the national recycling rate is currently stable at approximately 12% (NEPC, 2018; Etibek et al. 2014). It is anticipated the new national landfill will increase the rate of recycling. Palau's national recycling goal established under the NSWMS 2017–2026 is set at 65% of Palau's waste.



4.1 Beverage Container Recycling Program

Palau's highly successful beverage container recycling program commenced operation in 2011. With the aim to tackle the issue of litter in Palau from beverage containers composed of glass, polyethylene terephthalate (PET), high-density polyethylene, or metal.

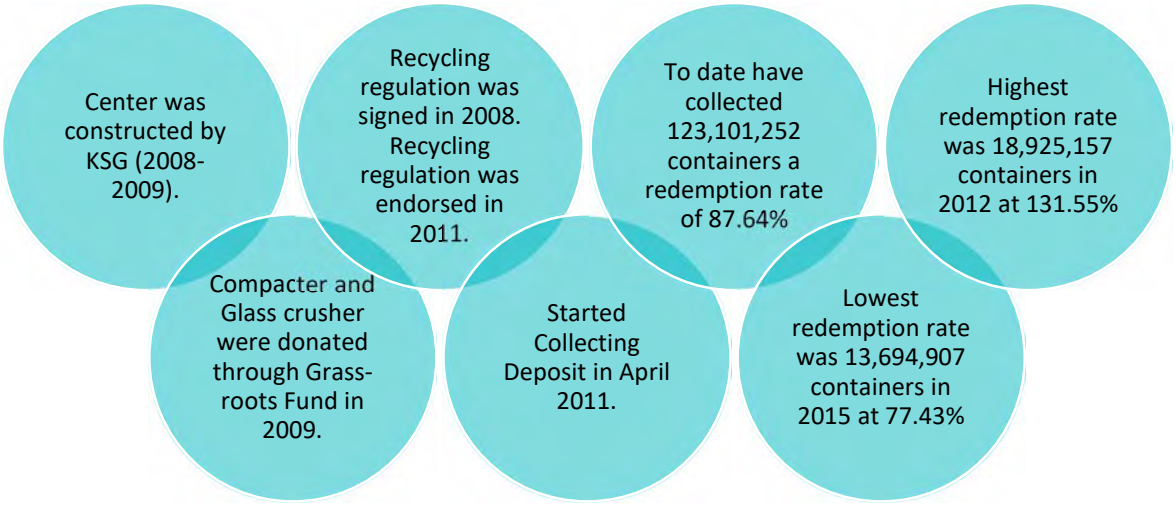


Figure 19: Palau Beverage Containers Recycling Program achievements at a glance. (Source: various)

Figure 20 highlights the number of imported and redeemed containers and the redemption rate from the inception of the Beverage Containers Recycling Program until 2019. The redemption rate percentage clearly shows the effectiveness of the program, however, there has been a reduction in redemption rates over time. BPW suggests this could indicate that more outreach and awareness is possibly needed to maximise the potential of the program (BPW, 2019).

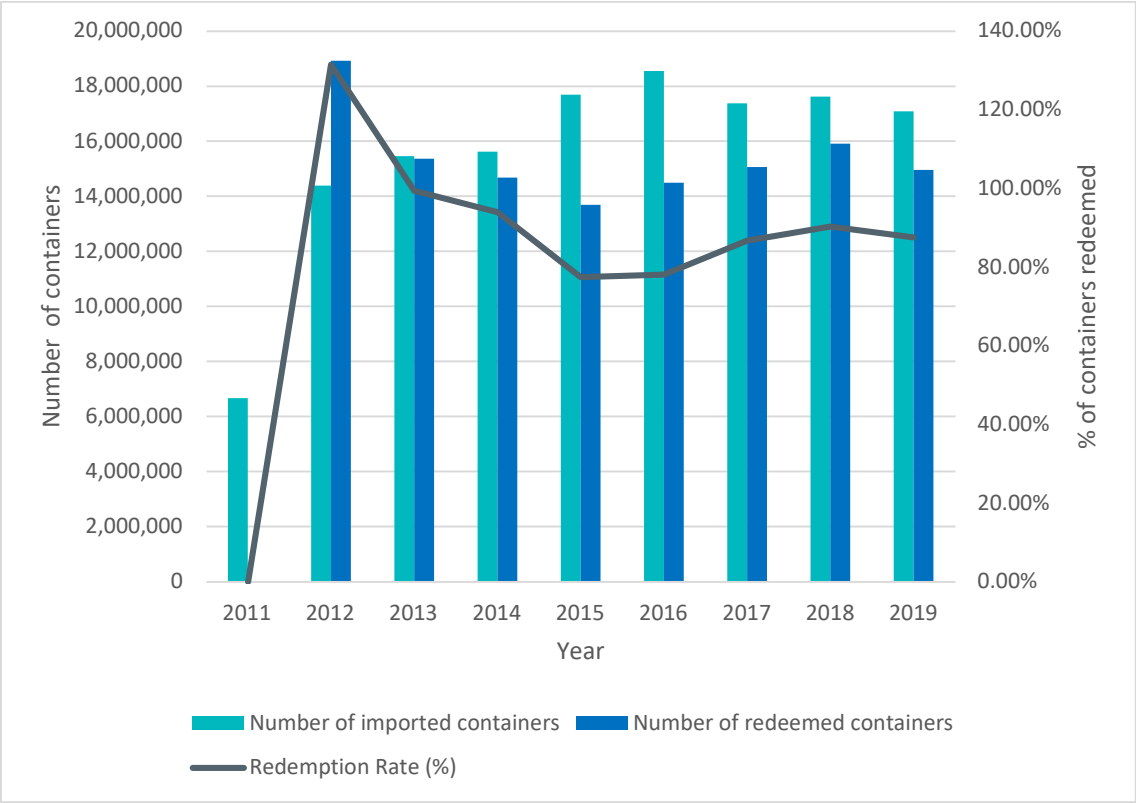


Figure 20: Beverage container deposits and redemptions 2011–2019. (Source: Bureau of Public Work, 2019)

Table 13: Total number of imports, containers redemption and redemption rate

FY	No. of DBC Import (A)	No. of DBC Redeemed (B)	Redemption Rate (%)
2011	6,663,590	0	0.00%
2012	14,386,027	18,925,157	131.55%
2013	15,459,266	15,369,174	99.42%
2014	15,618,616	14,678,332	93.98%
Total (2011-2014)	52,127,499	48,972,663	93.95%
2015	17,687,328	13,694,907	77.43%
2016	18,554,552	14,491,490	78.10%
2017	17,379,362	15,067,830	86.70%
2018	17,620,492	15,918,424	90.34%
2019	17,090,965	14,955,938	87.51%
Grand Total (2011-2019)	140,460,198	123,101,252	87.64%

Figure 21 below outlines the container material type redeemed through the Beverage Container Recycling Program and clearly shows a higher number of aluminium containers are returned through

the scheme. From the period 2001 until 2016, 88,369,379 beverage containers were imported. Of the total 123,101,252 containers returned for the period 2011–2019, 77,156,866 (74%) were aluminum, 22,964,799 (22%) PET bottles, 2,237,225 (2%) and metal and tetra pack containers both account for 1%.

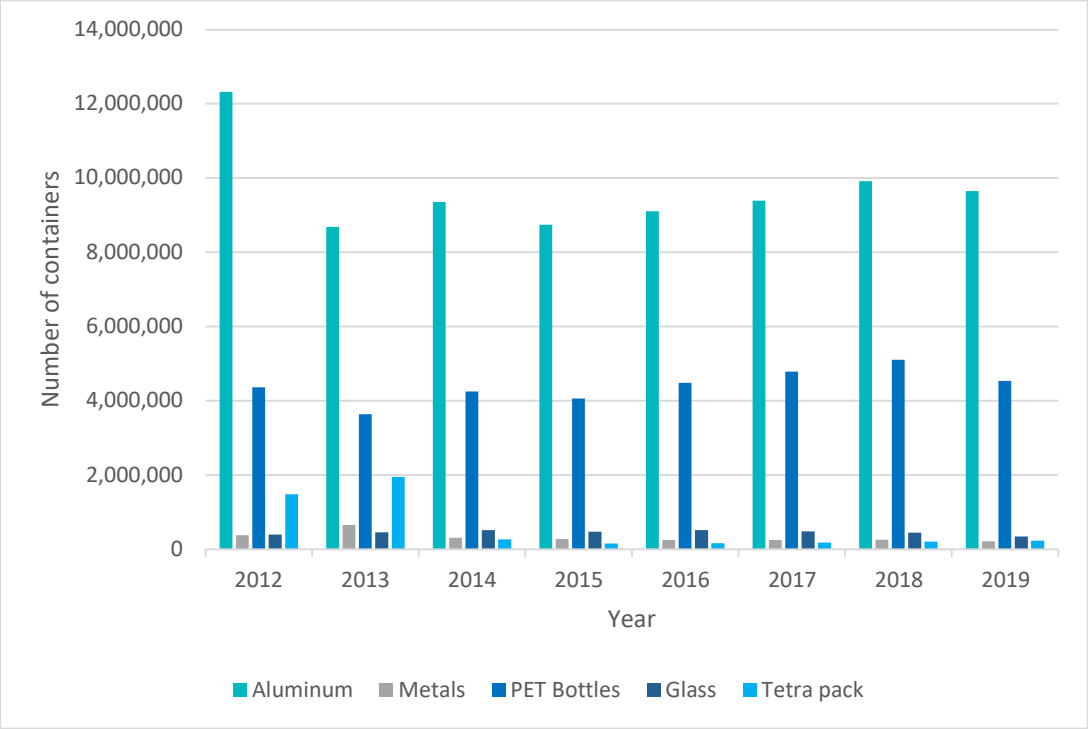


Figure 21: Material type of redeemed beverage containers 2012–2019

According to Palau's 2019 State of the Environment report in Koror 100% diversion of beverage containers in household waste (BPW, 2019). In Babeldaob, it is reported that 1% of beverage containers continue to end up in the waste stream (BPW, 2016).

Of the containers redeemed between 2011 and 2016, 72% was aluminium and steel, and 26% was plastic, all were shipped to Taiwan for recycling. Taiwan receives the largest quantities of traded recyclable material from Palau. The final 2.6% were glass bottles which were recycled on the island (BPW, 2016).

Table 14 below indicates the number of beverage containers redeemed at The National Recycling Center from 2011 to 2019. Around 1.7 tonnes of beverage containers are diverted from landfill, which according to the BPW accounted for 5% of waste generation between 2011 and 2016, ultimately reducing the final disposal volume to the in M-Dock Landfill (BPW, 2016).

Table 14: Total number and type Redeemed Beverage Containers

Financial Year	Aluminum	No data	No data	No data	No data	No data
2011	Nil data	Nil data	Nil data	Nil data	Nil data	Nil data
2012	12,321,127	370,680	4,360,757	391,062	1,481,531	18,925,157
2013	8,679,141	652,739	3,638,431	452,352	1,946,511	15,369,174
2014	9,358,251	304,751	4,243,758	509,018	262,554	14,678,332
Total (2011-2014)	30,358,519	1,328,170	12,242,946	1,352,432	3,690,596	48,972,663
2015	8,744,413	272,899	4,062,098	466,919	148,578	13,694,907
2016	9,101,697	242,228	4,482,043	508,554	156,968	14,491,490
2017	9,386,025	243,082	4,782,229	479,895	176,599	15,067,830
2018	9,918,461	248,882	5,103,979	445,760	201,342	15,918,424
2019	9,647,751	206,540	4,534,450	336,097	231,100	14,955,938
Grand Total (2011-2019)	77,156,866	1,213,631	22,964,799	2,237,225	914,587	123,101,252

The daily average or redeemed PET containers during the period between 2012 and 2016 was 10,336. This equates to approximately 0.21 tonnes of PET containers diverted from landfill per day.

4.1.1.1 CDL fees

The scheme introduced a US$0.10 import fee to all types of beverage containers as can be seen in Table 15 below. Upon purchase, the consumer pays $0.10 extra per PET bottle and upon return will receive US$0.05.

The recycling program is financed through a dedicated Recycling Fund that is now sustainable and has allowed for the procurement of a number of waste management equipment for Palau.

Table 15 below describes the allocation of roles and responsibilities in the deposit refund system.

Table 15: Allocation of roles and responsibilities in the deposit refund system of Palau. (Source: Nashfa, 2016)

Responsibilities	Payment of deposit		Collection of deposit		Collection & returning of bottles	Issuing refunds	Exporting
	Upon import	Upon purchase	Upon import	Upon purchase			
Economic	Importer pays $0.10 per PET bottle	Consumer pays $0.10 extra per PET bottle	Customs	Retailers	N/A	Importer & consumer via deposits	Palau Waste Collection Company gets redeemed containers from the government & exports
Physical	N/A	Consumer	Customs	Retailers	Consumers	Finance State of Koro claims money	Recycling operator crushes & exports PET

						from the fund & issues refunds	
Informative	Koror State Solid Waste Management Office						MPICC export or find ways to export redeemed containers
Monitoring & enforcement	Customs	MPICC	MoF monitors the collection fee and the deposit fund	Koro State redemption Centre receives & monitors rate of bottles	MPICC monitors redemption center		MoF monitors the sales proceeds from exporting

The material and financial flows of the deposit fund system in Palau is depicted below in Figure 22 below.

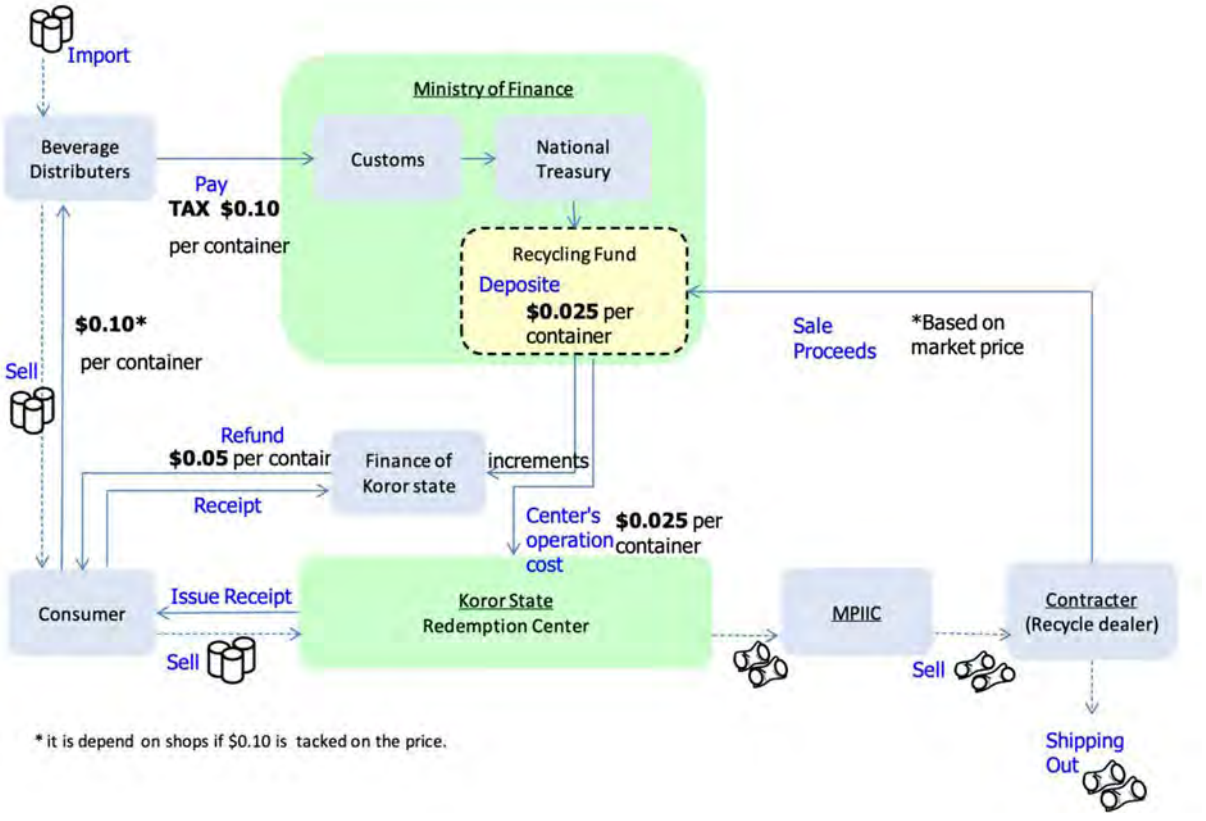


Figure 22: Schematic diagram depicting the material and financial flows of the deposit refund system in Palau. (Source: BPW, 2013).

Despite a number of teething problems and challenges (see section 4.8.2), the establishment of the Recycling Fund as an integral part of the Beverage Container Recycling Program has been beneficial

for SWM in Palau and has delivered a number of benefits. Funds procured from the Recycling Fund have been poured back into the operation and maintenance of the redemption centre and other related recycling activities, used to create other waste reduction projects, purchase new garbage collection trucks, expand facilities at M-Dock, expand transportation and collection areas and create jobs in Palau. A list of procurement accomplishments achieved through the Recycling Fund are outlined in Figure 23 below:

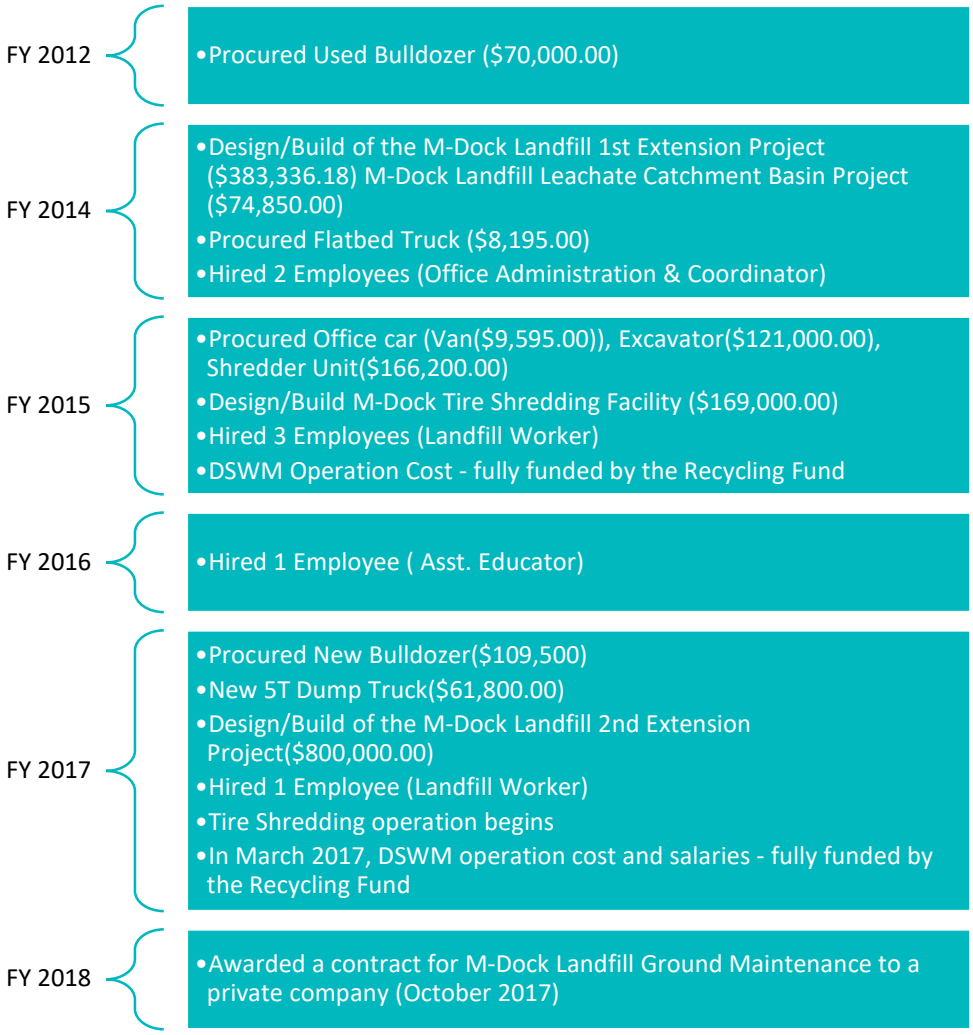


Figure 23: Accomplishments through the Recycling Fund. (Source: Bureau of Public Works, undated)

4.1.2 APWC recycling interviews

Data obtained from APWC household interviews ascertained that 93% of households are currently recycling in some capacity. Respondents (64.9%) stated they recycle their own beverage containers through the beverage container recycling program to obtain a rebate. Table 16 below outlines the results of the interviews undertaken.

Table 16: Type of recycling activity undertaken by households. (APWC interviews, 2019)

Recycling Type	Percentage of respondents
Take own drink containers for money	64.9%
Recyclables collected for payment	20.1%
Recyclables collected without payment	6.2%
Someone collects recyclables from my bin	2.1%
No recycling	4.6%
Other	2.1%

During the APWC interviews, households reported receiving payment of some type for their recyclables; most received payment per bottle, but a substantial number also reported receiving payment per kilogram (Table 17). All but one of the householders reporting that they received a price per kilogram also reported taking their own drink containers to recycling for money.

The most common price received was 4 cents per bottle, with some reports of 3 and 5 cents per bottle (Figure 24). Only four households reported a price per kilogram of around $25 per kilogram. Given a weight of 20 grams per bottle, this corresponds to a price of 50c per bottle, which appears to be unreasonably high. Twenty-six (26) households reporting a price per kilogram also indicated that they were uncertain as to the actual price received – APWC speculates that those reporting a price may have also been uncertain about the exact price.

The set price of redemption is achieved at the redemption centre. However, there are a number of local shopkeepers and other small businesses, that provide a slightly smaller price incentive i.e. 2 to 4 cents per bottle and act as “unofficial” collection systems. This helps residents living in remote communities and those that are not able to transport materials directly to the redemption centres. The different in the price paid by residents and that redeemed at the redemption centre acts as a financial incentive for various small businesses to collect the materials.

Table 17: Percentage of households who reported redeeming money for recycling

	Percentage of households reporting payment of this type	Most common unit price reported
Recyclables paid per kg	20%	$25*
Recyclables paid per bottle	80%	$0.05

* This figure is believed to be unreliable

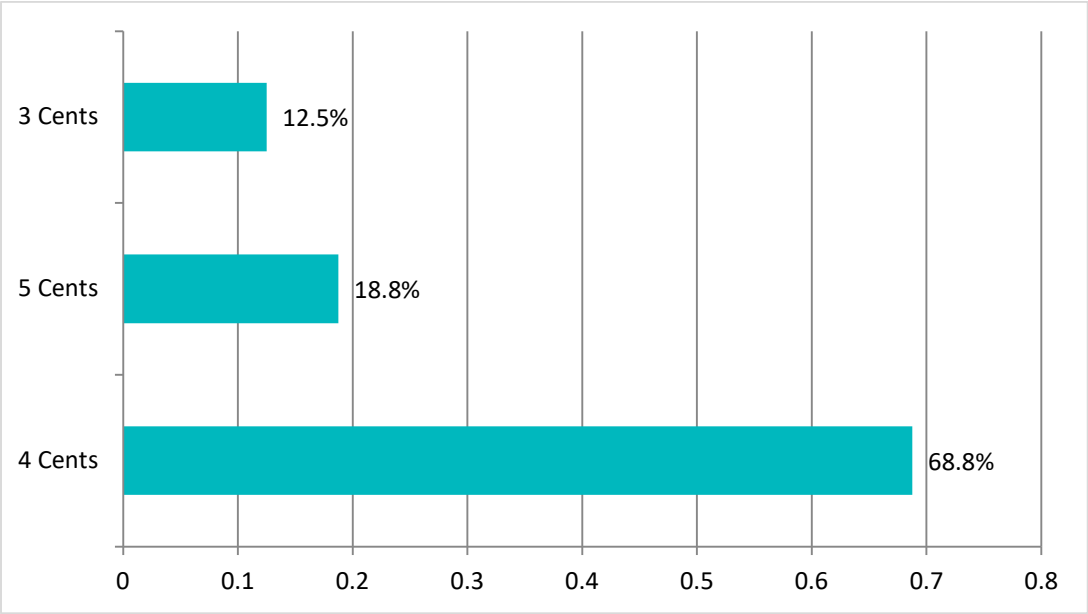


Figure 24: Rebate received for recycling beverage containers according to responses from APWC household audit interviews in November 2019

Despite the success of the programme, it has not been without its challenges, which include the following, as reported by the Bureau of Public Works (BPW, 2018):

- A long lead time to implement, with five years between passing the programme in 2006 until its commencement in 2011
- Many agencies did not have the capacity to implement the programme, for example the Department of Solid Waste Management-BPW and the Koror State Government Solid Waste Management Customs Office
- Monitoring of the programme was hampered by poor information-sharing between the two ministries responsible for operating the system, the MoF and the Ministry of Public Infrastructure, Industries & Commerce (MPIIC)
- The manual counting of containers was inaccurate, due to human error in the manual counting process
- Inaccurate calculations of existing beverage containers on hand before the actual commencement of the program, which eroded the funds estimated to pay for new waste generation
- There were some post-collection issues related to exporting for recycling, including finding buyers of materials (MPIIC, 2014)
- Unforeseen costs of repairing the center after weather damage.

4.2 Plastic Recycling (since 2013)

Recyling plastic means that the material can be processed back to its original form (oil), which can then be used to generate energy. Since the program commenced, approximately 2.72 tonnes of plastic waste has been collected and processed monthly or 100 kg per day (BPW, 2016). As of 2017, a special collection of all types of plastics is undertaken on a Wednesday from 45 participating households and 25 participating businesses (mostly auto shops generating large plastic scraps, such as bumper bars). However, the pyrolysis machine was not operational at the time of the consultants' visit in November 2019 and a new machine was being installed. The plastic continued to be collected and processed ready for the machine. The materials recycled through this system and the process of preparing for recycling is described in section 3.7.2.5. The facility operates as a complementary system to the CDL and the materials sourced are not a part of the redemption system through the CDL. Therefore the recommencement of the use of this machine will lead to additional recovery of plastics from the landfill.

4.3 Composting

The National Solid Waste Management Strategy 2017–2026 (BPW, 2016) noted that compostable waste comprising vegetable, putrescible and kitchen waste dominates the composition of household waste. In Koror and Babeldaob, compostables in household waste was 44% and 41%, respectively. An average of 0.48 tonnes/day is generated across Koror and Babeldaob. There are currently no green waste collection schemes available in Babeldaob.

According to the BPW roadmap (BPW, 2016), approximately 2% of total waste generated in Koror and Babeldaob is composted (BPW 2017), which is an average of 0.48 tonnes/day. This is approximately 8% to 10% of residential waste. The rate appears to be steady over the period of 2013 - 2016 (Table 18).

Table 18: Wastes amount used for composting. (Source: BPW, 2016)

	Volume (m^3)			Weight (tonne)			
Year	Green Waste	Cardboard	Kitchen waste	Green waste	Cardboard	Kitchen waste	Total
2013	280.8	28.2	103.4	56.2	2.8	93.83	167.4
2014	267	4	126	53.4	3.63	4	183.4
2015	291.6	29.4	122.3	58.7	2.63	122.3	183.9
2016	252.8	78.2	10.9.9	47.3	7.08	109.9	165
Average				53.9	3.99	115.4	173.7
Daily Amount				0.15	0.01	0.32	0.48

Since 2017, composting bins were provided to 40 households for participation in a food waste composting project conducted by Koror State Government to address the large volume of food waste in Palau's waste stream. These bins are collected weekly, on Tuesdays and Thursdays. A pilot project

was also collecting food waste from one hotel (on request) and free compost was available as an incentive for participation. Food waste from most schools and hotels go to piggeries (BPW, 2017). At the time of the consultants' visit in November 2019, BPW noted that the food waste to piggeries continues to happen. The data for the quantities of this food waste was requested by not received. See section 3.7.2.4 for more information on the Composting Facility at the National Recycling Center.

4.4 Bulky wastes and scrap metal

The Palau Waste Company is a private enterprise who collect, process and export scrap metals within Palau, including end-of-life vehicles. In Koror State, large and bulky steel waste materials, as well as scrap electrical appliances, are transported to a designated area at the landfill site (the public can request the Koror State Government to collect scrap metal), transporting it to a designated area at the Koror State landfill, where the private company is based. The stored recyclables are shipped overseas independently by the company collecting the material for recycling. A number of other small recyclers recycling scrap metal in Palau, most of whom are auto repairers and parts dealers. The full list of recyclers in Palau is provided at Table 20.

In states other than Koror, scrap metal is stored at designated areas within each state, and then transported to the M-Dock landfill either by the government or private contractors. White goods, such as refrigerators and air conditioners, have the freon gas removed during the recycling process (BPW, 2016). The audit process calculates the overall collection and recycling rates of scrap metal and e-waste in Palau as at 2019.

According to Palau's NSWMS, the most commonly recycled metals through trade in existing marketing routes in Palau are aluminium, iron, steel, copper, lead and zinc. Segregated aluminium and steel cans are processed by compression into blocks using the compaction machine and sold to overseas recycling market (BPW, 2016).

4.5 Healthcare waste

In 2014, it was reported that Palau's average daily generated healthcare waste was 1.4 kg per occupied bed (Environ, SPREP 2014). In 2014, the ADP noted that Belau National Hospital had its own collection truck using a colour-coded system to store waste for collection. In addition, the hospital had an onsite incinerator, however staff handling healthcare waste did not always use protective gear and were not trained to collect, treat or dispose of the waste (ADB, 2014). In July 2014, Environ noted that there was a lack signage and poor segregation. Hospital and general waste were often combined because the colour-coded containers and bags provided were not in sufficient numbers to manage the waste generated. In addition, the incinerator commissioned in 1992 ceased operation in 2013 due to frequent complaints regarding emissions. All waste was then transported to M-Dock Landfill and disposed to a dedicated cell for healthcare waste without treatment (Environ, 2014).

Under SPREP's PacWaste-Plus Programme, maintenance of the incinerator at Belau National Hospital is planned to ensure it operates at minimum machine standards. It is worth noting that Palau's solid waste regulations state that incinerators must be 'multiple chambers' (Environ 2014; SPREP 2014).

The consultants were not able to visit the incinerator as part of this visit or gather further data on healthcare waste.

4.6 E-waste

A collection point for e-waste has been established at M-Dock Landfill, however, for Palau recyclers it is proving to be a challenging waste stream to find international markets for. There are two recycling companies collecting e-waste: the country's main scrap dealer/recycler, the Palau Waste Collection Company (PWC), and another small-scale company with a focus on auto-wrecking.

According to SPREP's review of e-waste-related activities in the Pacific Islands conducted in 2018 Palau's imports of electronics such as computers and screens are rapidly increasing, as outlined in Table 19 below. The same report states no formal exports of e-waste had been made prior to 2018.

Table 19: Selected e-waste imports into Palau and annual rates of import per capita and per household based on 2012 imports. (Source: SPREP, 2018)

Description	2008	2012	5-year growth rate	Per household	Per capita
Air conditioners	731	824	12%	0.18	0.04
Fridge & freezer	621	811	30%	0.17	0.04
Washing machines	284	347	20%	0.07	0.02
Computers	741	1250	70%	0.27	0.06
TV/monitors/DVDs	872	1497	70%	0.32	0.07

The accession of Palau to the Basel Convention creates a potential problem for the main e-waste recycler, a Taiwanese-held company. Taiwan is not a Basel Convention member, therefore it causes restrictions for moving potentially hazardous e-waste components from the country. Stockpiles of e-waste were assessed as part of this audit exercise in November 2019. No export of e-waste was reported during the consultant visit in November 2019.

Figure 25: Shredded tyres at M-Dock Landfill. (Source: APWC, 2019)

4.7 Other waste streams

Tyres are stockpiled for recycling at M-Dock Landfill. Tyres are shredded and the shredded material is used for construction work or stockpiled. At the time of the consultant's visit in November 2019, no evidence of the use of tyres of construction was noted. The size of all stockpiles including tyres is provided below.

Still, the continually growing stockpile of used tyres and steadily increasing motor imports continues to be a major concern for Palau and other SIDs with limited storage space.

4.8 Recyclers

In addition to recycling activities undertaken by Koror State such as organics recycling, Palau has an active private recycling industry that is currently supporting eight recycling operators as outlined in Table 20 below. APWC collected the following data in relation to recyclers activities during interviews conducted from 11 November to 16 November 2019. These companies either currently recycle or have stockpiles of recyclable material such as e-waste, tyres and hazardous materials.

Table 20: Recyclers in Palau

Palau Waste Company	Chao Tai CT Shop	Belau Garbage and Scarp Company
•Established in 2009 •Site: size 5 acres, Palauan owned. •Materials collected: Scrap metal, white goods, aluminium cans, PET bottles, Tetrapack , e-waste •Quantity collected: 680,000 – 7000,000kg per months scrap metal, 8,100 kg per month aluminium, 8,500kg per month PET •Quantity exported year-by-year •Exports to Taiwan •Equipment: 2 x compactors, 2 x bob cat, 2x forklift, boom truck •Company employs 17-18 people but usually on 5-7 staff for this site •Suppliers include community and Koror State for e-waste and PED/Aluminium cans. All materials redeemed in Palau are exported by this company	•Established in 2006 •Palau owner •Materials collected: Aluminium, wires and non-car scrap metal, copper •Quantity collected and exported: 2 containers of aluminium and 2 containers of mostly steel scrap •Exports to Taiwan •Equipment: Compactor, forklift and cutting machine •Company employs 3 staff	•Established 1987, Redemption Center in November 2016 •Site: size 12m x 12m •Material Collected: Aluminium cans, PET bottles and Tetrapack •Quantity collected 600,00 – 7000,00 of aluminium cans, 500,000 – 600,00 of PET containers, 20,000 – 40,000 of Tetrapack •Materials not exported but provided to Koror state. •Equipment: Baler and conveyor belt for counting and counting machine •Company employs 6 staff at redemption center •Suppliers 20 to 25 regular companies and locals

GF automotive enterprises	Palau metal company/JC auto shop	Other
•Established 1998 •Site: size 2 acres, Palauan owned •Materials collected: scrap metals only •Quantity collected 5-7 containers per year – medium density •Equipment Plasma machine + machine for cutting up metal •Company employs 20 staff	•Established 2006 •Site: size 700m2, Palauan owned •Materials collected: scrap metals and heavy equipment •Quantity collected 10 x (20-foot containers) per year – medium compaction •Exports to Taiwan •Equipment: Boom truck for the moving cars (biggest on the island), 1 forklift, 1x compactor, various cutting & shredding equipment •Company employs 3 staff •Suppliers pick up cars that need to be scrapped. Also have car repair and spare parts business	•Kumar – Battery collector •2017-2019= 22,934 batteries, 16 containers, 352 metric tonnes. All exported •PPUC •Materials collected: waste oil •Quantity collected: Currently 300,000 gallon in tank collected in 8 years. Tank capacity is 750,000. •Exports to the Philippines

4.8.1 Recyclers and the Deposit Beverage Container Recycling Program

Private recycling companies play a pivotal role delivering the Deposit Beverage Container Recycling Program. The MPIIC is responsible for deciding which company will gain the contract for exporting the redeemed containers, taking into consideration the recycling companies that already exist in Palau, their experience exporting recyclable materials, their infrastructure and personnel capacity and their commitment to the 3R concept (Reduce, Reuse, Recycle).

Contractors are responsible to deliver the following services:

- Buy redeemed containers from the national government;
- Responsibility for picking up compressed, redeemed containers from the Redemption Center at their own expense.
- Ship out of Palau compressed, redeemed containers (aluminium, plastics, and metals) within six (6) months after pick up from Redemption Center at their own expense.

There are currently two contracts in place to deliver the program between the Palau National Government and Palau Waste Company, effective from 18 July 2012, and the Belau Garbage and Scrap Company, which operates from a second redemption centre, with the contract effective from 10 November 2016.

Table 21 below outlines the schedule of daily operations for recyclers employed to conduct redemption activities under the Beverage Container Recycling Program.

Table 21: Schedule of daily operations

Time	Activity	Who
07:30	Equipment and Personnel Preparations	All Staff
08:00	Commence Operations	All Staff
11:00	Clean up	All Staff
11:30	Lunch Break	All Staff
12:30	Equipment and Personnel Preparations	All Staff
13:00	Commence Operations	All Staff
16:00	Clean up and secure equipment's and facility	All Staff
16:30	End of work day	

4.8.2 Recyclers' challenges

Interviews with recyclers highlight there is opportunity for more recycling activities to be undertaken. For example, one recycler expressed a desire to undertake cardboard recycling, however they would need support to obtain the required infrastructure for these activities, including a shed to protect materials and environmental safeguards before they could commit.

Another recycler stated the biggest challenge is the market and availability of empty shipping containers, in some cases waiting two weeks to one month for available containers.

4.9 Current financial mechanisms

Palau has a number of financial mechanisms available to allocate funds towards solid waste management services and infrastructure. According to PRIF, Palau's solid waste management system is currently supported by United States aid and import and export taxes (PRIF, 2018). Palau is moving towards improved cost recovery in the delivery of SWM services. Palau's NSWMS highlights that government leadership in Palau can provide 'optimum resource allocation and attract increased donor funding and assistance for the waste sector' (BWP, 2016). The SoER identifies that Palau must reduce its reliance on grants moving forward.

Currently, all collection service provisions operated by each state government are provided free of charge. Private waste operators charge for waste services.

4.9.1 Compact of Free Association

Palau currently receives financial assistance from the United States under the Compact of Free Association (COFA). COFA's $US550 million is over a 15-year period from 1994–2009. Renewal talks took eight years to approve the next financial package for US$65.3 million, including $22.1 million to be used for economic assistance and $34 million for infrastructure projects and maintenance. However, it is worth noting that previous trust fund dollars committed for solid waste management

activities and infrastructure were a small portion of the required budget. Therefore, Palau seeks to obtain self-sufficiency, reducing the country's reliance on the compact funds in preparation for when the compact agreement expires in 2024.

4.9.2 SMW collections charges

Solid waste collection services in Palau are generally provided with no fee attached, with the exception of two states – Ngatpang and Airai. In Ngatpang State a collection fee is charged by the state $10 per month for commercial businesses. In Airai, the state-provided collection services are only available to the senior citizens (25 households), schools and government offices. A private collection company provides collection services to households, charging a fee of $20 per month. There is concern in Airai that people who are not covered by the state collection service will take advantage of the incentive and use the trash cans designated for the elderly. It was found that elderly citizens often think it is acceptable for people to use these receptacles because they are concerned ineligible households will dump their waste illegally.

In 2010, the Draft National Solid Waste Management Plan (Draft NSWMP) suggested that the provision of free waste management services in Palau provided no incentive to reduce the quantity of waste generated and it contributes to a lack of appreciation of the negative environmental impacts of waste. The plan recommended implementing a user-pays system in the form of a tipping fee paid per volume of waste disposed to fund operation at the new national landfill. It was also suggested to charge residents a waste management service fee for domestic waste collection and disposal costs.

In the case of commercial waste, it proposed waste contractors include disposal changes within their fees and commercial operators pay a gate fee when disposing waste directly to the dumpsite. Concern was noted regarding the potential for an increase of illegal dumping for those wanting to avoid paying the gate fee and encouraged developing a community awareness program and strict enforcement of anti-litter and dumping regulations to combat this issue. (JICA & Ministry of Resources and Development the Republic of Palau, 2008). A feasibility study to decide the process of a system of tipping and collection at Babeldaob was proposed under goal two of the Palau NSWMS was due to be addressed in 2019 with a regulation on collection and tipping fees to be developed in 2021 (BWP, 2016).

4.9.3 *RPPL-No-10 29 The Fiscal Year 2019 Budget Act*

The Fiscal Year 2019 Budget Act authorised US$1,705,000 and appropriation of $1,406,000 for the Bureau of Public Works (Republic of Palau; The Senate Tenth Olbil Era Kelulau, 2018). The first quarter of 2019 total expended was $282,123 or 23%.

Section 13 of the Deposit Beverage Container scheme states that $477,00 (or the actual amount collected), can be appropriated to the Recycling Fund, and that it will remain in the fund. Any under-expend or un-obligated balance at the end of the fiscal year shall not lapse.

Amount collected in the first quarter	Cumulative expenditure and authorisation against US Federal Grants during first quarter
•27% of the total budgeted amount at $129,548	•SPREP and EQPB had budget authorisation for E-waste Project $12,000, expenditure $7,198 •The ministry of Public Infrastructure, Industries & Com has a budget expenditure of $200,000 towards the Babeldoab Landfill and has spent $192,025

(Source: Republic of Palau financial reports for the first quarter ended December 31, 2018, 2019)

4.9.3.1 State Budgets

Table 22 below outlines the budget and expenditure for SWM services across the Koror State and the 10 states within Babeldaob Islands. The data below was provided by DSW and the consultants were unable to update it for 2019. However, it provides a basis for decision-making regarding the amount of funds actually required for providing waste management services and the need for appropriate measures to be taken for the provision of a sustainable waste management service.

Table 22: State budget and expenditure for SWM services 2016

State	Budget and Expenditure
Koror	No data
Airai	Total revenue: every year approximately $1,000,000 (2016) Own revenue: $996,000 (65%) National fund: $536,720 (35%) Total: $1,532, 750
Aimeliik	Revenue is residence tax and vehicle registration fee (2016) Total state budget: $2,351,342, Budget for PW: $141,752.43
Ngatpapng	Revenue of trash collection: $696 (2014), $6,657 (2015), $3,114 (2016) Expenditure for SWM: no data
Ngeremlengui	Total budget: 2016; $646,600 (National $441,200. (68%), State $205,400 (32%) 2017; $ 620,516 (National $480,516, State $140,000) Expenditure for SWM: 2017; $1,342 (Fuel) 0.2% of state budget
Ngardmau	No data

Ngchesar	Total budget (2016): $ 514,000 Expenditure for SWM: no data
Melekeok	Total budget (2016): $ 710,229 Expenditure for SWM (2016): $140,830
Ngiwal	No data
Ngaraard	Total budget (2016): $506,678.00 Budget for PW (2016): $169,950.80
Ngarchelong	Total revenue: $640,000 (State rev.140,000, National $100,000, Other $300,000 Fishing rights $100,000) Budget for SWM: no data

4.9.4 National Solid Waste Management Strategy (NSWMS)

Palau's NSWMS 2017–2026 outlines a roadmap towards a clean and safe Palau. The strategy seeks to build strong connections to strengthen institutional and human capacities to implement best-practice waste management activities across Palau to minimise risk and achieve optimal resource-efficient benefits (Table 23).

Annex 1 within the strategy identifies potential sources of internal funding aligned with implementation activities. Funding from donor and development partners identified in the strategy can be found in section 4.9.5 below.

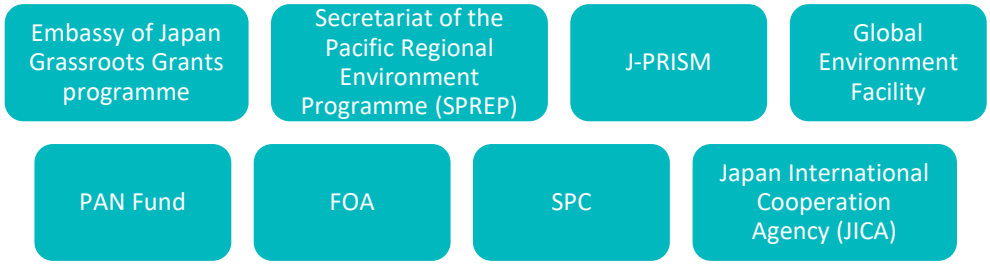
Table 23: Key strategic goals, actions and targets from the NSWMS

Implementation activity	Who is responsible	Potential source of funding	Estimated budget ($)
Goal #1 Relevant waste data is generated and waste initiatives are properly documented for better-informed decisions			
Design a database to report outcomes, including standard methodology to collect, manage and analyse and report data	BPW (MPIIC), EQPB, and PALARIS, SPREP	SWD Budget	5,000
Manage the waste management database	BPW (MPIIC), EQPB, Statistics Office, SPREP to assist	National budget appropriation	25,000
Prepare the inventory of HW (adopt World Customs Organisation Harmonized system codes)	Private companies that import (will be a requirement by EQPB regulations)		6,000
Goal #2 There is strengthened institutional capacity on waste management based on economic and social benefits			
Amend the existing Beverage Recycling Law	Senate and House Committees for the sector, MPIIC Minister	OEK	1,500

Develop legislation banning importation of certain items (e.g. plastic water bottles and pellets)	Senate and House Committees for the sector, MPIIC Minister	EQPB/OEK	1,500
Develop a plan to privatise collection	BPW (MPIIC), KSG	BPW (MPIIC)	200,000/year
Goal #4 Waste management follows best-practice approaches with provisions for continuous improvement			
Expand the 3R + return program across all states	Association of governors, KSG, communities	National and state budget	150,000
Establish additional redemption centers	BPW (MPIIC), Koror, Airai	Donors, recycling fund	150,000
Establish a centralised national landfill	National, state	Donor, national government	5,000,000
Design the collection system from the segregation stations	BPW (MPIIC) state	Recycling fund	200,000/year
Undertake environmental monitoring and reporting	EQPB, BPW (MPIIC), state	National budget	1,000,000
Goal #6 Waste activity outcomes are reported and disseminated to relevant stakeholders			
Undertake monitoring and reporting of KPIs of waste management implementation plan	EQPB, BPW (MPIIC), multi-stakeholders	National budget	10,000
Conduct meetings of multi-stakeholder committee/working group monitor progress and resolve issues	National government, stakeholders	National budget	50,000

4.9.5 Development Partners

Palau has several international and regional projects it is currently undertaking with the assistance of international development partners. These projects have provided extensive technical and financial assistance to waste management in Palau funded by various development partners. A number of waste collection and disposal services throughout Palau have improved as a direct result of equipment secured through donations from development partners. These partners and projects include:



The following, Table 24 provides an outline of previous development assistance received from development partners:

Table 24: Development assistance to Palau

Development partner	Assistance provided
Government of Japan (JICA)	• 40% of capital costs for Koror State waste operation • Grant Aid for the new landfill facility in Aimeliik State • Technical assistance and trainings through the J-PRISM Project • Improvement of segregation through the International Centre for Environmental Technology Transfer
Government of Japan (Grass Roots Project)	• Equipment for Koror State Government-SWM
Government of Taiwan	• Equipment for other States
SPREP	• Equipment for Koror State Government-SWM

(Source: JICA, 2018)

In May 2018 JICA signed an agreement with the government of Palau to provide a grant up to the value of 1.311 billion yen (approximately USD$12 million) for the construction of the new national landfill site at Aimeliik. The funding will be dispersed with amounts for the construction of the new facility, the procurement of equipment and consulting services. The below gives further detail of the specific project details related to the grant money.

Facility construction	Equipment	Consulting services
•New national landfill site (site area: 8ha, capacity: approximately 298 thousand cubic metre, available period: approximately 20 years), •Control building	•1 bulldozer •1 excavator •1 wheel loader •1 dump truck • 2 compactor trucks •1 pH meter •1 gas detector	•Detailed design work •Bidding assistance •Construction/procurement supervision

(Source: JICA, 2018)

Table 25 below explains in further detail the classification and specifications for the equipment sought for the project.

Table 25: Specifications of the facilities and the equipment under the Japan's Grant Aid

Classification	Facilities and Equipment	Quantity	Specifications
Waste Disposal Facility	Sanitary landfill	One Set	Fukuoka Method (semi-aerobic landfill) Area: 8 ha; Capacity: for 20 years
	Office and garage	Each	Total floor area: Approximately 380 m^2
Operation and Maintenance of the Landfill	Bulldozer	One	For dry-land operation weight: 21t class
	Excavator	One	Bucket Capacity: 0.8m^3
	Wheel Loader	One	Bucket Capacity: 1.3m^3
	Dump Truck	One	Loading Weight: 8t
Collection and Transportation of the Solid Waste	Compactor Truck	Two	Loading Weight: 2t
Environmental Measurement of the Landfill	pH meter	One	Portable type
	Gas analyser	One	Analysing item: methane and hydrogen sulphide Portable type

Annex 1 of the Palau NSWMS 2017–2026 considers the financial resources required to support the first half of the strategy to implementation and identifies potential sources of funding for implementation activities. Table 26 below identifies potential funding activities and possible development partners.

Table 26: Palau NSWMS 2017–2026 potential source of funding from development partners period 2017–2021

Implementation activity	Who is responsible	Potential source of funding	Estimated budget ($)
Goal #1: Relevant waste data is generated and waste initiatives are properly documented for better-informed decisions			
No development partner funding allocated to Goal #1			
Goal #2: There is strengthened institutional capacity on waste management based on economic and social benefit			
Undertake cost-benefit analysis of proposed legislation	BPW (MPIIC), SPREP to assist	Donor/SPREP	10,000

Revise the hazardous waste regulation to include: inventory and monitoring; management and disposal based on requirements under international conventions to which Palau is a party (e.g. Basel Convention)	EQPB SPREP	SPREP	0
Goal #3: The stakeholders understand the merits (economic, environmental and health) of proper waste management and co-sharing of responsibilities			
- Develop and implement a more coordinated awareness campaign plan - Expand the existing 3R awareness campaign - Utilise toolkits - Implement a Clean Schools or Clean Campus Program	National and state governments, communities. Bureau of Tourism, Fisherman's Association, BELAU Tourism Association, PVA	National and State budget, private sector, GEF small grant programs	50,000
-Develop public-private partnership (PPP) programs, e.g. household battery disposal bins, eco-bags, reusable beverage containers (with company logos), compost production, handling difficult and hazardous wastes, car batteries, scrap metal, tyres, etc. - Consider extended producer/importer responsibility scheme	National (EQPB, BPW (MPIIC), Ministry of Finance, DEH, BOA, PCC/CRE, etc), private sector, NGOs, SPREP, COC, Bureau of Tourism, Fisherman's Association, BELAU Tourism Association, PVA	National government, private	
Goal #4: Waste management follows best-practice approaches with provisions for continuous improvement			
Establish additional redemption centers	BPW (MPIIC), Koror, Airai	Donors, Recycling fund	150,000
Establish hazardous waste drop-off and storage facilities and healthcare waste treatment facility	EQPB, state, BPW (MPIIC), DEH	SPREP, donors, national government	300,000
Establish a centralised national landfill	National, state	Donor, national government	5,000,000
Designate and construct the location of the segregation/compost/disaster waste stations.	BPW (MPIIC) States	Grassroots fund of Japan PAN fund	$175,000 $35,000/each (size: 20 x 40) 5 stations
Goal #5: Waste practitioners are provided with training opportunities			
Implement training programs on OH & S, landfill operation, waste management techniques, specialised hazardous waste management, etc.	EQPB, BPW (MPIIC), DEH, MOE, PCC/CRE, private sector	SPREP, FAO, SPC, JICA, other donors	125,000

Despite Palau identifying a preference to move away from donor assistance and to be more self-sufficient, government leadership and endorsement of waste management programs can potentially

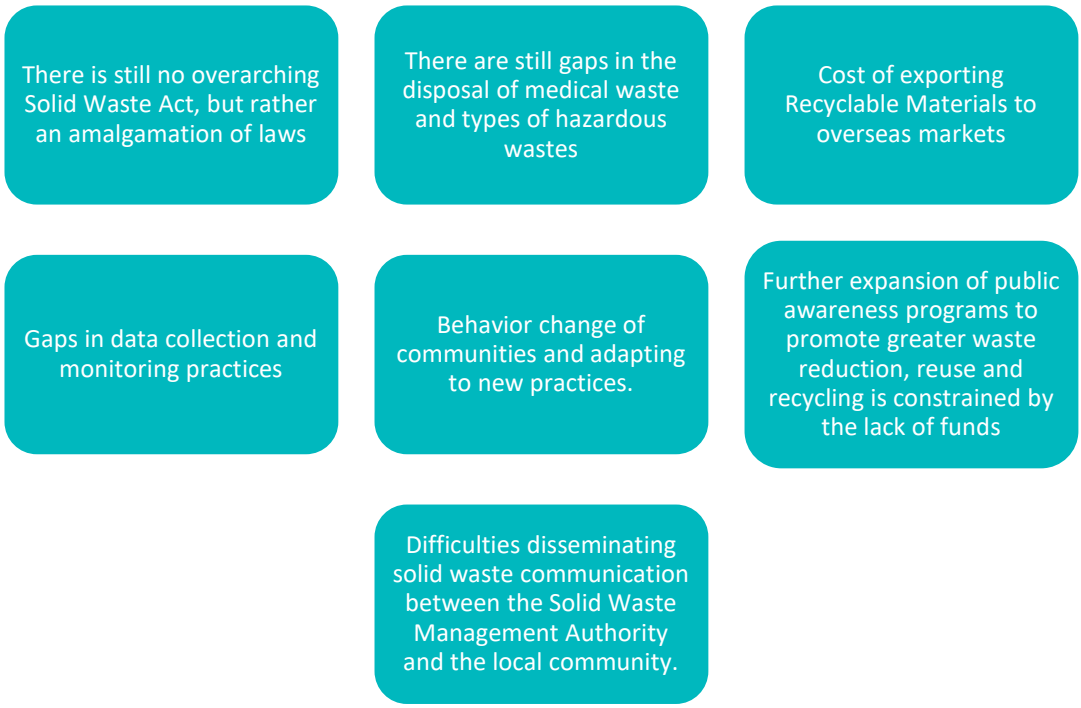
result in attracting increased donor funding. Assistance from contributing partners could include technical, financial, and capital assistance, and would include support through to participation in field monitoring and providing advice.

4.10 Challenges delivering waste management services

Palau's Solid Waste Management Strategy highlights that Palau has already demonstrated good governance and commitment to the protection of the environment, in particular for recovery of recyclable materials. As one of the first Pacific Island countries to legislate a Container Deposit Levy (CDL) system, it now successfully recovers beverage containers and diverts them from landfill. The success of the CDL legislation suggests that further consideration for extending legislative changes considering vehicles, ULAB's, used oil and so forth should be explored. The strategy also suggests that the proposed new legislation can also cover regulation of imported goods through a review of import taxation. The transboundary movement of e-wastes is seen as an unresolved issue which can likewise be included in the legislation (PSWMS, 2016)

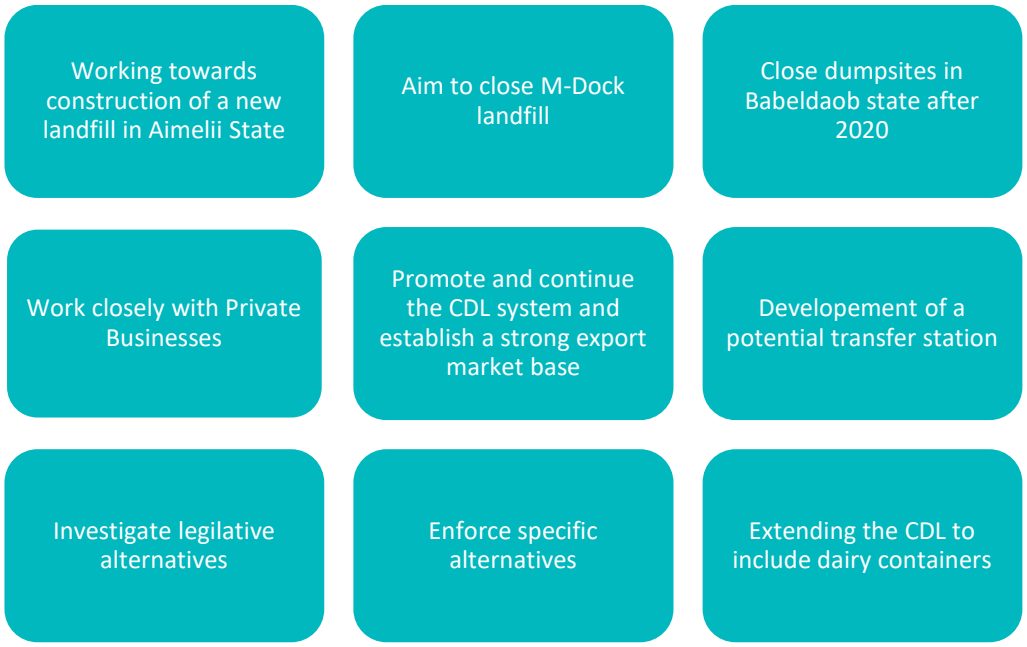
In 2018 the Country Report for the Republic of Palau Eighth Regional 3R Forum in Asia and the Pacific stated that inadequate or absence of legislation and regulation were the largest challenges facing Palau's implementation of recycling programs. Institutional challenges were also reported, as were societal difficulties with the adoption of new practices.

Like many of its neighbouring Pacific Island Nations, Palau has limited shipping ports. Palau has one international seaport and one container terminal both located in Koror and operated by Malakal Port Authority. In 2017 PRIF estimated that the rate for an eighty-foot equivalent unit (TEU) shipping container for non-hazardous goods (inclusive of un/loading, but excluding customs clearance, duties and quarantine inspection) was US$3,860. PRIF also noted that the Port of Koror has a capacity to handle 8,000 TUEs per year, however the throughput at the port reflected 2,800 imports and 200 exports, therefore returning 2,600 empty shipping containers which may be available for reviewer logistics arrangements. Other challenges to delivery waste management services is Palau include:



To date, Palau has taken steps to improve its waste legislation and other initiatives. These include:

In addition to the achievements above, Palau has some major plans and projects for the future of waste management including:


Working towards construction of a new landfill in Aimelii State
Aim to close M-Dock landfill
Close dumpsites in Babeldaob state after 2020
Work closely with Private Businesses
Promote and continue the CDL system and establish a strong export market base
Developement of a potential transfer station
Investigate legilative alternatives
Enforce specific alternatives
Extending the CDL to include dairy containers

2019 Waste Audit

5

5 Methodology

In November 2019, the consultant team, with support from EQPB, Department of Solid Waste and Koror State, undertook an extensive waste audit as per the published methodology used previously for waste audits in Tuvalu.

5.1 Waste sampling distribution

5.1.1 Households

This section provides information on how the waste data collection works were undertaken in November 2019 (Koror, Babeldaob Island, Kayangel and Angaur). Advice was sought from the APWC statistician who provided a number of sampling options that would provide an appropriate and reliable data set. The in-country sampling scheme to be undertaken was to be chosen from the four options below, based on the operational constraints. The different sampling schemes for household samples required are shown in Table 27 below.

Table 27: Households sample collection and confidence found prior to collecting samples

Scheme	Error at 80% Confidence	Error at 90% Confidence
105 Koror, 45 rural sites	17%	22%
90 Koror, 30 rural, 30 rural #2	15%	20%
110 Koror, 45 rural #1, 45 rural #2	14%	18%
100 Koror, 40 Airai, 30 rural #1, 30 rural #2	13%	17%

5.1.2 Commercial Samples

Commercial samples change quite substantially between countries. For this reason, APWC adopted a uniform sampling strategy, assuming no manufacturing for the places in question. Since hotel and supermarket samples often contribute a large amount of waste even if they are limited in number, these samples were especially used to reduce error (Table 28).

Table 28: Commercial sample collection and confidence found prior to collecting samples

Commercial	Error at 80% Confidence
20 Koror, 10 rural #1	24%
20 Koror, 5 rural #1, 5 rural #2	24%
25 Koror, 10 rural #1, 10 rural #2	20%

This would yield an estimated error of 1.0 kg/business/day or 24% at 80% CI.

5.1.3 Other data

In order to get a complete understanding of the waste generation rates, the following organisations were contacted to provide further data:

- Palau Environmental Quality Protection Board (EQPB)
- Koror State Department of Public Works for support with audit
- All state governments
- Division of Solid Waste Management, BPW, MPIIC (National)
- All landfills visited and stockpiles examined
- Recycling Center

5.2 Sample Collection

During the three-week mission to Palau in November 2019, APWC were able to collect a wide range of data from Koror, Babeldaob, Kayangel and Angaur. The number of household and commercial samples are highlighted in Table 29 and Table 30 below.

Table 29: Data collected for Palau audit – household samples

	Number of samples collected						
Sample type	**Koror**	**Airai**	**Aimeliik**	**Melekeok**	**Angaur**	**Ngarchelong**	**Kayangel**
Household samples	76	23	18	20	5	20	15

Table 30: Data collected for Palau audit – commercial samples

	Landfill samples	**Samples collected on- site**
Commercial samples	18	21

5.2.1 Households waste samples

Based on the required samples, a total of 177 household samples were collected: 76 from Koror Island; 81 Babeldaob Island; 15 from Kayangel; and 5 from Angaur. The methodology required collection of samples from households across the small urban, regional and rural areas. Figure 28 below displays the location of samples collected throughout Palau.

The consultant team used an online tool to collect all data. A collection sheet is provided in Appendix C. The process of waste sample collection was as follows:

Figure 26: Sample collection locations in Palau

- A collection supervisor and recorder marked the location of a sample using the GPS coordinates and at the same time took photos of the premises for follow-up interviews and inserted notes on the nature of the collected samples (e.g. bin fullness, how much waste collected for sampling, how much was left, types of waste, etc.).
- The second member(s) of the team assessed the nature of the waste and provided information to the recorder as well as collecting the samples using the trash bags by emptying the contents of the bins into the trash bags and placing them in the truck for transportation to the sorting area at the landfill.
- The third member marked the households or commercial premises using ribbons (as tags) tied to a nearby tree, property fence or gate for easier identification later during the follow-up interviews. The household numbers recorded must be the same as the numbers written on the trash bags and the ribbons (tags). This task was performed by local staff or a worker.

Figure 27: Collecting household samples for sorting. (Source: APWC, 2019)

All data during fieldwork is entered using an electronic tablet. The photos of the premises and the filled sheets are stored and sent to APWC statistician for analysis at the end of each day. This electronic method of recording information in the field was an improvement from the usual manual filling and scanning of the filled survey sheets and manual data entry on a computer.

5.2.2 Commercial waste samples

Commercial samples from small shops, offices businesses, hotels, supermarkets and restaurants (21) were collected along with the household samples. The methodology remained the same for both households and commercial premises.

5.2.3 Interviews (Households and Businesses)

The interviews were conducted by the APWC team with assistance from staff of Koror State and EQPB who provided some translation when needed (Figure 28). An e-copy of the survey questionnaire was used to record the responses from households and businesses using tablets or phones. All the filled questionnaires were automatically stored in the cloud and sent at the end of the day to the APWC office in Sydney for analysis.

Figure 28: APWC interviewing household in Koror State with translator from EQPB. (Source: APWC, 2019)

The interviews were the most time-consuming task of the fieldwork conducted in Palau with an average of 20 to 30 minutes per households. Additionally, houses were often empty, so members of the team had to return after working hours. In order to mitigate this, two to three survey teams were used to speed up the interview process.

The interviews covered the following master list of questions. Further questions were added or deleted based on local assessment by the consultants.

- Demographic information
- Income levels
- Disposal behaviour by material type
- Willingness to pay for collection/ disposal systems
- Current recycling behaviours including further source separation
- Level of awareness about the current waste service
- Type of premises
- Access to amenities (electricity, sanitation, stormwater infrastructure, etc.)
- Consumption habits

The questionnaires are designed specifically for each country based on the local conditions, language and culture, ensuring the above criteria is included. APWC's experience is that it is more successful to have the questionnaire in English and undertake the interviews with the help of interpreters. In cases where questionnaires were translated, we found that the language could be misleading, and the answers might not be an accurate reflection of the questions asked.

5.3 Sample sorting

Koror State provided a shed for the sorting and an outdoor area to organise collected bags (Figure 29). The sorting area consisted of three rectangular tables for the sorting to be done quickly rather than on the ground level. The work was divided into three stations: total waste-bag weight; separation of items found inside each bag (Figure 31and Figure 30Figure 29); and quantification of each individual item (Figure 32).

Figure 29: Organising the collected samples. (Source: APWC, 2019)

Figure 31: Sorting team from Koror State and APWC sorting samples (Source: APWC, 2019)

Figure 30: Koror State working with the APWC team to separate samples (Source: APWC, 2019)

The waste bags were weighed one by one and the weight was recorded in the electronic forms. Each waste bag was opened and the contents were carefully spread and sorted to different waste items.

Figure 32: Weighing sample of butane gas bottles used for cooking. (Source: APWC, 2019)

Figure 33: APWC and Koror State sorting the samples, weighing and entering the data. (Source: APWC, 2019)

Separated materials were placed in different containers to be quantified. Items were weighed using an electronic scale and the weight was recorded using the electronic forms. In order to maintain the high level of accuracy, consultants brought pre-calibrated electronic scales from Australia. The items were counted and volumetrically analysed.

A separate count of beverage containers for all general waste samples was also undertaken. Containers from the samples were stored and counted separately. Containers were stored and labelled to ensure no cross-contamination took place. Containers were sorted by size (for example 100 ml, 250 ml, 500 ml), material type (plastic, aluminium, metal, tetra-pack) and product type (for example, milk, juice, etc.).

Further, all plastic bags and takeaway containers were sorted into different types. All sort data was added to the sorting form on the tablet using the categories listed in Appendix D.

5.4 Landfill audit

The consulting team visited all nine disposal sites currently receiving waste in Palau. The visits consisted of a visual audit and capturing of information then recorded in paper forms. Information included:

- Population disposing waste at the site
- Collection coverage, frequency, fee and method (including type of vehicle)
- Disposal site area (in metres)

- life expectancy for the site
- visual description of the site.

An in-depth quantitative audit was performed at the M-Dock Landfill in Koror State. This audit was undertaken by two local workers under the supervision of Matthew Glendenning. The consulting team trained two DSWM Workers (National Government) to collect data following the best-practice standards adhere to by APWC. One auditor was located at the entrance of the landfill and the second auditor collected data at the tipping point. Data was collected for two weeks. Auditors were equipped with mobile phones, high-visibility safety vests, sunscreen, wet weather gear, safety boots (with steel base to prevent any penetration) and some drinks. Data sheets were filled in on paper forms which were covered with weatherproof clipboards, if needed. The forms were scanned every night and sent to the Sydney office, where they were transcribed into digital format and sent to APWC's statisticians. The categories and information recorded for each vehicle are provided at Appendix D, Appendix F and Appendix G.

Figure 34: Employee from DSWM (National) undertaking data collection at the M-Dock Landfill in Koror State. (Source: APWC, 2019)

All data was recorded in a consistent manner as liters of the load on a standard data sheet. Space was provided on the form for inclusion of other items found in significant quantities, where appropriate. Recording sheets were pre-numbered to ensure all were accounted for after the audit.

All auditors recorded the following information:

- Date and time of the vehicle arrival
- Registration number
- Vehicle type
- Vehicle volume
- Composition of the load
- Degree of compaction
- Photographs of specific loads of interest (taken by the assessors).

Figure 36: Waste being dropped off at the landfill by a compacting truck. (Source: APWC, 2019)

Figure 35: Waste being dropped off at the landfill by a flat back truck (Source: APWC, 2019)

Figure 38: Pickers at M-Dock Landfill collecting beverage containers for a private company that then collects the 5c per container. (Source: APWC, 2019)

Figure 37: Workers dropping off logs from flat back truck (Source: APWC, 2019)

5.5 Work, Health and Safety

APWC has an integrated management system used during audits that covers quality, health, safety and environment (QHSE). The system has been developed to be consistent with the requirements of the international standards ISO9001 (Quality), ISO14001 (Environment) and AS4801 (Occupational Health and Safety).

The following steps were undertaken to ensure that APWC staff, as well as those being trained to undertake the work, were always safe:

- Site-specific safe work method statements (SWMS) were developed
- A pre- and post-work commencement risk assessment was undertaken
- The APWC collection and sorting supervisor undertook QHSE inductions for project staff
- All staff were trained in the waste audit code of conduct developed by APWC, which includes a requirement to sign a confidentiality agreement prohibiting staff from removing anything from the material they sort or from revealing any information they might obtain while sorting or auditing
- Adjustments were made to ensure safety of staff based on local conditions. APWC's collection and sorting supervisor had full control over local safety requirements to ensure all work was being conducted in a manner protecting the health and safety of the staff.

5.6 Staff training

Figure 39: Meeting to discuss audit process with local staff (source: APWC, 2019)

The consultant team was able to train staff from the Koror State Solid Waste Management. APWC believes that the staff in Palau would be able to replicate this audit in the future, if required.

5.7 Community Engagement

The APWC team was involved in two community activities as part of its stay in Palau. They participated in a beach clean-up in addition to delivering waste management talks at schools.

The beach clean-up was conducted at Ngarchelong and was organised to celebrate the Palau Conservation Society's 25th birthday, with the support of Koror State Waste Management, EQPB and two members from APWC to carry out the clean-up. Prior to the clean-up, the APWC team shared current best-practice methodology for quantifying marine

litter with Koror State Solid Waste Management. These methods were not used on this occasion, but instead the Ocean Conservancy method used previously was employed for consistency.

Figure 40: Beach Cleanup at Ngarchelong Beach accompanying Palau Conservation Society on their 25th Birthday with the attendance of local schools and the help of Koror State and EQPB. (Source: APWC, 2019)

APWC visited two schools and delivered waste management talks in relation to littering, the consequences of plastics in the ocean and the importance of behavioural changes such as reducing consumption of single-use plastics, picking up litter and composting. The talk was delivered to the entire student body at Primary Public School of Koror and year 6, 7 and 8 at Marris Stella Private School. In total, APWC delivered educational information to 175 school children.

Figure 41: Talking and presenting videos to Primary Public School in Koror, Palau. (Source: APWC, 2019)

Figure 42: Year 6 and 8 at the Maris Stella Private School, Koror, Palau. (Source: APWC, 2019)

Audit Findings

6

6 Waste Generation in Palau

6.1 Waste services

Households and commercial properties across all surveyed states reported waste service levels were high. In Koror and Airai, for example, 92% of respondents reported a waste collection of some form. In rural states, 72% of respondents reported receiving waste collection. During auditing in other Pacific countries, APWC found many rural centres have no waste collection.

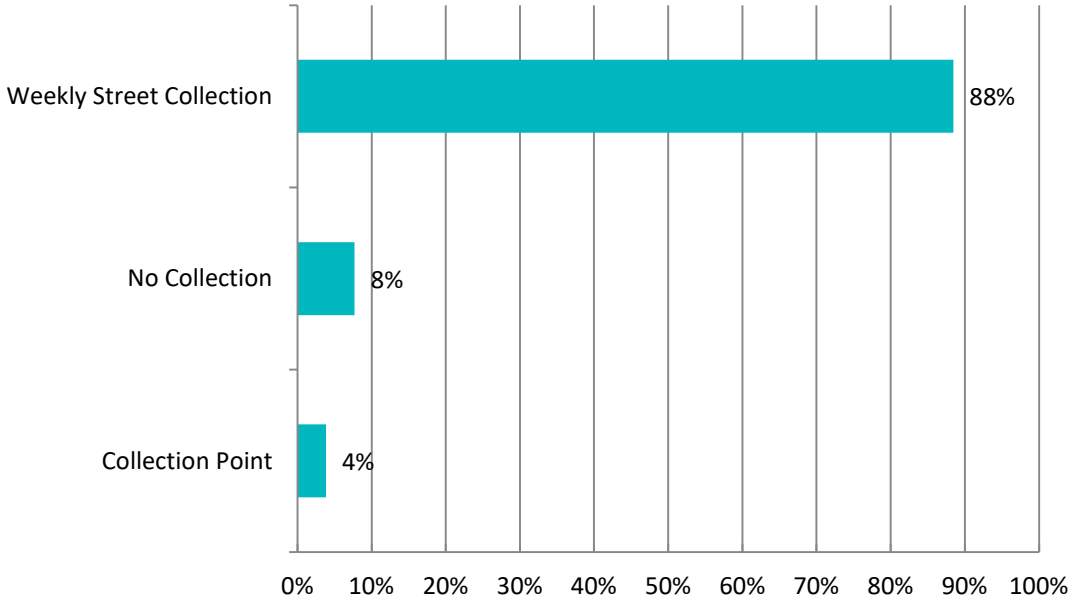


Figure 43: Regional household waste collection method count

For houses reporting no waste collection, it appears large quantities of waste are being sent to landfill, dumps or recycling cent, with 77.78% of waste properly managed (collected in a secure receptacle and not dumped to land or waterway or burnt) without a collection service provided (Figure 44). Surprisingly, waste at collection points showed less conformity to proper management compared to no collections at 72.82%. This suggests more education and guidance is required for households taking their waste to the newly installed segregation stations. Unsurprisingly, houses with door-to-door collection reported the highest rates of proper waste management, with 90.71% of waste correctly managed.

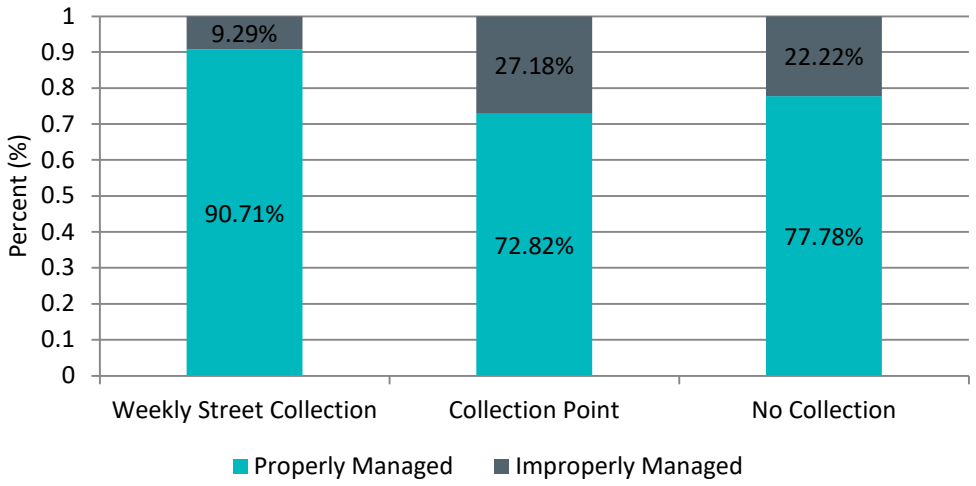


Figure 44: Waste disposal management in Palau

6.2 Household generation rates

The aim of the waste audit is to determine the total amount of material being generated in various parts of each country so that the quantities to be collected, compacted and moved can be projected as accurately as possible. A model of waste generation rates was constructed based on the household and commercial data collected, including the available disposal data, to determine what the data revealed about waste generation characteristics and how it varies with households and the commercial sector. APWC field teams collected four datasets relevant to determining waste generation rates, as follows:

- A volumetric audit of waste entering the M-Dock Landfill
- A detailed audit of the waste generated by commercial premises in Koror and the waste generated by households in seven states including Koror and Airai
- Interviews of commercial premises owners and households with regard to their waste generation habits
- A review of current stockpiles of batteries, e-waste, metals and tyres.

The following features were investigated as predictors of household waste generation. Household-level predictors are:

- Total monthly household income (from all employed members of the household)
- Monthly household spending on groceries
- Number of people in the house
- Number of children in the house
- Household rating of collection service.

Town-level predictors are:

- Whether or not there is a collection service in the house area
- How often waste is collected if there is a service
- Average household income for the town where the house is located
- Average grocery spending for the town where the house is located
- Population of the town where the house is located.

The best results were obtained using only a single predictor: the town population. The models that best fit the generation data are different, based on the variability of waste generated versus the characteristics measured. Therefore, the model that fits the data will be different for each country but can be easily determined by modelling the data collected versus the potential predictors of generation. The generation rates are then checked against actual disposal rate data made available through the landfill/dumpsite audits.

Household generation rates for small urban (Koror), regional (Airai) and rural areas (Ngarchelong, Aimeliik, Melekeok, Kayangel, Anguar) were in line with a broader pattern observed across other developing countries audited by APWC. Settlement population is highly predictive of household generation rates across countries. We have found that household generation rates are well approximated by the formula:

$$HH\ Generation\ \left(\frac{kg}{hh \cdot day}\right) = 0.4 \ln(population) - 2$$

This formula gives the following results (Table 31) for small urban (Koror), regional (Airai) and rural areas (Ngarchelong, Aimeliik, Melekeok, Kayangel, Anguar):

Table 31: Waste generation rates

	Palau state	Predicted household generation (kg/hh/day)	Palau household collected waste generation[2]
Small urban	Koror	1.56	0.90 (0.75–1.05)
Regional	Airai	1.00	1.09 (0.86–1.33)
Rural area	Ngarchelong, Aimeliik, Melekeok, Kayangel, Anguar	0.44	0.68 (0.60–0.76)

However, the predictive model was not used because actual sampling was undertaken for small urban, regional and rural areas. The model is useful for future predictions if decisions around ongoing material

[2]It is worth noting there is a caveat relating to household generation. The APWC audit found that approximately 45% of household waste generation was self-hauled in Koror (figures for other states are unknown as were not collected) or 0.8kg/household/day. Using this data, Koror's true household waste generation would be around 1.7kg/household/day, however this figure is not directly comparable to the figures for other states or countries as in previous countries we also did not account for self-hauled waste.

generation are to be made. The model can be applied to understand the potential generation rate of these materials.

APWC modelled the degree of urbanisation of a settlement and its large impact on the waste generation rate which was found to be a factor in previous studies. However, in Palau this tendency was not as strong as that observed in other countries audited (including Tuvalu, Belize, Vanuatu and the Solomon Islands). In particular, household waste generation in Koror was substantially lower than similarly urbanised centres in other Small Island Developing States (SIDS), however waste generation in Airai and rural centres was comparable to similar centres in other SIDs, as shown in Figure 45. It is worth noting that there is substantial regional variability in these figures, so exact agreement is not expected. However, the biggest difference between Palau and countries previously sampled, for example, Vanuatu, is the connectivity between the urban centre as well as the regional centres sampled. The high connectivity through good roads leads to materials being easily available to consumption.

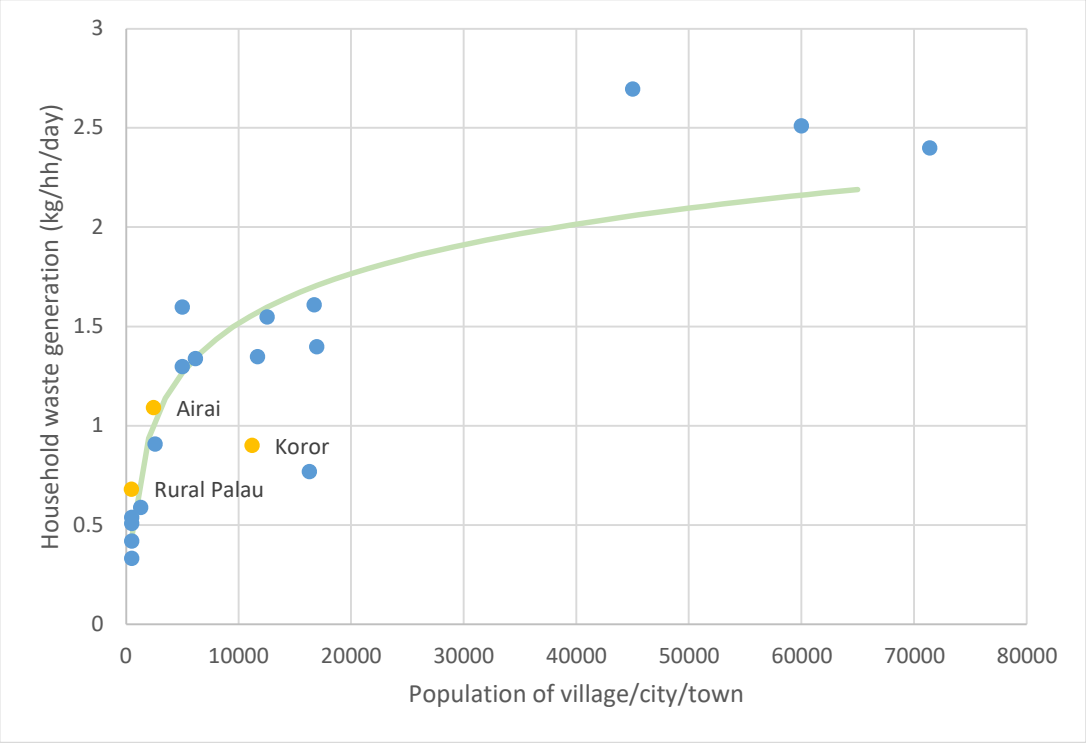


Figure 45: Household disposal rates compared across countries

To further support these findings, data from the APWC audit undertaken in November 2019 found that households in regional areas of Palau produce on average 1.1 kg of waste per household per day, 200 grams more than households in small urban areas and 400 grams more than households in rural locations, as show in Figure 46 below.

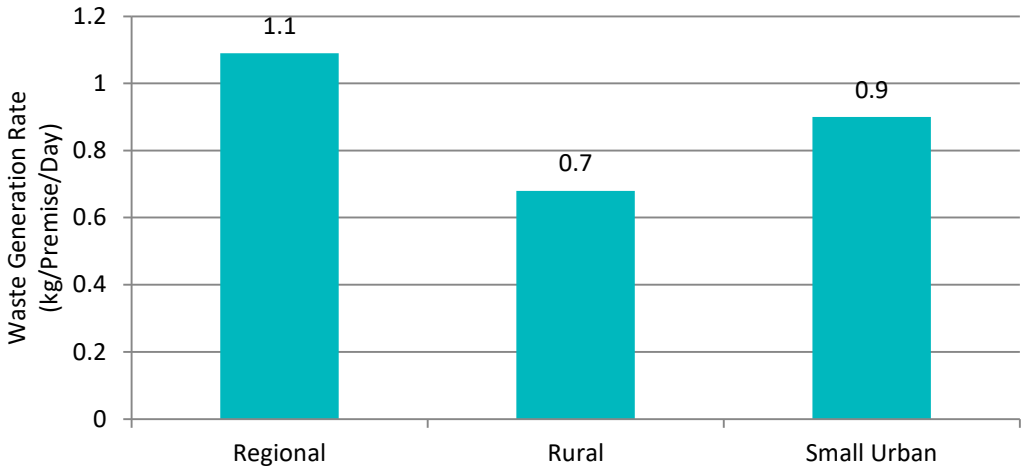


Figure 46: Household waste generation rate by (by weight) regional vs rural vs small urban

6.3 Commercial waste generation rates

In comparison, waste generation rate from commercial premises in small urban areas was 1.51 kg/premises/day, as shown in Figure 47 below.

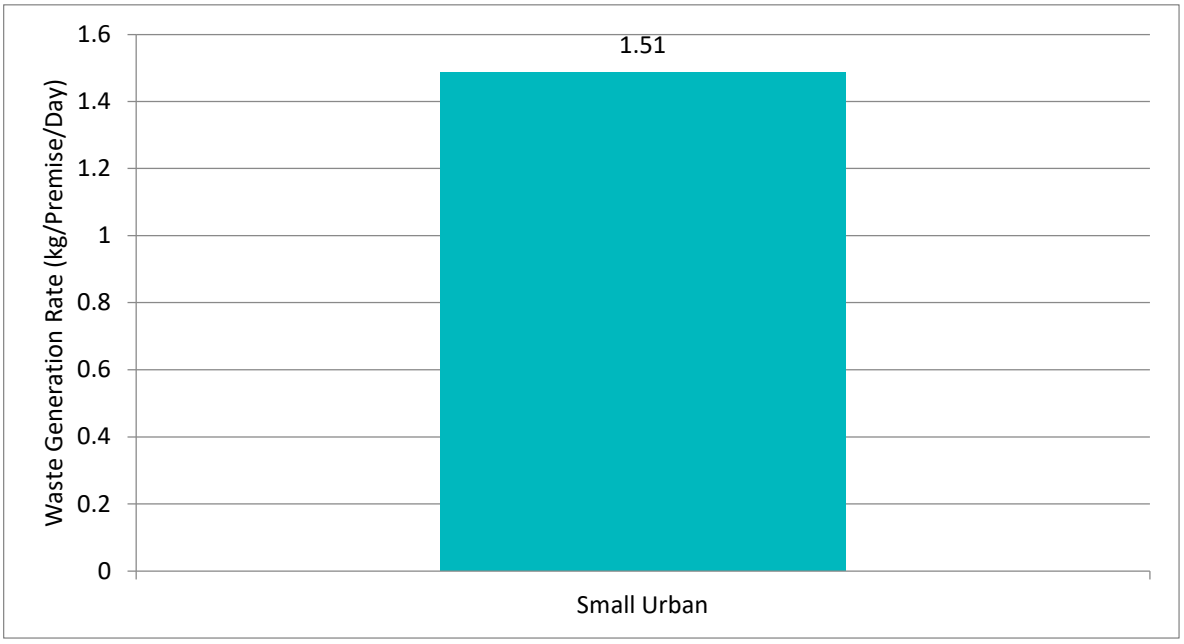


Figure 47: Commercial waste generation (by weight) by rate small urban locations

6.4 Waste composition

Waste composition was similar across the three urbanisation categories studied, with most differences aligning with the expected sampling variance.

Organic waste, plastics, hygiene waste, and paper and cardboard were the most proficient waste streams across the three sample areas (regional, rural and small urban). Despite the small urban area (Koror State) offering on-request collection services for organics (green waste) and plastics, and a collection service to 40 households for food waste, the composition would suggest that these services are not fully utilised, with 29.99% of organic waste and 16.70% of plastics making up 46.69% of the total waste composition.

Hygiene waste contributed to more than 10% of waste across all areas, especially in regional areas, where it was 18.36% of the waste stream. APWC discovered diapers made up a significant proportion of this waste stream, which correlates with similar findings in other PICs. Recyclable materials including plastics, paper and cardboard and metals are shown to make up a large proportion of the waste stream: 20.61% in regional areas; 41.75% in rural areas; and 40.29% in small urban area.

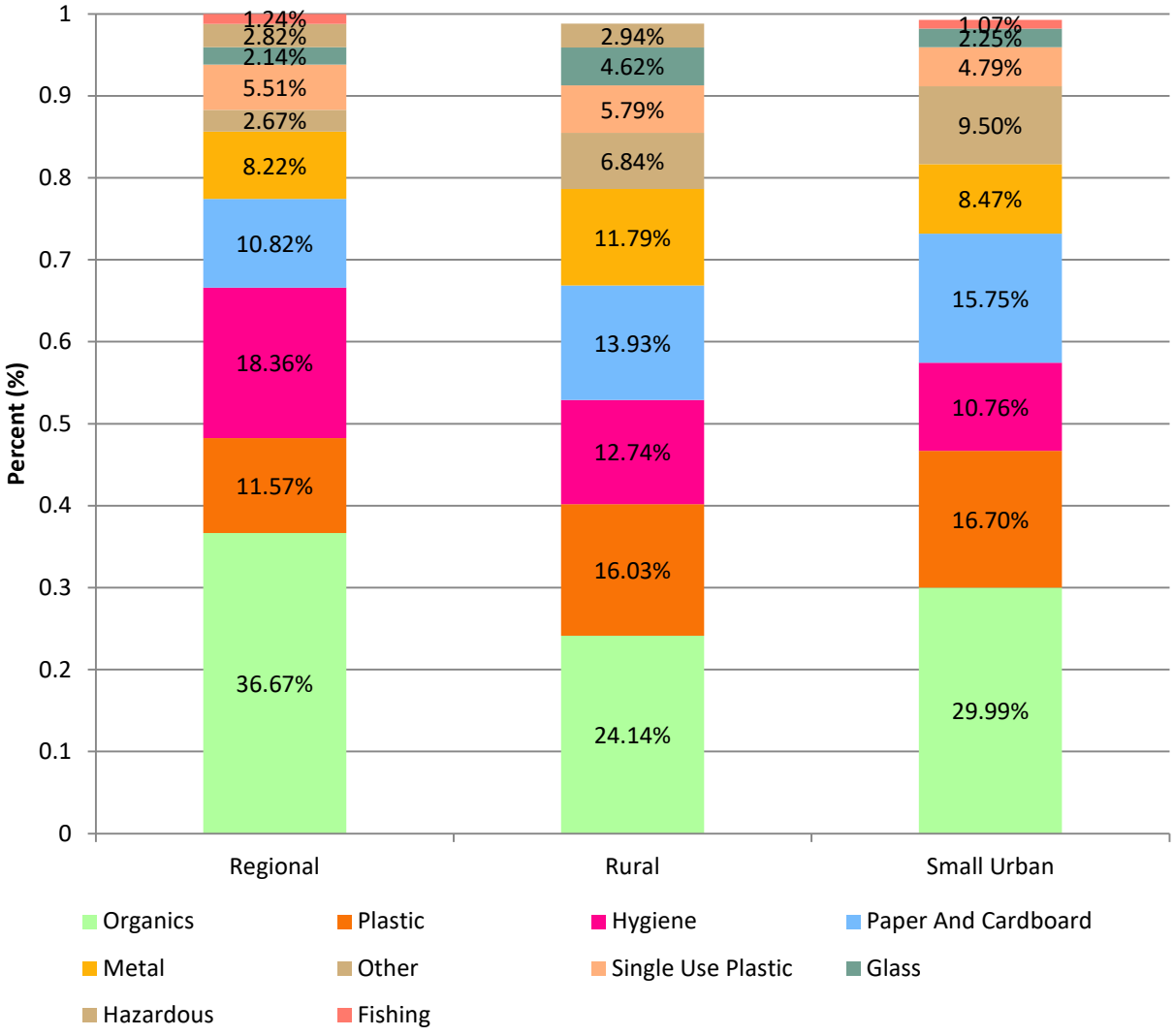


Figure 48: Household waste composition by location category (weight)

Figure 49 below outlines the 10 items by weight collected during APWCs waste audit in Palau.

Food waste is the largest waste type generated daily by households, which is in line with other waste audits undertaken in other SIDs. Interestingly, the majority of the remaining waste composition are recyclable materials. Cardboard accounts for 130 grams or 16.88% of household waste per day, and diapers 90 grams or 11.68%.

Despite a ban, plastic bags were found to be in the top 10 waste items for Palau by weight as show by 'bags light supermarket' in table below equalling 2.59% of household waste produced daily. This is unsurprising given the plastic bag ban was implemented on the day the consultant team arrived in country. This audit should therefore serve as a baseline to determine the performance of the bag ban for the future.

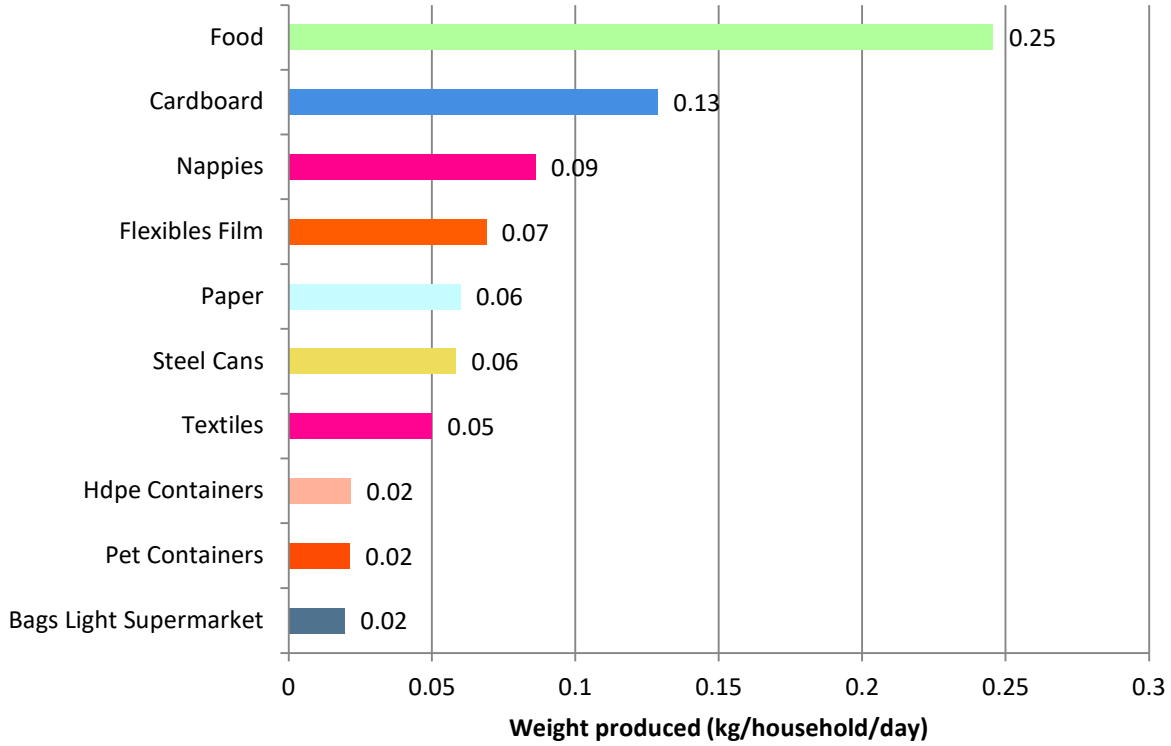


Figure 49: Top 10 waste items (by weight)

By weight, food was the most common waste item found, comparable to Vanuatu and the Solomon Islands where food made up approximately 25% of the overall waste quantity. In Tuvalu, where there is an extensive practice of feeding food scraps to pigs, food waste constituted around 17% of the waste stream.

Nappies were a major component of the waste stream, while recyclable drink cans and bottles such as PET containers formed a relatively low proportion of items found. PET containers contribute around 2.5% of the Palau waste stream, in comparison to Tuvalu where they make up 5.7% of the waste stream. This can be attributed to the successful CDL scheme in place.

6.5 Estimation of waste to landfill

APWC found waste characteristics were similar across different states. Therefore, the overall quantity of waste coming into the M-Dock Landfill in Koror was determined and then waste generation elsewhere in Palau was assumed to share similar composition characteristics, taking into account (on average) waste generated in Airai and regional states was at a rate 10% lower than Koror.

The detailed volumetric sort was combined with the volumetric landfill sort to determine the overall composition of waste arriving at the M-Dock Landfill, as show in Figure 50 below.

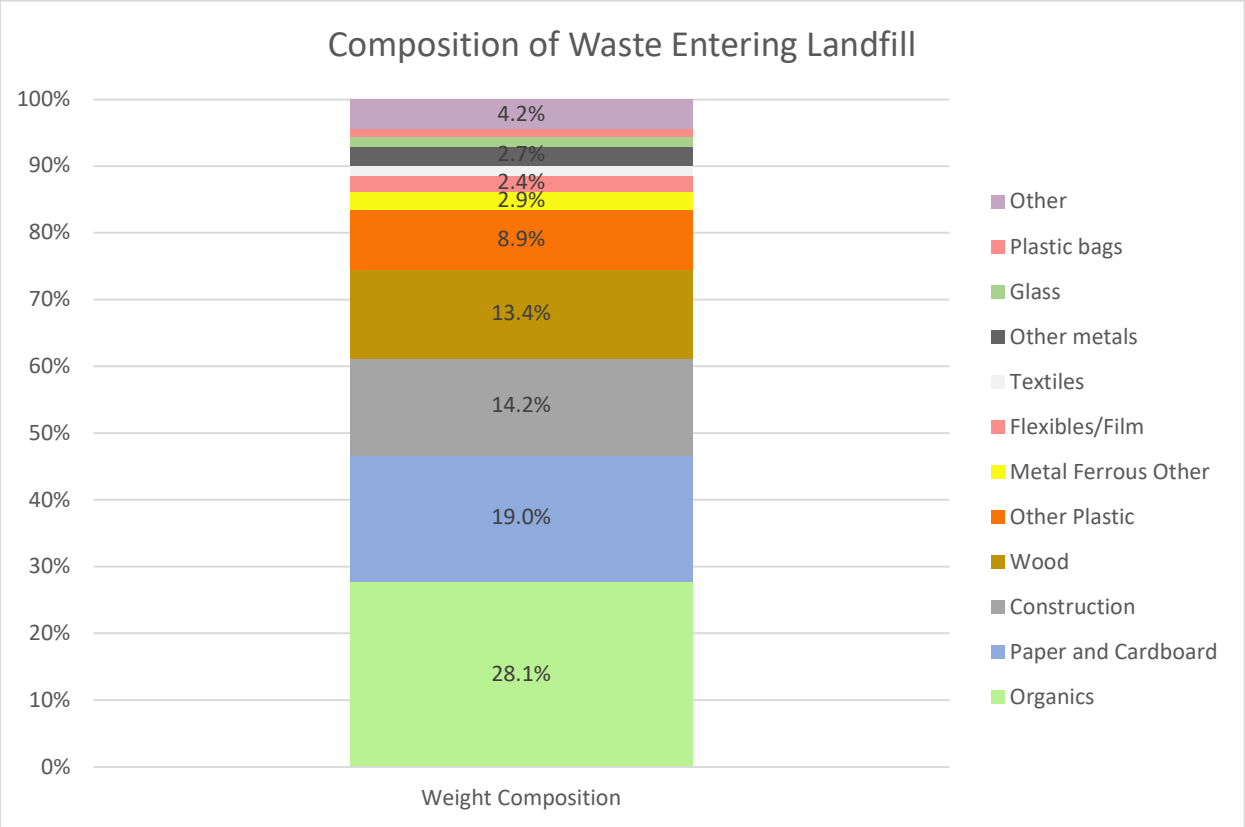


Figure 50: Composition of waste entering landfill

APWC data recorded wet weights of waste, for example, the weight of PET generated included the weight of any contents of PET bottles in the waste, which were often dirty with betel nut residues. To determine dry weights of generated waste, conversion factors from three sources were gathered, including the US EPA 2016, 'Sustainable Learning' conversion factors to determine loose and compacted waste densities. In addition, it is possible to determine the average bottle weights from data received from the Palau's Deposit Beverage Container scheme and therefore APWC was able to determine the dry densities of PET bottles, aluminium cans and steel cans with residual liquids. These figures were found to be a consensus match for published waste-density figures as shown in Table 32.

Table 32: Published vs computed density for PET bottle and aluminium and steel cans

Container	Published density (kg/m^3)	Computed dry density (kg/m^3)
PET bottles	25	26
Aluminium cans	50	43
Steel cans	50	70

APWC noted that waste arrived at the M-Dock Landfill in both compactor vehicles and in uncompacted form. Our landfill audit observed a similar number of vehicles arriving to that observed during a waste audit conducted by J-PRISM II in 2017, for example, APWC data observed an average of 79 trucks per day, while Konno observed 76 trucks on average.

APWC chose to determine the average density of waste in arriving trucks based on comparing load sizes with load weights for similar trucks in Konno's data. (Konno obtained weight data using a mobile weigh bridge.)

We found that compactor trucks appear to carry waste with an average density of 420 kg/m^3 while other vehicle types carry waste at a density of 250 kg/m^3. These densities are both reasonable for compacted and uncompacted waste, respectively.

The total generation rate thus estimated for the M-Dock was 23.8 tonne/day of incoming waste. This was slightly lower that the estimate provided by Konno of 27.1 tonne/day, although the difference between these figures is not statistically significant.

6.6 Recovery

Recovery rates were estimated from a number of sources including:

- Palau DSWM figures on beverage container recovery rates
- Palau Customs' export figures for certain categories of recyclables
- Data on stockpile sizes around Palau
- Data on quantities of recyclables entering the Palau recycling facility.

The figures for imports obtained by AWPC were approximate. APWC estimated recovery rates of 70%, 80% and 27% for PET bottles, aluminium cans and glass bottles (respectively) – which is 72% overall – whereas Palau DSW estimated an overall recovery rate of 90%. These differences stem from variable estimates of imported quantities. DSW estimates may be more precise, depending on how quantities were calculated or if its figures on the number of imported Deposit Beverage Container bottles are also approximated. Both sets of figures may be viewed as independent estimates of the recovery rates.

6.7 Leakage rates

Overall, APWC figures give a best guess of 45% leakage[3]. Leakage is defined as the amount of material not being collected and disposed of appropriately i.e. into the landfill or collected through the recycling systems.

A rough calculation of uncertainty due to these assumptions indicated a range of possible leakage values from 27–56% (70% confidence level). The vast majority of this uncertainty is due to assumptions made, not due to sampling numbers. The main sources of uncertainty are:

1. Density of waste arriving at the landfill
2. Conversions between units in customs data
3. Lifespans of the articles arriving
4. The proportion of imported articles that are consumable
5. Local production
6. Modelling uncertainty (whether, for example, our accounting for material lifespan is appropriate).

We recalculated a leakage figure excluding categories with substantial local production (construction and organics) to try to ascertain how assumption 5 (local production) affected the overall estimate. Excluding these categories yielded a similar leakage estimate of 50%. Excluding these categories (which are two of the largest) yielded a range of 29–57% with a similar level of confidence.

This figure is substantially higher than leakage figures estimated by householders when they were interviewed. This figure was 15% and was averaged across the different waste disposal categories, weighted by the number of houses receiving different levels of service. This figure is within the confidence interval of the leakage estimate. It is possible that overall leakage rates are higher than household leakage rates. These figures are accurate if the majority of leakage comes from non-household sources. It is also possible that householders underestimated rates of leakage in interviews. The data available is not able to address the question of sources of leakage.

APWC is currently conducting similar leakage analysis in a number of PICs, however, it has no comparable analysis from other countries for comparison with Palau. APWC notes, however, Palau is well advanced in managing and recycling its waste when compared with other countries recently visited. Even at the lower

[3] While we are able to display leakage estimates per category, these are much less reliable than the overall estimate. These estimates are particularly sensitive to material crossing between categories – for example, if a material was imported as LDPE but logged as flexibles/film in the waste audit, this will cause the leakage figure for LDPE to appear very high and the leakage figure for flexibles/film appear very low.

range, a leakage figure of 27% overall is concerning and demonstrates increased effort is required to encourage better waste management in PICs overall.

6.8 Recycling

Table 33: Potential recycling rate and potential tonnes/year and landfill space saved annually (source: APWC, 2019)

	Portion of MSW %	Current recycling rate %	Potential recycling rate %	Potential recycling tonnes/year	Potential landfill space m^3/per year*
Beverage containers		85-90%			
Motor vehicles		32%			
Scrap iron		38%			
Ferrous metal		55%			
Aluminium cans		33%			
Paper & cardboard	33%	0%	30%	711	1,341 m^3
Plastics - flexibles/film (LDPE)	10%	0%	30%	100	362 m^3
Plastics - PVC		0%	30%	157	254 m^3

*Potential saved per year if compacted to 900 kg/m^3

Statistical analysis of data captured was able to ascertain that:

- There are very good recovery rates for drink containers, consistent with the Palau 's Department of Solid Waste figure of an 85-90% recovery rate (our methods are too uncertain to precisely confirm or refute the figures from DSW)
- The recovery rate for motor vehicles was 32% and scrap iron 38%, which is higher than any other PIC visited by APWC
- A number of categories of recyclables are imported or disposed of in large quantities but do not appear to be recovered at the same rates
- The estimated recovery rate for ferrous metal was 55% and aluminium cans in addition to aluminium other was 33%
- APWC was not able to find a contractor currently capturing paper and cardboard for recycling, but this material alone accounts for around 33% of the waste volume in the landfill. Capturing 30% of paper/cardboard would yield 711 tonnes/year of recyclables and save 1,341 m^3 of landfill space per year
- Plastics categorised in the waste audit as 'flexibles/film' accounted for around 10% of waste volume. Film plastics are likely to be substantially composed of recyclable plastics such as LDPE, which do not currently appear to be captured in the recycling stream. A capture rate of 30% would yield 100 tonnes/year of recyclables and 362 m^3 of landfill space annually;
- Capturing PVC at a rate of 30% would yield 157 tonne/year of recyclables and save 254 m^3 of landfill space annually.

Available Materials

7

7 Materials available for future recycling in Palau

Compiling household and commercial waste data is the first step in estimating the total amount of material generated in each country so that the quantities of materials to be collected, compacted and moved can be projected as accurately as possible. A number of other sources of data were used to generate the quantities of materials available and currently being landfilled or stockpiled on the Koror and Babeldaob Island.

7.1 Total quantities of materials available in Palau

The waste generation rates for household and commercial premises, stockpile data and data collected directly from other sources such as the customs department, allows us to estimate annual waste generation per island in tonnes per year and cubic metres (m^3) per year.

7.2 How the estimates were developed

7.2.1 Sources of data:

Table 34: Sources of data

APWC data from November 2019 waste audits	Other sources of data
• Household audit results • Commercial audit results • Landfill audit results • Transfer station stockpile audit results	• Import data: bulky and long-lived waste

7.2.2 Estimating bulky and long-lived items

To estimate waste generation of long-lived, bulky or hazardous items found in stockpiles rather than at the landfill, APWC took the average of imports from 2010 to 2018 and postulated that this rate is constant over approximately 10 years, and that items have a lifetime of approximately 10 years, thus licensing us to use the average rate of imports as an average rate of waste generation.

The World Bank (2018) estimates Palau's GDP growth at 1.70% p.a. since 2001. The rate of GDP has been as high as 10.07% in 2015 and as low as -6.26% (negative growth) in 2009 so a degree of growth and recession of imports might be expected. However, the customs data obtained by the consultants was for a two-year period from 2016–2018 and gave no reliable reading on the rate of growth in imports. A dataset tracking at least 20 items for the entire 2010–2018 period might be able to provide a useful estimate in the rate of growth from this period.

Import quantities were taken from the Palau Customs' database from 2016, 2017 and 2018. The data obtained were subject to a conservative cleaning procedure to remove entries that showed strong indications of being erroneous (e.g. import quantities that were a thousand times larger than all similar import logs).

APWC applied a model mapping from 4,402 different Harmonized System codes (HS codes) to our 40 waste categories, together comprising 82% of all imports to Palau by value. Expert judgement was used to determine how each HS code represented a certain quantity of waste in each category as well as a certain quantity of consumables that would not be found in the waste stream. For example, the HS code heading 2201, representing bottled water, was determined to represent by weight 96.038% consumables (i.e. water), 3.24% PET waste, 0.27% aluminium waste and 0.452% glass bottle waste.

In addition, import categories were assigned a lifespan, which represents the length of time the articles are expected to be in circulation before their disposal. As import categories contain a variety of different articles, these lifespans are imprecise. For an item with a lifespan of 10 years, we assume that 1/1.01210 = 88% of the quantity imported is expected in the waste stream. This reflects the supposition that 10 years ago, Palau's imports were 12% less than today; the factor of 1.012 comes from the fact that Palau's year-on-year GDP growth rate in constant dollars was 1.2% from 2000 to 2017.

It was also necessary in some cases to convert from a measure of individual units or volumes to weights. This was done by figuring out a price per weight for imports of similar items and then using this to determine weights of items for which weights were not recorded.

The main sources of uncertainty in the resulting calculations are:

- Whether all the relevant codes were found to determine the imports of a particular category. For an extreme example, a huge number of items come packaged in cardboard boxes and the import model used doesn't account for all such items
- The accuracy of the judgements of how HS codes correspond to waste categories
- The accuracy of the method of converting prices to weights.

Our data processed in this manner showed approximately 1,150 cigarettes entering Palau per person per year, while Wikipedia suggests comparable countries smoke at a rate of approximately 900 to 1,300 cigarettes per person per year.

Table 35: Average import quantities for bulky and long-lived items for period 2016–2018

	Average imports (T/year)	Actual recovery %
PET	135	75.6%
Aluminium cans	146	80.9%
Glass bottles	505	27.9%
Lead-acid batteries	70	266.4%

Lithium-ion batteries	11	0.0%
Used oil	71	204.4%
Tyres	97	195.2%
E-waste (computers, TVs, printers, lightbulbs)	150	0.0%
White goods (fridges, stoves, microwaves, blenders, air conditioners)	93	0.0%
EOL vehicles*	1,104	36.1%

7.3 Quantities of materials generated in Palau

Using the data from household audits, commercial audits, landfill audits, customs department and stockpiles, and applying the assumptions and calculations, APWC was able to estimate the amount of material of each type being generated on each island.

Our estimates of the generation of waste on the islands of Palau are shown in Table 36 (by weight) and Table 37 (by volume). These figures provide the basis for the data required for undertaking the next stages of analysis for the pre-feasibility study, as required by the terms of reference of this project.

Please note that this data presents the total quantities of materials being generated and does not include the actual ability of the material to be recovered depending on operational, on-ground realities such as household behaviour, collection infrastructure, transport, equipment, shipping, and so forth. The next section provides estimates on potential recovery rates for some materials.

Table 36: Type and quantity of materials produced in Palau (tonnes/year)

	Koror (T/year)	Airai (T/year)	Peleliu (T/year)	Ngaraad (T/year)	Ngaremlengui (T/year)	Aimeliik (T/year)	Ngarchelong (T/year)	Ngchesar (T/year)	Ngatpang (T/year)	Ngiwal (T/year)	Melekeok (T/year)	Ngardmau (T/year)	Anguar (T/year)	Kayangel (T/year)	Sonsorol (T/year)	Hatohobei (T/year)	Total (T/year)
PET	89.06	17.53	4.05	3.64	2.70	2.83	1.89	2.29	1.89	2.16	2.29	1.62	1.21	0.67	0.40	0.27	**134.51**
Aluminium Cans	96.41	18.98	4.38	3.94	2.92	3.07	2.04	2.48	2.04	2.34	2.48	1.75	1.31	0.73	0.44	0.29	**145.61**
Glass Bottles	333.46	65.65	15.15	13.64	10.10	10.61	7.07	8.59	7.07	8.08	8.59	6.06	4.55	2.53	1.52	1.01	**503.65**
Aluminium Other	326.87	64.35	14.85	13.37	9.90	10.40	6.93	8.42	6.93	7.92	8.42	5.94	4.46	2.48	1.49	0.99	**493.69**
Metal Ferrous Other	2233.96	439.81	101.49	91.34	67.66	71.05	47.36	57.51	47.36	54.13	57.51	40.60	30.45	16.92	10.15	6.77	**3374.08**
Lead Acid Batteries	46.31	9.12	2.10	1.89	1.40	1.47	0.98	1.19	0.98	1.12	1.19	0.84	0.63	0.35	0.21	0.14	**69.94**
Lithium Ion Batteries	7.30	1.44	0.33	0.30	0.22	0.23	0.15	0.19	0.15	0.18	0.19	0.13	0.10	0.06	0.03	0.02	**11.03**
Other Batteries	14.67	2.89	0.67	0.60	0.44	0.47	0.31	0.38	0.31	0.36	0.38	0.27	0.20	0.11	0.07	0.04	**22.15**
Used oil	46.57	9.17	2.12	1.90	1.41	1.48	0.99	1.20	0.99	1.13	1.20	0.85	0.63	0.35	0.21	0.14	**70.33**
Tyres	64.10	12.62	2.91	2.62	1.94	2.04	1.36	1.65	1.36	1.55	1.65	1.16	0.87	0.49	0.29	0.19	**96.82**
Hygiene	262.33	51.64	11.92	10.73	7.95	8.34	5.56	6.75	5.56	6.36	6.75	4.77	3.58	1.99	1.19	0.79	**396.20**
Paper and Cardboard	479.03	94.31	21.76	19.59	14.51	15.23	10.16	12.33	10.16	11.61	12.33	8.71	6.53	3.63	2.18	1.45	**723.50**
HDPE	85.89	16.91	3.90	3.51	2.60	2.73	1.82	2.21	1.82	2.08	2.21	1.56	1.17	0.65	0.39	0.26	**129.73**
LDPE	36.82	7.25	1.67	1.51	1.12	1.17	0.78	0.95	0.78	0.89	0.95	0.67	0.50	0.28	0.17	0.11	**55.62**
PP	37.28	7.34	1.69	1.52	1.13	1.19	0.79	0.96	0.79	0.90	0.96	0.68	0.51	0.28	0.17	0.11	**56.31**
PVC	614.55	120.99	27.92	25.13	18.61	19.54	13.03	15.82	13.03	14.89	15.82	11.17	8.38	4.65	2.79	1.86	**928.20**
PS/EPS	126.98	25.00	5.77	5.19	3.85	4.04	2.69	3.27	2.69	3.08	3.27	2.31	1.73	0.96	0.58	0.38	**191.78**
Flexibles/Film	34.10	6.71	1.55	1.39	1.03	1.08	0.72	0.88	0.72	0.83	0.88	0.62	0.46	0.26	0.15	0.10	**51.51**

	Koror (T/year)	Airai (T/year)	Peleliu (T/year)	Ngaraad (T/year)	Ngaremlengui (T/year)	Aimeliik (T/year)	Ngarchelong (T/year)	Ngchesar (T/year)	Ngatpang (T/year)	Ngiwal (T/year)	Melekeok (T/year)	Ngardmau (T/year)	Anguar (T/year)	Kayangel (T/year)	Sonsorol (T/year)	Hatohobei (T/year)	Total (T/year)
Plastic Bags Reusable	2.47	0.49	0.11	0.10	0.07	0.08	0.05	0.06	0.05	0.06	0.06	0.04	0.03	0.02	0.01	0.01	**3.74**
Plastic Bags Single Use	8.28	1.63	0.38	0.34	0.25	0.26	0.18	0.21	0.18	0.20	0.21	0.15	0.11	0.06	0.04	0.03	**12.51**
Other Plastic	1055.39	207.78	47.95	43.15	31.97	33.56	22.38	27.17	22.38	25.57	27.17	19.18	14.38	7.99	4.79	3.20	**1594.02**
Glass other	177.68	34.98	8.07	7.27	5.38	5.65	3.77	4.57	3.77	4.31	4.57	3.23	2.42	1.35	0.81	0.54	**268.36**
E-waste	99.05	19.50	4.50	4.05	3.00	3.15	2.10	2.55	2.10	2.40	2.55	1.80	1.35	0.75	0.45	0.30	**149.60**
Hazardous other	442.14	87.05	20.09	18.08	13.39	14.06	9.37	11.38	9.37	10.71	11.38	8.03	6.03	3.35	2.01	1.34	**667.79**
Steel cans	110.92	21.84	5.04	4.54	3.36	3.53	2.35	2.86	2.35	2.69	2.86	2.02	1.51	0.84	0.50	0.34	**167.53**
Fishing materials	335.65	66.08	15.25	13.72	10.17	10.67	7.12	8.64	7.12	8.13	8.64	6.10	4.57	2.54	1.52	1.02	**506.95**
White goods	61.15	12.04	2.78	2.50	1.85	1.94	1.30	1.57	1.30	1.48	1.57	1.11	0.83	0.46	0.28	0.19	**92.36**
Other rubber	79.68	15.69	3.62	3.26	2.41	2.53	1.69	2.05	1.69	1.93	2.05	1.45	1.09	0.60	0.36	0.24	**120.35**
Textiles	378.37	74.49	17.19	15.47	11.46	12.03	8.02	9.74	8.02	9.17	9.74	6.88	5.16	2.87	1.72	1.15	**571.47**
Wood	867.42	170.77	39.41	35.47	26.27	27.59	18.39	22.33	18.39	21.02	22.33	15.76	11.82	6.57	3.94	2.63	**1310.11**
Cigarette Butts	2.62	0.52	0.12	0.11	0.08	0.08	0.06	0.07	0.06	0.06	0.07	0.05	0.04	0.02	0.01	0.01	**3.96**
Metal not Al, Fe	3662.12	720.97	166.38	149.74	110.92	116.46	77.64	94.28	77.64	88.74	94.28	66.55	49.91	27.73	16.64	11.09	**5531.10**
Toner cartridges	1.55	0.31	0.07	0.06	0.05	0.05	0.03	0.04	0.03	0.04	0.04	0.03	0.02	0.01	0.01	0.00	**2.34**
LPB	40.51	7.98	1.84	1.66	1.23	1.29	0.86	1.04	0.86	0.98	1.04	0.74	0.55	0.31	0.18	0.12	**61.19**
Other	143.12	28.18	6.50	5.85	4.33	4.55	3.03	3.68	3.03	3.47	3.68	2.60	1.95	1.08	0.65	0.43	**216.16**
Total	**19984.33**	**3934.38**	**907.93**	**817.14**	**605.29**	**635.55**	**423.70**	**514.50**	**423.70**	**484.23**	**514.50**	**363.17**	**272.38**	**151.32**	**90.79**	**60.53**	**30183.45**

Table 37: Type and quantity of materials produced on islands of Palau (tonnes/year)

	Koror (T/year)	Airai (T/year)	Peleliu (T/year)	Ngaraad (T/year)	Ngaremlengui (T/year)	Aimeliik (T/year)	Ngarchelong (T/year)	Ngchesar (T/year)	Ngatpang (T/year)	Ngiwal (T/year)	Melekeok (T/year)	Ngardmau (T/year)	Anguar (T/year)	Kayangel (T/year)	Sonsorol (T/year)	Hatohobei (T/year)	Total (T/year)
PET	579	114	26	24	18	18	12	15	12	14	15	11	8	4	3	2	**874.63**
Aluminium Cans	212	42	10	9	6	7	4	5	4	5	5	4	3	2	1	1	**320.33**
Glass Bottles	143	28	6	6	4	5	3	4	3	3	4	3	2	1	1	0	**215.26**
Aluminium Other	45	9	2	2	1	1	1	1	1	1	1	1	1	0	0	0	**67.31**
Metal Ferrous Other	155	31	7	6	5	5	3	4	3	4	4	3	2	1	1	0	**234.56**
Lead Acid Batteries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00**
Lithium Ion Batteries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00**
Other Batteries	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2.71**
Used oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00**
Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00**
Hygiene	302	59	14	12	9	10	6	8	6	7	8	5	4	2	1	1	**455.62**
Paper and Cardboard	9513	1873	432	389	288	303	202	245	202	230	245	173	130	72	43	29	**14367.37**
HDPE	266	52	12	11	8	8	6	7	6	6	7	5	4	2	1	1	**402.50**
LDPE	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.68**
PP	25	5	1	1	1	1	1	1	1	1	1	0	0	0	0	0	**38.42**
PVC	83	16	4	3	3	3	2	2	2	2	2	2	1	1	0	0	**125.58**
PS/EPS	524	103	24	21	16	17	11	13	11	13	13	10	7	4	2	2	**791.39**
Flexibles/Film	2565	505	117	105	78	82	54	66	54	62	66	47	35	19	12	8	**3874.55**

	Koror (T/year)	Airai (T/year)	Peleliu (T/year)	Ngaraad (T/year)	Ngaremlengui (T/year)	Aimeliik (T/year)	Ngarchelong (T/year)	Ngchesar (T/year)	Ngatpang (T/year)	Ngiwal (T/year)	Melekeok (T/year)	Ngardmau (T/year)	Anguar (T/year)	Kayangel (T/year)	Sonsorol (T/year)	Hatohobei (T/year)	Total (T/year)
Plastic Bags Reusable	84	17	4	3	3	3	2	2	2	2	2	2	1	1	0	0	**127.25**
Plastic Bags Single Use	580	114	26	24	18	18	12	15	12	14	15	11	8	4	3	2	**876.06**
Other Plastic	2887	568	131	118	87	92	61	74	61	70	74	52	39	22	13	9	**4359.92**
Glass other	78	15	4	3	2	2	2	2	2	2	2	1	1	1	0	0	**118.11**
e-Waste	32	6	1	1	1	1	1	1	1	1	1	1	0	0	0	0	**48.78**
Hazardous other	106	21	5	4	3	3	2	3	2	3	3	2	1	1	0	0	**159.70**
Steel cans	431	85	20	18	13	14	9	11	9	10	11	8	6	3	2	1	**651.62**
Fishing materials	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.42**
White goods	70	14	3	3	2	2	1	2	1	2	2	1	1	1	0	0	**105.03**
Other rubber	104	20	5	4	3	3	2	3	2	3	3	2	1	1	0	0	**156.39**
Textiles	437	86	20	18	13	14	9	11	9	11	11	8	6	3	2	1	**660.04**
Wood	3408	671	155	139	103	108	72	88	72	83	88	62	46	26	15	10	**5147.07**
Cigarette Butts	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.42**
Metal not Al, Fe	85	17	4	3	3	3	2	2	2	2	2	2	1	1	0	0	**127.80**
Toner cartridges	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00**
LPB	83	16	4	3	3	3	2	2	2	2	2	2	1	1	0	0	**125.50**
Other	180	35	8	7	5	6	4	5	4	4	5	3	2	1	1	1	**271.33**
Total	**19984**	**3934**	**908**	**817**	**605**	**636**	**424**	**514**	**424**	**484**	**514**	**363**	**272**	**151**	**91**	**61**	**30183.45**

7.4 Stockpile audit results

APWC conducted an audit of stockpiles in Palau. Several bulky items not found in other waste streams were found in significant quantities in stockpiles, including shipping containers, end-of-life vehicles, fuel drums and lead-acid batteries. We were unable to estimate generation rates from stockpiles, but we could compare the stockpiles found with the estimated annual generation rates. Table 38 outlines the type and quality of materials found in stockpiles throughout Palau.

Table 38: Type and quantity of materials found in stockpiles around Palau

Item	Stockpile Units	Stockpile m^3	Stockpile Locations	Notes
Tyres		13,739	Koror, Airai	Including 100 m^3 shredded
Batteries	1,641		Koror	
Wood/construction		10	Airai	
Ferrous metal*		690	Koror, Airai	Including 36 m^3 compacted, 324 m^3 uncompacted general scrap, 390 m^3 uncompacted cars
Vehicles*	110		Koror, Ngeaur	
Aluminium		3	Koror	Compacted
Other metal		8	Koror	High voltage electrical cable (could be aluminium with steel core, or copper)

*Ferrous metal includes vehicles

Tyres make up a significant proportion of stockpiled materials in Palau, including tyres in whole form and 100m^3 of shredded tyres. Of note is the number of vehicles identified from APWC audits, which differs by 45 vehicles from the Government of Palau's audit (see section 7.4.1).

7.4.1 End-of-life vehicles

below outlines the quantity of stockpiled cars across 11 states in Palau. Where no data is included, these states were not surveyed as they have a system of scrap collection in place. End-of-life or abandoned vehicles are a significant problem in Palau, so much so that all states identified and agreed a joint national audit was to be undertaken to identify the exact number of abandoned vehicles throughout Palau.

The audit was undertaken by EQPB and Koror State Department of Waste. Auditors visited each state and marked each end-of-life vehicle with a red cross and recorded the location.

The audit ascertained there was 515 cars in total abandoned.

Figure 51: Abandoned vehicles marked with identifying red X during EQPB and Koror State Department of Waste audit conducted by DSWM-BPW

Table 39: Quantity of cars found in stockpiles around Palau

State	Count
Ngarchelong	101
Ngaraard	45
Ngardmau	22
Ngeremlengui	192
Ngatpang	39
Aimeliik	64
Ngiwal	45
Melekeok	No data
Ngchesar	7
Airai	Not surveyed
Koror	Not surveyed

7.4.2 Waste Oil

The Palau Public Utilities Cooperation (PPUC), established in June 2013, is responsible for the waste oil stockpiles. It was note during the APWC audit that all forms of waste oil are accepted and stored as mixed oils in large concrete tanks.

APWC's audit ascertained that there is currently 1,135m^3 mixed oil stockpiled (Table 40). The PPUC have plans to sell the stockpiled oil and commence accepting separated oil, such as used car oil and used cooking oil for example.

PPUC charge USD$80 per 55-gallon drum to receive oil, however the exact quantities received on an individual basis is not currently known.

Table 40: Waste oil stockpile in Palau

Item	Stockpile	Stockpile Locations	Notes
Waste oil	1,135 m^3	PPUC	Collected in 8 years

Figure 52: Palau Public Utilities Cooperation waste oil stockpile tanks. (Source APWC)

Capturing Available Materials

8

8 Capturing available material

Palau has already established methods to support activities to undertake the successful movement of recyclable material in the form of beverages containers under the beverage containers recycling program. However, a number of barriers currently exist for capturing and successfully moving accepted materials at the proposed recycling hub. Difficulties include land barriers, especially for the outer islands, a small private sector and limited technical capacity and infrastructure, including appropriate equipment and other resources.

The plastic bag ban recently implemented in Palau in November 2019 and the anticipated construction of new waste management infrastructure – including the new national landfill, transfer stations and transportation station – adds additional mechanisms for capturing recyclable material.

This section deals with the amount of material that can potentially be available for compaction, storage and shipping based on the current:

- Levies
- Available infrastructure
- Deposit scheme.

The potential recycling network and hub could provide a much-needed outlet for materials currently stockpiled and for other recyclable materials not currently captured in Palau. In order to successfully undertake the capture of new materials, regional transfers stations and the central transportation station at M-dock will need to be established in order begin receiving accumulated wastes. Palau's NSWMS has identified closing all waste dumps on Babeldaob and converting them into transfer stations in 2020 and 2021. It is anticipated the materials to be accumulated at the transportation station include e-waste, paper, plastics, non-redeemable food containers and shredded tyres.

Once beverage containers and other recyclables are collected, the materials will need to be consolidated for shipping and recycling. It is anticipated this will occur at the transfer station to be established at M-dock in Koror State. There is only one shipping company serving Palau through the Federated States of Micronesia and the Republic of the Marshall Islands. As a result, there is no competition for securing better shipping or handling costs. At present, freight is USD$3,860+ for a 20-foot container. In 2017, PRIF reported that 2,600 containers are returned empty annually, identifying a potential opportunity for reverse logistics. The accumulated waste aggregation with other PICs recyclables may gain access to either export markets or create economies of scale for local value-added solutions.

8.1 Capturing material through existing recovery schemes

Table 41 below provides an outline of materials currently captured through recovery programs throughout Palau. At present, the data shows that 2,442.7 tonnes of recyclable material per year is currently captured through these schemes. The data outlines that 'metal ferrous, other' (including end-of-life vehicles at 354 tonnes) accounted for the largest recovery rate at 1,292 tonnes per year. Lead-acid batteries accounted for 176 tonnes per year and tyres a similar amount, at 171 tonnes per year. The lowest recovered items by weight were 'aluminium other' at 13 tonnes and LBP at 0.7 tonnes.

Table 41: Existing Recovery Scheme Data – Tonnes recovered per year

Item	Recovery (T/Y)	Data provider
PET bottles	102	Koror State Redemption Center and Belau Garbage & Scrap Co. 2011–2019
Aluminium cans	118	Koror State Redemption Center Garbage & Scrap Co. 2011–2019
Glass bottles	107	Koror State Redemption Center and Belau Garbage & Scrap Co. 2011–2019
Aluminium other	13	Chao Tai CT shop 2006–2019
Metal ferrous other*	1,292	Palau waste company 2009–2019, Chao Tai CT shop 2006–2019, GF Automotive Enterprises 1998–2019, Palau Metal Company/JC Auto Shop 2009–2019
Lead-acid batteries	176	Kumar 2017–2019
Used oil	109	PPUC
Tyres	171	DSWM-BPW
LPB	0.7	Koror State Redemption Center and Belau Garbage & Scrap Co. 2011–2019
EOL Vehicles*	354	GF automotive enterprises 1998–2019, Palau Metal Company/JC Auto Shop 2009–2019

* EOL vehicles counted in metal ferrous other

8.1.1 Material recovery through Beverage Container Recycling Levy

Palau has implemented a highly successful CDS program which captures aluminium and metal containers, PET bottles, glass and Tetra packs. The scheme has captured 123 million containers to date, a redemption rate of 84% since the program's inception in 2011.

Table 42: Items in the waste stream subject to levies

APWC Category	Levied item
PET carbonated water, soft drink, fruit juice, vegetable oil – all sizes	Mineral water, sweetened drinks and cooking oils in PET bottles
Aluminium alcoholic sodas, mixers, beer, cider, soft drink – all sizes	Sweetened drinks and alcohols in aluminium cans
Glass beer, fruit juice, spirits, wine – all sizes	Sweetened drinks, alcohols and cooking oil in glass bottles

Figure 53: Households storing beverage containers for rebate (source: APWC)

The following Table 43 shows the amount of material available for recovery if 30% or 100% of levied items can be recovered. It is important to remember that the current CDL in Palau is already capturing close to 90% of the levied items.

When estimating the contribution to the waste stream of these items, we discount the contributions from the excluded categories above.

Table 43: Potential materials available for recycling due to levies

Levied item	Annual saving if recovered at 30%, (m^3)	Annual saving with full recovery (m^3)	Percentage of total waste volume represented by items in this category
PET beverage and oil containers greater than or equal to 1.5 litres	20	877	2.03
Glass beverage containers	14	216	0.50
Aluminium beverage containers	6	321	0.74
Total	40	1414	3.27

Data presented in Table 43 above shows that if 100% of the levied items can be recovered, 3.27% of the current waste stream will be diverted from landfill for resource recovery. This represents between 40 m^3 (at 30% recovery rates) to 1,414m^3 of uncompacted materials that

Palau will not landfill but will require storage, compaction and processing prior to export to the proposed recycling hub or directly to overseas markets for recycling.

8.1.2 Waste reduction through bans

The *Plastic Bag Use Reduction Act 2017* was recently implemented banning the importation and distribution of single-use disposable plastic bags. Customs data obtained by APWC for the period 2016–2018 found annually 13 tonnes of single-use plastic bags were imported into Palau. In addition, APWC's waste audit discovered supermarket plastic bags accounted for 20 grams of household per day of the total waste generated and was one of the top 10 waste items generated in Palau. Plastic bags in the waste stream account for 878m^3 annually. This audit is timely and can act as a baseline to measure and determine how the waste stream changes as the ban is implemented. It is expected that the banned item will not enter the waste stream and will therefore not be available for recovery in the future.

Although these items are not banned as such, disposable plastic or polystyrene cups, water bottles, drink straws and disposable plastic and polystyrene food containers should be considered for the ban. Under the *Tourism Education Act 2018*, tourism operators must now provide reusable items in place of single-use plastic meal and water containers.

Banned items are often substituted for other items at some rate. In Australia, the ACT Commissioner for Sustainability and the Environment (2018) suggests that plastic shopping bags are substituted at a 5:1 ratio for heavier bags. As the heavier bags are typically twice the weight, this suggests that a shopping bag ban may overall reduce plastic bag waste by about 60%.

We consider two levels of reduction to waste due to the plastic bag ban:

- a 60% reduction (with 40% substitution); and
- a full reduction (with no substitution).

APWC also believes Palau has a much higher ability to control the flow of substitutes into the country and can therefore restrict the use of thicker bags thus controlling household behaviour. The following identifications in Table 44 were made between consultant sort categories and the banned item:

Table 44: Banned plastics items currently found in the waste stream

APWC sort categories	Banned item
Single-use plastic bags	*Plastic shopping bags*
Single-use plastic straws	*Straws which are made, in whole or in part, of plastic*
Single-use plastic takeaway containers, single-use polystyrene takeaway containers, single-use plastic takeaway	*Single-use plastic and polystyrene plates, cups and takeaway container*

container lids, single-use plastic coffee cups	

8.2 Future options for increased resource recovery through levies

Data collected also shows there is a number of recyclable items present in the waste stream that are not currently subject to a levy or a recovery scheme. The following items in Table 45 are subject to levies supporting recovery and (if applicable) recycling operations:

Table 45: List of potential recyclable items that could be targeted for recovery

Current category	
Cardboard	Nappies*
HDPE personal care, cleaning – all sizes	Steel cans
Polypropylene	Paper and LPB
PVC	Aluminium, recyclable
Aluminium, human food – all sizes	

**Please note that a number of PICs are implementing ways to allow for recovery of nappies from landfill and possibly use for composting. This project here notes the potential of undertaking this as a future option. Eg. Tuvalu has implemented a levy on nappies containing plastic.*

Landfill life

9

9 Landfill life

Unlike other SIDs, Palau is in a unique and pivotal position with construction underway for a new landfill to service the country's waste. The current landfill for Koror State, M-Dock Landfill, is at capacity, and a similar scenario faces the dumpsites in regional and rural areas throughout Palau. In this section, APWC explores audit findings in relation to M-Dock. Further, landfill life will be explored in relation to the new national landfill.

As waste characteristics were found to be quite similar across different states, we determined the overall quantity of incoming waste to the M-Dock Landfill in Koror and then assumed that waste generation elsewhere in Palau shared composition characteristics but on average was generated at a 10% lower rate (accounting for both Airai and rural states).

The detailed volumetric sort was combined with the volumetric landfill sort to determine the overall composition of waste arriving at the M-Dock.

9.1 Landfill Volume

All calculations in this section relate to the new landfill at Aimeliik and assume that the additional 273,800m^3 of landfill space will be made available from 2020, when it is expected to open.

The analysis of landfill use presented in *Preparatory Survey on the project for the construction of national landfill in the Republic of Palau* (JICA, 2018) appears to assume a variable rate of growth that averages to 2% from 2015 to 2020, which is somewhat higher than our 1.2%. There is substantial uncertainty in this figure, however it does not dramatically affect the date at which the landfill capacity is expected to be utilised.

Waste is currently delivered to M-Dock Landfill in both compacted and uncompacted from, and according to our audits, we estimate a density of 900 kg/m^3. This density is likely to increase in the landfill even without compaction due to settling, though exactly how much the density rises is not known. In this report, we have provided an estimate of the average weight deposited at the landfill each day. Monitoring the rate of growth in landfill volume could then provide an estimate of the density achieved in the landfill. Such an estimate may be valuable in determining how much compaction is possible with proper equipment.

Assuming a year-on-year growth of waste disposal in line with the historical GDP growth rate (in constant dollars) of 1.2% and a landfill compaction of 900 kg/m^3, the following cumulative quantities of waste in cubic metres (m^3) can be expected to be delivered to the new landfill, as shown in five-year increments in Table 46 and .

Table 46: Waste expected at landfill five-year increments 2020–2050 (cumulative)

Year	No additional removal (m^3)	Removing 100% organics (m^3)	Removing 100% organics + 30% cardboard (m^3)	Removing 100% organics + 30% cardboard + 30% flexible/films (m^3)
2020	13,342	11,190	9,849	9,235
2025	82,494	69,188	60,897	57,100
2030	155,895	130,750	115,081	107,907
2035	233,807	196,096	173,696	161,837
2040	316,508	265,457	233,646	219,080
2045	404,291	339,082	298,447	279,842
2050	497,469	417,231	367,231	344,338

Figure 54 highlights the capacity of the new national landfill which has a current life expectancy until 2037 without removing any additional materials from landfill. If 100% of organic material was to be removed from waste delivered to the landfill, the life expectancy is expected to extend a further 4 years until 2041. The removal of 100% organics in addition to 30% cardboard would extend the capacity to 2043, and an additional 1.5 to 2 years would be added if 100% of organics, 30% cardboard, 30% PVC and 30% flexibles/films were removed from the waste to landfill.

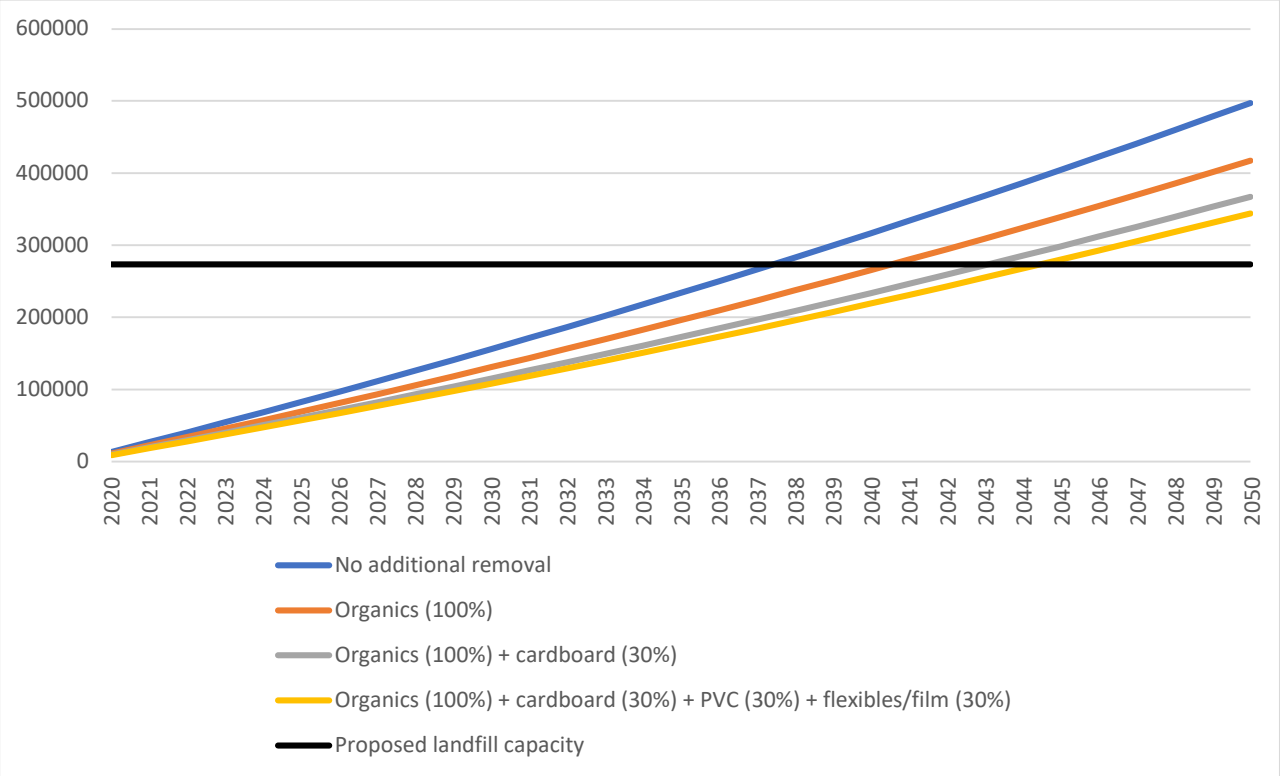


Figure 54: Landfill utilisation at new national landfill

Institutional Assessment

10

10 Institutional assessment

10.1 Institutional framework

10.1.1 National Government

The Republic of Palau is a constitutional democracy modelled after that of the United States. The national government is led by a popularly elected President and bicameral legislature, and an independent judiciary. The President is the chief of state and head of government. The President and Vice President are directly elected on separate ballots by absolute majority popular vote for a four-year term (eligible for a second term). The current President, Tommy Remengesau, is in his fourth non-consecutive term. The next election will be held in November 2020. The President is known for his environmental initiatives. His vision for Palau is to create a sustainable future balancing growth, development and the protection of the environmental and cultural resources.

Palau National Congress, known as Olbili era Kelulau or 'House of Whispered Decisions or Strategies' consists of the House of Delegates and the Senate of Palau comprising of 16 members and 13 members, respectively.

The constitution of Palau designates 16 traditional municipalities of Palau as states. Each state has the authority to develop its own constitutional convention and elect legislatures and heads of state. Each has its own local government comprised of local legislators, governors, traditional chiefs, elders and high-ranking clans. The roles and responsibilities of these representatives are defined in the state's individual constitution.

The traditional chiefs of Palau have advisory authority at the national level through the Council of Chiefs. One traditional leader from each of the Palauan states sits on the Council of Chiefs and provides advice to the President on matters that concern traditional laws, customs and their relationship to the constitution and laws of the country. The council is highly respected and works with elected officials on a variety of local and regional issues. Their duty is to ensure that traditional ways of life are preserved in parallel with a maintaining successful democratic government.

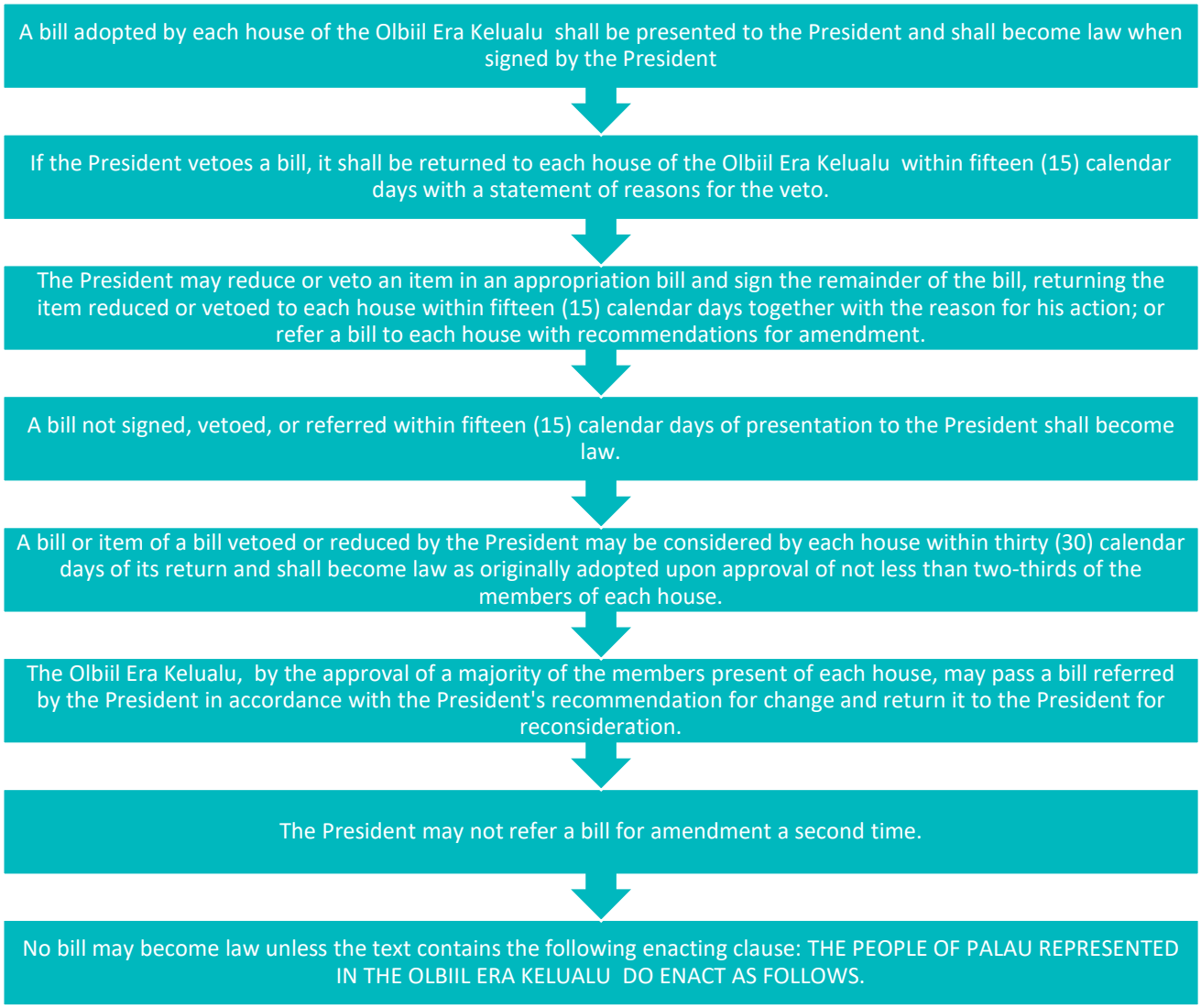
The Republic of Palau introduced the *Environmental Quality Protection Act* (Title 24 of the Palau National Code Annotated PNCA) in 1981. This Act was introduced to ensure greater protection of the country's unique and beautiful environment while also promoting sustainable economic and social development to achieve economic growth and financial goals for Palau. The Environmental Quality Protection Board (EQPB) was created as a result of the Act. The EQPB is a semi-autonomous agency responsible for the protection and conservation of the quality of the environment and its resources.

Palau, like many countries in the Pacific region, faces numerous challenges with solid waste management. The high dependence on imports, concentration of population in the capital, lifestyle and limited capacity for solid waste management all contribute to the challenges faced by the nation. As a result, since 2005 Japan International Cooperation Agency (JICA) has been implementing *the 'Project for Improvement of Solid Waste Management in the Republic of Palau (the JICA Project).* One

of the accomplishments of this project was the Draft National Solid Waste Management Plan, 2008. More recently, J-PRISM is attempting to promote regional 3R+Return activities and recently discussed the possibility of establishing a regional recycling association in the Micronesia.

10.1.2 Establishing new laws

In Palau, the the Olbiil Era Kelulau is responsible for ratifying new laws, which must be done through the proposal of a Senate Bill. The following outlines the process for adopting a bill to law in Palau:



(Source: *the constitution of the republic of Palau: Palau constitutional convention*, 1979)

10.1.3 International agreements

Palau has ratified numerous environmentally related international and regional commitments and remains in general compliance with the spirt of such commitments. Table 47 below highlights the multilateral agreements significant to waste management in Palau.

Table 47: Multilateral agreements and conventions ratified by Palau. (Source: APWC, various)

Multilateral agreements and conventions	Status
Stockholm Convention on Persistent Organic Pollutants	Ratified
Basel Convention	Ratified
The Kyoto Protocol to the United Nationals Framework Convention Climate Change	Ratified
Montreal Protocol	Ratified
MARPOL 73/78: International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (Annexes I, II, III, IV, V, and VI)	Ratified
United Nationals Convention on the Law of the Sea, 1982	Ratified
Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC/HNS) 2000	Ratified
International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER) 2001	Ratified
International Convention on the Control of Harmful Anti-fouling Systems in Ships (AFS Convention) 2001	Ratified
Convention on the International Maritime Organization, 1948	Ratified
Nairobi International Convention on the Removal of Wrecks 2007	Ratified
Vienna Convention for the Protection of the Ozone Layer	Ratified
Minamata Convention	Signature

10.1.4 Regional Agreements

In addition to the above, Palau has several strong bilateral and multilateral relationships. It is a member of the following agreements and memberships outlined in Table 48:

Table 48: Regional agreements and memberships (Source: APWC, various)

Regional Agreements	Status
Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Waste and to Control the Transboundary Movement and Management of Hazardous Waste within the South Pacific Region (Waigani Convention), 1995	Signature
Pacific Islands Country Trade Agreement	Not signed [4]
Secretariat of the Pacific Community (SPC)	Member since 1994

[4] Under the terms of the Compacts, if Palau joined a Free Trade Area, they would be obliged to offer the same trade preferences to the United States unless the United States grants a waiver from the relevant provisions in the Compacts. Palau is yet to request for this waiver. Pacific Islands Countries Trade Agreement (PICTA): Frequently Asked Questions (June 2012). (2012). [PDF]. Retrieved from https://www.frcs.org.fj/wp-content/uploads/2012/10/Pacific-Is-Countries-Trade-Agreement-PICTA.pdf

Regional Agreements	Status
Secretariat of the Pacific Regional Environment Program (SPREP)	Current member
Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025	
National Implementation Plan (NIP) for the Stockholm Convention on POPs	Current drafting the Updated NIP
Noumea Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP) (1986) • Protocol Concerning Cooperation in Combating Pollution Emergencies in the South Pacific Region Protocol for the Prevention of Pollution the south Pacific Region by Dumping	Ratified
The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)	Current Member

10.2 National regulation and strategy

The management of waste in Palau is covered under the Solid Waste Regulations, the *Public Health, Safety and Welfare Act* (Title 34), and the Trust Territory Air Pollution Control Standards and Associated Regulations. Supplementary provisions are also found in the Trust Territory Pesticide Regulations and the *Trust Territory Land Planning Act*.

Responsibility for the management of solid waste is found in the Solid Waste Regulations, implemented by EQBP and the *Public Health, Safety and Welfare Act* administered by the Ministry of Health.

The Solid Waste Regulations control the standards of solid waste collection and storage facilities to prevent water, land, and air pollution and the spread of disease through a permit system for the disposal of waste, while also conserving natural resources and preserving the quality of the environment.

The Republic of Palau acknowledges the value of cultural and environmental protection, and the sustainable management of its natural resources. It has developed and implemented several polices to protect its fragile environment. The core of President Remengesau vision for Palau is the desire to protect the cultural and environmental landscapes and reduce negative impacts from human activities.

Palau has developed important environmental legislation and strategies specific to waste management. Despite the existence of these strategies, the Solid Waste Management plan (2006–2016) and NSWMS (2017–2026), there is no overarching Solid Waste Act, but rather an amalgamation of laws and regulations, as outlined below:

Laws and Regulations	•Palau National Code •Environment Quality Protection Act (1981) •Environment Quality Protection Board Regulations •Recycling Law •Plastic Bag Ban Act (November 8, 2017) •Publish Health, Safety and Welfare Act •Solid Waste Regulations
Solid Waste Management Plan Strategy	•National Solid Waste Management Strategy (NSWMS) 2017-2026

10.2.1 Palau National Code (PNC)

Title 17 – Crimes, Chapter 35: Littering

This outlines the definition, penalties, authority to cite for littering, environment and public awareness for littering offences conducted in Palau. It highlights that the Ministry of Justice, the Division of Environment and Sanitation Services of the Ministry of Health, Bureau of Public Health, and the Environmental Quality Protection Board have the authority to issue citations for littering and can report citations to the Bureau of Public Safety of the Ministry of Justice

Figure 55: Roadside signage advising fines for littering

Penalties for individuals convicted of littering are subject to a fine of no less than $50 for the first conviction and a fine two times the initial imposed fine for the second conviction. For any subsequent convictions, the individual is subject to up to six months imprisonment or a fine three times the amount of the last fine imposed, or both. All fines collected are deposited in the National Treasury.

Title 24 – *Environmental Quality Protection Act 1981*

The Environmental Quality Protection Act 2003 was established to ensure greater protection of Palau's unique and beautiful environment while promoting sustainable economic and social development to achieve the desired financial goals of the people of the Republic. The Act outlines the role of the Palau Environmental Quality Protection Board (EQPB) and prescribes board enforcement and implementation actions.

10.2.2 Deposit Beverage Container Recycling Program

The Beverage Container Recycling Regulations was signed in 2006 and came into force in 2011. Palau's Container Deposit Scheme (CDS) is highly regarded and praised for its successful achievements.

The following law and regulations were developed, and Memorandum of Understanding was adapted subsequently as needed.

The Republic of Palau Public Law (RPPL No. 7-24):

- Establishing a recycling program for the Republic of Palau, establishing a beverage container deposit fee, creating a recycling fund, and for other related purposes.
- RPPL 7-24 places responsibility for differing aspects of the national beverage container recycling program on two Ministries of the National Government, the Ministry of Public Infrastructure, Industries and Commerce (MPIIC), and the Ministry of Finance (MOF).

Beverage Container Recycling Regulations:

- These regulations assign respective duties and responsibilities over the beverage container recycling program to both MOF and MPIIC.

Memorandum of Understanding (MOU): between Ministry of Public Infrastructure, Industries & Commerce, and Ministry of Finance, and Koror State Government (KSG).

- Ministry of Finance will advance funds to KSG for redeeming the beverage containers while retaining the $0.025 per container redeemed as compensation.
- Before exhaustion of the fund by KSG, KSG will submit proof of refunds paid to MOF and request for additional funds.
- KSG will operate the redemption center under the directives of MPIIC.

The agencies responsible for the implementing, managing and operating the program are as follows:

Ministry of Public Infrastructure, Industries and Commerce (MPIIC)	Ministry of Finance (MOF)	Koror State Government
• Implementation of the recycling program • Approve and monitor redemption centre(s) • Export or find ways to export redeemed containers	• Management and maintenance of fund • Monitoring of Fund Collection of deposit fee by the Customs Office under MOF	• Operation of the Redemption Center

Further details in relation to the Beverage Container Recycling Program can be found in section 4.1.

10.2.3 *Plastic Bag Use Reduction Act 2017*

The *Plastic Bag Use Reduction Act* was first introduced on 5 August 2017. The Signing Statement for the Plastic Bag Use Reduction Act notes that tens of thousands of plastics bags were given out weekly by stores around Palau. The Act was established as a 'vital measure to protect "Pristine Paradise Palau"' (Republic of Palau, 2017). The Act prohibits single-use plastic bags (biodegradable and compostable bags are excluded from the ban). Fines of $1,000 per day have been established to prevent individuals and business owners from importing, selling or distributing plastic bags to customers. In addition, a year after the Act was introduced, a $1,000 penalty per shipment fee on any person or business importing non-biodegradable or compostable plastic bags was imposed.

Figure 56: Reusable plastic bag guide

The Act also establishes a recycling fund to be maintained by the MoF, separate from National Treasury funds. All revenue received from deposit fees when beverage containers are sold contribute to the recycling program, and any interests or income earned on the money in the recycling fund gets deposited into the recycling fund. The MoF may use the money to fund the administrative audits associated with the program or to conduct recycling or plastics education programs.

The ban on importation and distribution of plastic bags for commercial purposes took effect on 8 November 2019. It was reported that the Solid Waste Management Office, the Environmental Quality Protection Board (EQPB), the Ministry of Natural Resources, Environment and Tourism (MNRET), and Japan International Cooperation Agency (JICA) gave out free eco-bags at the major grocery and department stores in Koror on the first day of the ban.

10.2.4 National Chemicals and Waste Task Force

The National Chemicals and Waste Task Force (NCWTF) was established in 2019 with a primary aim to strengthen and improve Palau's capacity and institutional framework for integrating and managing chemicals, as outlined below:

Urgently address the emerging issues posed by chemicals and waste on the environment and the health of the people of Palau.

Continue commitment and recognise sound management of chemicals and waste from the Basel Convention, the control of Transboundary Movements of Hazardous Waste and their Disposal, the Stockholm Convention Persistent Organic Pollutants, the Minamata Conventions on mercury, and the Strategic Approach to International Chemicals Management.

Reaffirms position as a signatory to the multilateral environment agreements as evidence that it holds firm and true to its commitment of protecting the environment and health of its people from the deleterious effects of unmanaged chemicals and waste

Strengthen international, regional and local cooperation to ensure environmentally sound management of chemicals and waste.

Ensure transboundary movement of chemicals and waste is managed in an environmentally sound manner requiring collaboration and assistance on technical cooperation, capacity building, and knowledge transfer

Environmentally sound management of chemicals and waste requires efforts of many sectors of society to ensure the protection of our environment, the sustainability of our natural resources, and the high quality of life for our people.

10.2.5 Public Health, Safety and Welfare Act

The Public Health, Safety and Welfare Act establishes a set of standards to prohibit the accumulation of rubbish, garbage, coconut shells, and other refuse. These provisions are enforced by the Bureau of Health Services.

10.2.6 The Tourism Education Act 2018 section 4 amendment

1615 Reusable water container; tour operators

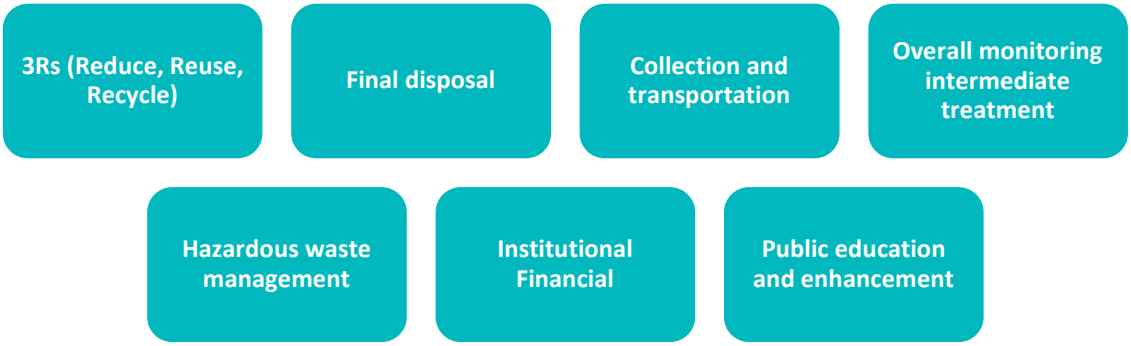
All licensed tour operators need to provide their customers with a reusable alternative to disposable plastic or polystyrene cups, water bottles and drinking straws, such as reusable water dispensers, or reusable individual water containers.

1616 Reusable meal containers; tour operators

All licensed tour operators need to provide their customers with a reusable alternative to disposable plastic or polystyrene food containers, such as through reusable containers or reusable dishes, or other means.

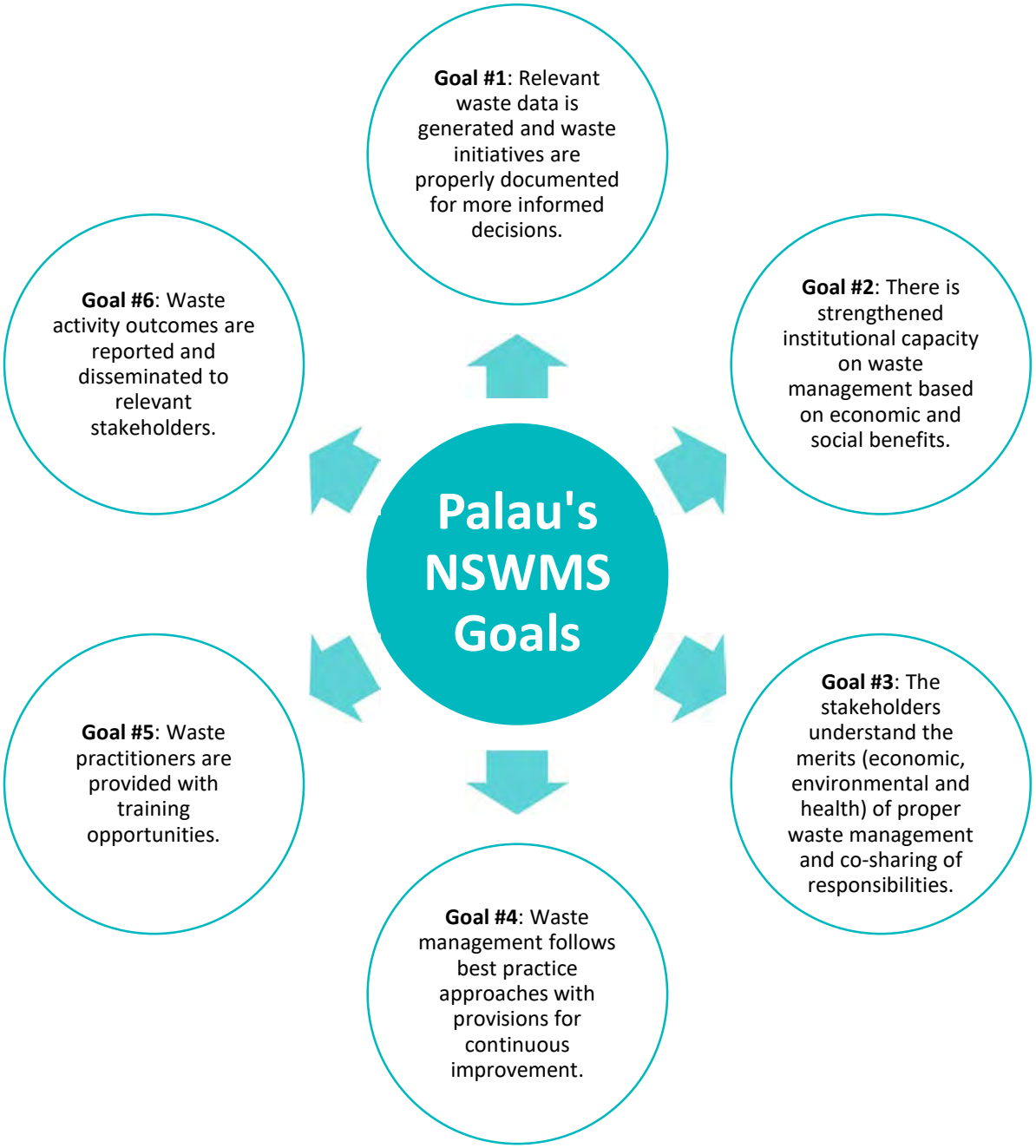
10.2.7 National Solid Waste Management Plan 2008

The National Solid Management Plan 2008–2016 considered the mechanisms of waste generation in Palau and waste management principles and hierarchy, creating three major strategies to serve as a strategic national framework for the management of solid waste management in Palau. Strategic areas include:



10.2.8 National Solid Waste Management Strategy (NSWMS) 2017–2026

The NSWMS 2017–2026 contains six strategic goals developed after extensive stakeholder consultation. The six strategic goals align with the regional Pacific SWM strategy and Cleaner Pacific 2025. The six strategies include:



To address each of the strategic goals, the following actions, key performance indicators and targets have been established. It is anticipated that the strategy will be reviewed annually through steering-committee meetings. In 2021, at the end of the first five years of the strategy, a wider review will be undertaken to identify corrective actions and recommendations for the remaining strategic period to be approved by the Minster of MPIIC.

Table 49: NSWMS 2017–2026 strategic goals, action, KPIs and targets

Thematic Area	Strategic Goals	Strategic Actions	KPIs and Targets
Data management and analysis	Relevant waste data is generated and waste initiatives are properly documented for better informed decisions.	• The responsible agencies shall undertake regular data collection and analysis.	• 1 national database developed. • 1 guideline for standard operating procedures for data collection established.
Institutional development	There is strengthened institutional capacity on waste management based on economic and social benefits.	• The government shall develop, amend and enforce national policies, strategies, plans and legislation and strengthen institutional arrangements to support and promote best-practice waste management. • The responsible agencies shall undertake cost-benefit analysis of waste management.	• 2 legislations amended. • 1 legislation developed – Plastic Bag Ban Act.
Stakeholder awareness and public–private partnerships	The stakeholders understand the merits (economic, environmental and health) of proper waste management and co-sharing of responsibilities.	• The responsible agencies shall undertake effective awareness campaigns to gain support on waste management initiatives. • The responsible agencies shall strengthen existing and develop new public–private partnerships.	• 2 awareness campaigns in a month undertaken. • 4 public–private partnership programs implemented.
Best-practice and cost- effective approaches	Waste management follows best-practice approaches with provisions for continuous improvement.	• The responsible agencies shall implement waste reduction and resource-recovery programs. • The responsible agencies shall manage hazardous wastes	• 60% waste diversion from the landfill. • At least 2 additional staff assigned to the Division of Solid Waste Management specifically for the waste facility sites.

Thematic Area	Strategic Goals	Strategic Actions	KPIs and Targets
		according to best practices. • The responsible agencies shall ensure that wastes are collected when required. • The responsible agencies shall improve infrastructure, operation and monitoring of waste management facilities.	• At least 2 dedicated staff in each state to oversee management of wastes. • Palau becomes a signatory to Waigani Convention. • 1 national landfill established. • 8 transfer stations established.
Human capacity development	Waste practitioners are provided with training opportunities.	• The responsible agencies shall explore and conduct human capacity development programs for all stakeholders.	• At least 1 waste summit back-to-back with a certified train-the-trainers program conducted in a year. • At least 10 staff trained as waste practitioners in a year.
Dissemination of outcomes and experiences	Waste activity outcomes are reported and disseminated to relevant stakeholders.	• The responsible agencies shall implement monitoring and reporting programs. • The government shall initiate the establishment of a multi-stakeholders monitoring committee and act as the Secretariat.	• At least 1 annual report generated based on national, regional and international templates. • The committee is established with a corresponding budget. Integrate multifunctional committee with other committees. • Quarterly meetings conducted with agenda/minutes produced.

10.2.9 Palau Pledge

Figure 57: Palau Pledge. Source: https://www.palaupledge.com/media/

Palau was the first country in the world to link its immigration laws to a mandatory eco-pledge. The Palau Pledge was founded in 2017 and must be signed by all visitors to Palau to ensure visitors practise responsible tourism. To date, more than 289,653 pledges have been made.

'It's our responsibility to show our guests how to respect our island home, just as it is their duty to uphold the signed pledge when visiting', declared Tommy Remengesau, President of the Republic of Palau. An ethical guide outlines the rules to be followed under the pledge, including those related to solid waste management, as follows:

- Don't litter – Rubbish poses a significant danger to wildlife and habitats. Plastic does not biodegrade and ends up as ocean debris, disabling and killing thousands of animals every year;
- Don't smoke in restricted areas – Do not throw cigarette butts into the ocean or on the beach. Throw your butts away in appropriate receptacle.

The pledge reminds visitors and residents to dispose of rubbish properly, recycle where possible and apply the 4Rs: reduce, reuse, recycle and refuse.

An overview of the policies, legislations, strategies and multilateral agreements addressing solid waste management and control of pollution in Palau are located in Chapter 10 Institutional assessment.

10.2.10 Public awareness program's and campaigns

Table 50: Awareness activities initiated by the government through the Bureau of Public Works. (Source: BPW, 2016)

Awareness activities	Content
School presentation	Visits to elementary schools and high schools to resent about 3R with activity games and quizzes to students and a waste segregation station.
Promotion of 3Rs	Practice event booths at Earth day, Independence day, PCC career Expo. Installation of 3R billboard on road side. Hosting talk shows about 3R and CDL.

Awareness activities	Content
Installation of recycling bins	Installation of recycling bins at the airport to include the tourism sector.
Promotion of flower pots made by recycling tyres	Installation of tyre flower pots in MoH, MoE and schools.
Site visit tour	Invite students to see the current situation of M-Dock landfill and recycling center to explain the importance of waste reduction.
Palau Pledge	See section 10.2.9.

Potential Projects

11

11 Potential projects for increased recovery in Palau

There are several options for Palau to consider for increased resource recovery. Two of these, however, present the most substantial value for money (as presented below). We note that the design for the new landfill includes space for separate processing of organics. Therefore, both solutions provided below, go beyond the separation of organics only. However the pre-separation of organics provides a higher value proposition for both proposals below.

11.1 Recovery of paper and cardboard

Data shows that cardboard, paper and liquid paperboard (LPB) account for almost 20% of the current waste stream and should therefore be considered for a future project. This is not surprising given all materials arrive in Palau via sea or air freight and are almost always packaged in cardboard boxes. In addition, there are substantial quantities of green waste and wood being received directly at the landfill site.

There are several examples in PICs of successful recovery of cardboard to make briquettes or use as weed cover and in composting. We believe that cardboard and paper should be considered for future source-separation projects with local small-scale, low-tech solutions including composting operations.

Therefore, APWC thinks a short feasibility study with practical options for the local reuse and recycling of cardboard and paper should be considered, along with food waste, green waste and wood.

11.2 Diapers and organics

Like many PICs, data shows that diapers were a major component of the waste stream; in fact, diapers were the third-largest item of waste by weight produced daily by households at 0.09 kg per household per day. APWC's audit ascertained that 102 tonnes of hygiene waste currently arrives at landfill in Palau each year. There is opportunity for Palau to address diaper waste by undertaking projects similar to those in Tuvalu, where there is currently 100% source separation for diapers and new legislation applying a levy of 5 cents each diaper. APWC's audit in Tuvalu in 2019 suggests a 100% compliance with the source separation as no evidence of the households disposing of the nappies in general waste were observed. The diapers currently collected in Tuvalu are taken for deep burial at the landfill. However, a combination of an import levy makes compostable nappies makes options like composting highly competitive.

One possible solution for Palau is to consider a combination of reusable diapers, such as modern cloth nappies/diapers (MCN) and compostable diapers that can be disposed of with food organics and other organics. More than 25% of waste entering landfill is organic waste. Combining these two waste streams could address up to 36.67% of organic waste and 18.36% of hygiene waste in regional areas, 24.14% of organic waste and 12.74% of hygiene waste in rural areas and 31.35% of organic waste and 8.34% of hygiene waste in small urban areas. However, appropriate infrastructure is required for appropriate processing of organic waste.

Network participation readiness

12

12 Readiness for participation in a regional recycling network?

Based on site visits, meetings with officials, audits and a review of the currently legislative framework, the consultants believe that Palau is ready and will be able to contribute fully to the operation of a regional recycling network. Section 7 provides the full breakdown of materials and quantities available for future contribution to the recycling network. The key reasons are as follows:

a) Capable staff who are committed to better waste management outcomes and can be trained to participate in recycling network activities
b) New infrastructure projects currently being implemented or planned that will pave the way for increased resource recovery
c) Several private recyclers currently in the market who can play a pivotal role in recovery of materials as required by the regional hub through well-established networks
d) A strong CDL scheme already in place with a solid history of high material recovery that can be used for the basis of future recovery operations.

Table 51: Gap assessment for Palau

Theme	Potential Gaps	Palau's readiness assessment
Policy/legislation	Signatory to international treaties allowing movement of waste	Although Palau is a signatory to the Waigani convention as of 1995, it has not ratified it. Palau has, however, ratified the Basel Convention. It would be important for the ease of transboundary movement if both the treaties were ratified by Palau.
	In-country deposit legislation	Palau has a well-established CDL system which makes it well placed to be able to collect the requisite materials for contribution to the regional hub. However, the most important reason for Palau to participate in the hub would be the consistency for pricing for the materials as well the ease of transport, which is currently a challenge.
	Responsibilities and power of implementation and compliance	Palau has a clear waste-management structure, with the roles and responsibilities clearly defined and understood by staff. The compliance with waste management legislation is better than a number of PICs, however there is scope for improvements. Any new legislation to increase recovery will require a strong compliance component to ensure the highest level of recovery. Support will also be required by Palau to ensure inter-departmental alignment of goals at all levels.

	EPR scheme	There is currently a waste oil and battery collection system in place, although not at the rate this is possible.
Data collection and decision-making	Responsible entities for ongoing data collection	Koror State DSWM-BPW EQPB
	Responsible entities for decision-making	Department of Solid Waste and EQPB at the national level
	Responsible entities for implementation and compliance	State governments at the state level EQPB at the national level
Economic instruments	Financial instruments for collection of different materials	Container deposit system is currently in place, which is one of the best performing deposit schemes in place in PICs. There is also the potential to expand this system to ensure that a number of high-market-value items not currently being recovered can be recovered.
	Local laws supporting/inhibiting import/export of materials Bans or phase-outs in place	The plastics ban regulation, which covers plastic bags, has come into play in November 2019. This will have an impact on the total amount of single-use plastic bags being generated in country.
Collection services	Current availability and effectiveness of waste collection service	A comprehensive waste collection system is in place in all states and islands in Palau. This allows for future source separation as well as potential recovery of materials of interest for the recycling network.
	Ability to diversify to multiple collection types Ability to expand	With the current separate collection systems available and the waste recycling programme to be supported by the waste levy deposit, Palau can diversify its collection system and expand
	Recyclers and small-scale players for possible future collections	A number of private recyclers operate in the Palauan market and are ready to be engaged in the process for the development of a regional network. The private recyclers currently provide informal support

		to the government by organising shipments of plastics to be shipped out of Palau along with the aluminium and other high value material. There is a consultative and supportive environment between the two sectors that could be strengthened by formalising into a recycling association

12.1 Challenges and opportunities

There are a number of opportunities to improve upon the audits conducted in Palau. A few items to be considered are listed below:

- More demographic data collection on who is responsible for recycling in households or communities. A comparison of age groups, such as adults, children and elderly could reveal patterns in behaviour and awareness within the population. This could assist in more accurate predictions of future recycling rates and recommendations to government on key areas to invest in awareness campaigns.
- More data collection on the compliance of businesses to existing laws would assist in revealing if laws are adhered to. For example, are the number of fines given for important banned plastics publicly available? What does it reveal about the waste generation behaviour of wealthy companies who can afford to not comply and pay a fine?
- An audit to assess if there is a high level of irregularity in the application or administering of fines for businesses importing plastics. What is the confidence rate that all businesses that do not comply are issued with a fine?

13 References

Asia Development Bank (ADB), 2015. ADB's Work in Palau. [online] https://www.adb.org/countries/palau/overview Accessed 30.01.20.

Bureau of Public Works (BPW), 2013. Manual for Beverage Container Deposit Fee Program.
Asia Development Bank, 2014. *Solid Waste Management in the Pacific*. Palau Country Snapshot. [online] Available at: https://www.adb.org/sites/default/files/publication/42665/solid-waste-management-palau.pdf

Bureau of Public Works (BPW), 2013. Manual for Beverage Container Deposit Fee Program. Available online: https://www.sprep.org/attachments/j-prism/events/2013/Nov/1._Manual_for_Beverage_Container_Deposit_Fee_Program.pdf

Bureau of Public Works (BPW), 2016. National Solid Waste Management Strategy: The Roadmap towards a Clean and Safe Palau 2017 to 2026.

Bureau of Public Works (BPW), 2018. Deposit Beverage Containers Recycling Program. By Calvin Ikesiil Chief, Division of Solid Waste Management.

Census, 2015. Census of population house and agriculture. Available at: http://prdrse4all.spc.int/sites/default/files/2015-census-of-population-housing-agriculture-.pdf)

Etibek, Selby P. 2017. Recycling Rate (as of December 2016). Unpublished report. , as listed in SoER.

ENVIRON Australia Pty Ltd. 2014. Baseline study for the Pacific Hazardous Waste Management Project – healthcare waste. Report submitted to SPREP. Apia: SPREP.

International Monetary Fund (IMF), 2019. Press release: IMF Executive Board Concludes 2018 IV. Consultation with the Republic of Palau.

Island Times, 2018. Palau, JICA ink $12-M grant for Aimeliik Landfill. Available online: http://islandtimes.us/palau-jica-ink-12-m-grant-for-aimeliik-landfill/

JICA, 2018. Signing of Grant Agreement with Palau: Contributing to sanitation improvements and environmental protection through the construction of a landfill site and the provision of needed equipment | Press Releases | News & Features | JICA, 2018)
MPIIC. (2014). Beverage Container Recycling Program: Annual Report FY 2011-2014.

Nashfa, 2016. Implementing a Deposit Refund System for P.E.T bottles in the Maldives: An ex-ante analysis of political feasibility based the models of Kiribati and Palau.

NEPC, 2019. 2019 (SoER) State of the Environment Report Republic of Palau. National Environmental Protection Council. Anuradha Gupta of D&D Biodiversity Consulting on behalf of the Palau National Environmental Protection Council

Ocean Conservancy and International Coastal Cleanup, 2014. Turning the tide on trash. Available online: https://oceanconservancy.org/wp-content/uploads/2017/04/2014-Ocean-Conservancy-ICC-Report.pdf

OEC world, 2017. OEC - Palau (PLW) Exports, Imports, and Trade Partners. [online] Available at: https://oec.world/en/profile/country/plw/

Pacific Region Infrastructure Facility, (2018). *Pacific Region Solid Waste Management and Recycling*.

Republic of Palau, (2019). Pathway to 2030. 1st Voluntary National Review on the SDG's. Available online: https://sustainabledevelopment.un.org/content/documents/23606VNR_FINAL_21June2019_UN_Version.pdf

Republic of Palau, 2019. Financial Reports for the first quarter ended December 31, 2018. Retrieved 30 January 2020, from https://cef.org/charts-and-resources/federal-budgeting-101/
Republic of Palau; The Senate Tenth Olbil Era Kelulau (2018). *PPPL No. 10-29 The Fiscal Year 2019 Budget Act*.

Republic of Palau Office of the Minster, 2019. *Republic of Palau Financial Reports for the First Quarter ended December 31 2018*.

Signing of Grant Agreement with Palau: Contributing to sanitation improvements and environmental protection through the construction of a landfill site and the provision of needed equipment | Press Releases | News & Features | JICA. (2018). Retrieved 25 January 2020, from https://www.jica.go.jp/english/news/press/2018/180529_03.html

Solid Waste Management, BPW, Koror State Government, 2018. *Eighth Regional 3R Forum in Asia and the Pacific 'Achieving Clean Water, Clean Land and Clean Air through 3R and Resource Efficiency-A 21st Century Vision for Asia-pacific Communities'*. Republic of Palau.

Solid Waste Management, BPW, Koror State Government, 2019. The Concept Paper for the KSG Transportation Station Project. Republic of Palau.

Seltenrich, N., 2015. New link in the food chain? Marine plastic pollution and seafood safety.

SPREP, 2014. Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025. – Apia, Samoa : SPREP, 2016.

SPREP, 2016. Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025. – Apia, Samoa : SPREP, 2016.

SPREP, 2018. *Review of e-waste Related Activities in the Pacific Islands*. Retrieved from https://www.sprep.org/attachments/report4-ewaste-baseline-2018.pdf

Legislation

2015 Census of Population Housing and Agriculture for the Republic of Palau - http://prdrse4all.spc.int/sites/default/files/2015-census-of-population-housing-agriculture-.pdf

Constitution of The Republic Of Palau: Palau Constitutional Convention (1979). Koror, Palau.

Japan International Cooperation Agency Ministry of Resources and Development the Republic of Palau (2008). *Draft of National Solid Waste Management Plan*.

Palau National Code Annotated (PNCA)/17 PNCA. GENERAL PROVISIONS 17 PNCA § 102. Title 17 Crimes.

Republic of Palau Office of the President ACT, 2017. *Chapter 21. Plastic Bag Use Reduction Act 2017*. House Bill No. 10-37-2, HD2, SD3.

Secretariat of the Pacific Regional Environment Programme, 2016. *Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025*. Apia, Samoa.

Appendix A: Solid Waste Management Legislation in Palau

The table below highlights regulations addressing solid waste management in Palau.

Table 52: Palau's regulations addressing solid waste management

Section / Schedule	Description
Public National Code	
Public Health, Safety and Welfare – Chapter 10 of Title 25 of the Palau National Code, 1966: 1002 Accumulation of rubbish, refuse, etc	
a.	The accumulation of rubbish, garbage, cans, coconut shells and other refuse attractive to animal and insect life is prohibited.
b.	Any person who shall permit, create, or maintain any such accumulation on land owned or occupied by him, and who fails to remove and dispose of such accumulation within a reasonable time after due notice thereof in writing by a representative of the Bureau of Health Services shall be deemed to have violated this section.
Plastic Bag Use Reduction Act (RPPL No. 10-14), 2017 An Act to amend Title 11 of the Palau National Code to prohibit businesses from importing or distributing plastic bags to customers; authorise a plastics education program to educate the public on the destructive effects of plastic use; and for other related purpose. **Within two years following the effective date of this Act, retail establishments shall not provide plastic bags that are not biodegradable or compostable to their customers at the point of sale or prior to exit for the purpose of transporting groceries, food products, and other merchandise. No individual or business may import plastic products prohibited for distribution.**	
Environmental Quality Protection Act 2003 ***(Chapter 1 of Title 24 of Palau National Code)*** *Established to ensure greater protection of the unique and aesthetically beautiful environment while promoting sustainable economic and social development that would achieve the desired financial goals of the people of the Republic.*	
129	Subchapter II: Palau Environmental Quality Protection Board **d.** The Board shall promulgate and enforce nuclear and other hazardous wastes regulations **f.** The Board is authorised and empowered to: • (2) publish technical manuals establishing procedures and criteria for the administration and enforcement of the Board's regulations, which shall have the force and effect of law
162	Subchapter IV: Implementation, Enforcement and Court Action *Board enforcement and implementation* **b.** Whenever the Board finds that a discharge of waste is taking place or threatening to take place within the Republic that violates or will violate requirements prescribed by the Board, or finds that the waste collection, treatment or disposal facilities of a discharger are approaching capacity, the Board shall require the discharger to submit for approval of the Board, with such modification as it may deem reasonably necessary, a detailed time schedule of specific actions, the discharger shall take in order to correct the situation or prevent a violation of the requirements.

Palau National Marine Sanctuary Act (RPPL No. 9-49 of 2015) This Act amends title 27 PNC principally to establish the Palau National Marine Sanctuary whereby 80 percent of Palau's exclusive economic zone will be in the future a no-take area and is to be protected from all exploitation.	
Chapter 27	***The purpose of this chapter is to establish an Environmental Impact Fee*** – Every passenger, 13 years of older, shall pay an Environmental Impact fee of $100 USD for each international departure from the Republic of Palau, but which not be required to pay such Environmental Impact Fee more than once in any thirty-day period.
The Republic of Palau Public Law – RPPL No. 7-24	
	• Establishing a recycling program for the Republic of Palau, establishing a beverage container deposit fee, creating a recycling fund, and for other related purposes • To place responsibility for differing aspects of national beverage container recycling program on two Ministries of the National Government, the MPIIC and the MoF
Beverage Container Recycling Regulations	• These regulations assign respective responsibilities over the beverage container recycling program to both MoF and MPIIC
Memorandum of Understanding (MOU): between MPIIC, MoF and Koror State Govt	• MoF will advance funds to KSG for redeeming the beverage containers while retaining the $0.025 per container redeemed as compensation • Before exhaustion of the fund by KSG, KSG will submit proof of refunds paid to MoF and request for additional funds • KSG will operate the redemption center under the directives of MPIIC
Chapter 2401-31: Solid Waste Management Regulations (Effective May 26 1996)	
2401-31-01 Authority	These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board pursuant to the authority granted by Republic of Palau Public Law No. 1-58. These regulations shall have the force and effect of law. establish minimum standards governing the design, construction, installation, operation and maintenance of solid waste storage, collection and disposal systems, so as to prevent pollution of drinking and other waters of Palau and to contribute to conservation of natural resources and environment. This includes a permit system for the establishment or operation of solid waste disposal facilities that is compliant with the terms, conditions, provisions and management plants for any national, state or traditional conservation area, preserve or other protected area as established by law.
2401-31-02 Purpose	The purpose of these regulations is to establish minimum standards governing the design, construction, installation, operation, and maintenance of solid waste storage, collection and disposal systems. Such standards are intended to: a) Prevent pollution of the drinking and recreational waters of the Republic of Palau b) Prevent air and land pollution c) Prevent the spread of disease and the creation of nuisance d) Protect the public health safety e) Conserve natural resources and: f) Preserve and enhance the beauty and quality of the environment
Storage Requirements	• 2401-31-04: General storage requirements

	• 2401-31-05: Food wastes • 2401-31-06: Building and facility design • 2401-31-07: Bulky wastes • 2401-31-08: Waste containers
Solid Waste Collection	• 2401-31-09: Collection safety • 2401-31-10: Collection equipment • 2401-31-11: Collection frequency • 2401-31-12: Collection operations
Solid Waste Management Responsibility and Facility Standards	• 2401-31-13: Solid waste management responsibility • 2401-31-14: Solid Waste Disposal Facility Standards • 2401-31-15: Mandatory requirements • 2401-31-16: Discretionary requirements • 2401-31-17: Solid waste disposal requirements • 2401-31-18: Reclamation facilities standards • 2401-31-19: Incineration standards • 2401-31-20: Transfer station standards • 2401-31-21: Hazardous waste disposal standards • 2401-31-22: Private waste disposal system standards
Solid Waste Permit System	• 2401-31-23: Permit required • 2401-31-24: Permit application • 2401-31-25: Application review • 2401-31-26: Duration of permit • 2401-31-27: Permit conditions • 2401-31-28: Termination of permitted operations • 2401-31-29: Performance bond
Variances	• 2401-31-30: Variance application • 2401-31-31: Standards for variance • 2401-31-32: Variance issuance and renewal • 2401-31-33: Emergency procedures
Solid Waste Management Plans Required	• 2401-31-34: Solid waste management plans
Enforcement	• 2401-31-35: Enforcement and compliance

<table>
<tr><td>Miscellaneous Provisions</td><td>• 2401-31-36: Severability
• 2401-31-37: Repealer</td></tr>
<tr><td colspan="2">Trust Territory Land Planning Act (Title 31 PNC)</td></tr>
<tr><td></td><td>Establishes a Planning Commission within the government of each district. The Planning Commission shares the responsibility for land use planning among a number of other Government agencies. The Act requires the inclusion of environmental considerations during the planning activities by requiring that the master plan prepared by each commission include a conservation element planning for the conservation, utilisation and protection of natural resources, including forests, soils, rivers and other waters, harbours, fisheries, wildlife, minerals and other natural resources.</td></tr>
<tr><td colspan="2">Air Pollution Regulations</td></tr>
<tr><td></td><td>CONTROL OF PARTICULATE EMISSION FROM INCINERATOR: DESIGN AND OPERATION These regulations apply to an incinerator used to dispose of refuse.
<table>
<tr><td colspan="2">PARTICULATE EMISSION ALLOWABLE BASED ON COMBUSTION OF FUEL</td></tr>
<tr><td>Operating Rate in Million BTU's per hour</td><td>Maximum allowable emissions of particulate in pounds per million BTU's heat input</td></tr>
<tr><td>5</td><td>5</td></tr>
<tr><td>10</td><td>10</td></tr>
<tr><td>100</td><td>100</td></tr>
<tr><td>250</td><td>250</td></tr>
<tr><td>500</td><td>500</td></tr>
<tr><td>1,000</td><td>1,000</td></tr>
</table>
2401-71-51 Multiple Chamber-Cylinders Required
All new incinerators and all existing incinerators shall, by December 25, 1981 be multiple-chamber incinerators, provided that the Chairman may approve any other type of incinerator if it is demonstrated such design provides equivalent performance. 2401-71-53 Prohibition on Odors
No person shall discharge into the atmosphere, or cause to be discharged into the atmosphere, from any source whatsoever any amount of odorous or gaseous emission, material, or air contaminant of any kind or description, which is injurious or detrimental to health or safety, or which in any way unduly interferes with or prevents the comfortable enjoyment of life or property</td></tr>
</table>

Environmental Health Regulations (Title 34, PNC)	
	The Environmental Health Regulations excerpts or adopts in full regulations from the Environmental Quality Protection Board Regulations which refer to the management of solid waste, liquid waste, and air pollution and hazardous material control. To alleviate redundancy, only the EQPB Regulations are reviewed with the understanding that the DEH also follows the same rules and regulations.
Trust Territory Land Planning Act (Title 31 PNC)	
	Establishes a Planning Commission within the government of each district. The Planning Commission shares the responsibility for land use planning among a number of other Government agencies. The Act requires the inclusion of environmental considerations during the planning activities by requiring that the master plan prepared by each commission include a conservation element planning for the conservation, utilisation and protection of natural resources, including forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals and other natural resources.

Appendix B: Project Plan for Palau

FIELD CONTACTS

Project Delivery Recycling specialist	Country Co-ordinator	Waste Audit Specialist
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GOVERNMENT POINTS OF CONTACT

Overall point of contact	Collections and Disposal Services
Ms Roxanne Siual Blesam Executive Officer Environmental Quality Protection Board Public Works Building Koror State, Palau eqpb@palaunet.com	Mr Brian Melairei Director Bureau of Public Works Ministry of Public Works, Infrastructure and Communication melairei@gmail.com

KEY STAKEHOLDERS

Organisation name	Name of stakeholder/s	Email
1. Environmental Quality Protection Board	• Ms Roxanne Siual Blesam	eqpb@palaunet.com
2. Bureau of Public Works	• Mr Brian Melairei • Mr Calvin Ikesiil,	melairei@gmail.com calikesiil@gmail.com
3. Koror State Solid Waste Management Office, Koror State	• Mr Selby Etibek	s.etibek@gmail.com
4. Recyclers in Palau (7).	• Palau waste company, Mr Michael Yao • Chao Tai CT shop, Mr Jimmy & Ms Shella • Belau Garbage and Scrap company, Mr Sam Masang • Koror state government recycling centre, Katsuo Fuji/Selby Etibek • GF automotive enterprises, Ching hua Lin • Palau metal company/JC auto shop, Mr Joe Chen • Battery collector, Kumar	yafeng_kelly@hotmail.com N/A peci@palautelecoms.com ksg-swm@palaunet.com gfealin@yahoo.com N/A N/A
5. Custom Office	•	
6. Ministry of Health	•	
7. Power Company	•	
8. Local Breweries and Water Producers	•	

DETAILED PROGRAM FOR THE AUDIT TASKS

FRIDAY, 8TH NOVEMBER 2019

AM:

- First Audit Team members arrive - Amardeep and Matthew. Check in Lehn's Hotel Apartment.
- Meeting with Ms Roxanne, Mr Calvin, Mr Selby and others on the supporting arrangements
  - Briefing on the Audit Mission.
  - Discuss Sampling Areas for assessment (Koror State, etc.)
  - Confirm Collection Schedule in Koror State.
  - Confirm supporting staff and workers and when they are needed.
  - Confirm transportation of samples to the sorting area.
  - Confirm a central sorting area.
  - Confirm appointments for key government agencies and stakeholders.
  - Any other businesses

PM:

- Visit Koror State Waste Management Facilities (Waste Materials Transfer Station, etc.)
  - Confirm sorting area; supporting staff and workers; collection of households and commercial samples.
- Visit the existing waste landfill and recycling facilities around the area – tyre shredding facility, scrap metals, etc.

SATURDAY, 9TH NOVEMBER, 2019

(If the Waste Landfill opens)

AM:

- Landfill Audit (Photo taking of all incoming vehicles and visual estimation).

PM

- Continue Landfill Audit until landfill closes.

SUNDAY, 10TH NOVEMBER, 2019

REST

MONDAY, 11TH NOVEMBER 2019

AM: Meeting with Key Stakeholders for Information Gathering. And stockpile assessment

- National Environment Agency.
- National Waste Management Agency. (Public Works).
- Customs Agency

PM

- Ministry of Health
- Ministry of Agriculture
- Tourism Agency

TUES, 12TH NOVEMBER 2019

AM: Meeting with key stakeholders continues and stockpile assessment

- Recycler 1.
- Recycler 2
- Recycler 3
- Recycler 4

PM

- Beverage Companies – beer, soft drinks and water.

WED, 13TH NOVEMBER 2019

Second Audit Team arrive – Martina and Tofaeono.

AM: Meeting with Key Stakeholders Continues And stockpile assessment

- Recycler 1.
- Recycler 2
- Recycler 3

PM

- Recycler 4
- Beverage Companies – beer, soft drinks and water
- Planning of the Households Samples Collection
- Preparation of Audit Equipment and Sorting Area.

THUR, 14TH NOVEMBER 2019

AM - PM

- Getting supporting staff and workers for commencement of samples collection and sorting.
- Identifying the first 70 households' samples at Koror State, collect and take to the sorting area.

FRI, 15TH NOVEMBER 2019

Final Audit Team member arrives – Berry

AM - PM

- Identifying the second 70 households' samples and collect for sorting
- Sorting of the first 70 collected samples
- Interview of the first 70 households

SAT, 16TH NOVEMBER 2019

- Rock Island Visit

SUN, 17TH NOVEMBER 2019

REST

MON, 18 NOVEMBER 2019

AM – PM:

- Identifying the third 70 households samples and collect their waste for sorting.
- Sorting continues
- Interview continues

TUES, 19TH NOVEMBER 2019

AM - PM

- Sorting continues
- Interview continues

WED, 20TH NOVEMBER 2019

AM - PM

- Locate 25 commercial waste samples and collect
- Sorting continues
- Interview continues

THUR, 21ST NOVEMBER 2019

AM - PM

- Locate 25 commercial samples and collect
- Sorting continues
- Interview continues

FRI, 22ND NOVEMBER 2019

AM – PM

- Sorting continues
- Interview continues

SAT, 23RD NOVEMBER 2019

- Rock Island Visit or Sat 16th

SUN, 24TH NOVEMBER 2019

REST

MON, 25TH NOVEMBER 2019

AM – PM- **some members of team leave**

- Sorting and Interview continues
- Stockpiles of Waste Assessment

TUES, 26TH NOVEMBER 2019

AM -PM

- Sorting and Interview continues
- Stockpiles of Waste Assessment

WED, 27TH NOVEMBER 2019

AM - PM

- Sorting and Interview continues
- Stockpiles of Waste Assessment

THUR, 28TH NOVEMBER 2019

All members of team leave

WASTE AUDIT COMPONENT

SAMPLING SCHEDULE FOR PALAU

The following schedule has been provided by the statistician based on the criteria noted in the audit methodology.

Percentage errors will be higher in places where overall generation rates are lower (0.24 kg/household error is about 20% error in Tuvalu where we estimate 1.2 kg/hh/day generation but only 10% in South Africa where we estimate 2.4 kg/hh/day). Higher rural populations have lower generation rates.

Scheme	Error at 80% Confidence	Error at 90% Confidence
105 Koror, 45 rural site	17%	22%
90 Koror, 30 rural, 30 rural #2	15%	20%
110 Koror, 45 rural #1, 45 rural #2	14%	18%
100 Koror, 40 Airai, 30 rural #1, 30 rural #2	13%	17%

Commercial	Error at 80% Confidence	Error at 90% Confidence
20 Koror, 10 rural #1	24%	
20 Koror, 5 rural #1, 5 rural #2	24%	
25 Koror, 10 rural #1, 10 rural #2	20%	

Split samples evenly between different types of premises, for example, 20 commercial samples is 4 admin, 4 food, 4 retail, 4 hotel and 4 supermarket.

Appendix C: Collection sheet

Please note that the consultant team used an online tool but collected the below information.

	Date	Auditor		Weather			
	Sample number	**GPS location recorded?**	**Photo?**	**Interview sheet provided?**	**Interview sheet returned?**	**Bags provided?**	**Comments**
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

Appendix D: Sorting categories

Material Categories, definition and source of data

C	Category	Description	EOL Source	Incoming
Metal	Aluminium cans	Alcoholic sodas and spirit-based mixers, beer and soft drink, Food cans, pet food cans, aerosols, industrial cans	H, C, L	Cu, D
	Aluminium recyclable	Steel Packaging	H, C, L	Cu, D
	Steel containers	Alcoholic sodas and spirit-based mixers, beer, soft drink, Food cans, pet food cans, aerosols, industrial cans, clean/empty paint cans	H, C, L	Cu, D
	Metal other	100% ferrous items that are not cans/tins/packaging materials, any other steel, Beer bottle tops, jar lids, composite ferrous items for which the weight of the ferrous metal is estimated to be greater than the other material items, Foils 100% aluminium items that are not cans/tins/or packaging materials, any other aluminium	H, C, L	Cu, D
Fishing	Fishing/seafood metal		H, C, L	
	Fishing/seafood plastic		H, C, L	
	Fishing/seafood wood		H, C, L	
Paper and Cardboard	Cardboard	Cardboard without corrugation (glossy and non-glossy), cereal boxes, business cards,	H, C, L	
	LPB	Soy milk cartons, some fruit juice cartons, UHT/long-life milk	H, C, L	
	Composite	Composite paper items for which the weight of the paper is estimated to be greater than the weight of the other materials	H, C, L	
	Paper	Office paper, writing pads, letters, envelopes, books, Newspapers, newspaper like pamphlets, paper, magazines, brochures, wrapping paper, labels, paper packaging (no plastic or wax coating)	H, C, L	
Plastic	PET containers	(Polyethylene) – soft drink, flavoured water, fruit juice, sports drinks, plain water (carbonated/non-carb), Food containers, mouthwash containers, detergent bottles	H, C, L	Cu, D
	HDPE containers	(High-density polyethylene) milk and flavoured milk bottles Bleach bottles, oil containers, food containers	H, C, L	Cu, D
	LDPE containers	(Low-density polyethylene) squeeze bottles	H, C, L	Cu, D
	PVC containers	(Polyvinyl chloride) clear cordial and juice bottles, Detergent bottles	H, C, L	Cu, D
	PP	Bottles and containers	H, C, L	Cu, D
	EPS	Yoghurt and dairy containers, vending cups, clam shells	H, C, L	Cu, D
	PS	Meat and poultry trays, vending cups, fragile-item packaging	H, C, L	Cu, D
	PP	Bottles and containers	H, C, L	Cu, D
	Flexibles/Film	No shopping bags, Just chip packets and other MLM packaging	H, C, L	Cu, D
	Other plastic		H, C, L	Cu, D
Single use plastic items	Beverage containers	The total count from the beverage container sort	H, C, L	Cu, D
	Cigarette Butts		H, C, L	Cu, D
	Cigarette Packets		H, C, L	Cu, D
	Straws		H, C, L	Cu, D
	Coffee Cups		H, C, L	Cu, D

C	Category	Description	EOL Source	Incoming
	Bags – heavy glossy typically branded carry bags		H, C, L	Cu, D
	Bags – supermarket type light weight carry bags		H, C, L	Cu, D
	Takeaway containers plastic other than EPS		H, C, L	Cu, D
	Takeaway containers Styrofoam		H, C, L	Cu, D
	Takeaway containers paper		H, C, L	Cu, D
	Takeaway container lids		H, C, L	Cu, D
	Bottle lids		H, C, L	
Batteries	Non-rechargeable batteries	Common batteries, AAA, AA etc. single use	H, C, L	
	Rechargeable Batteries	Common batteries (rechargeable), AAA, AA etc. rechargeable	H, C, L	
	Lead acid batteries	Large batteries used in vehicles or other machinery	H, C, L	Cu, D
	Mobile phone batteries	Batteries used in mobile phones	H, C, L	Cu, D
	Power tool batteries	Batteries used in power tools	H, C, L	
	Lithium Batteries	Small lithium batteries	H, C, L	
	Lithium ion batteries	Batteries used in electric cars	H, C, L	Cu, D
	Other batteries	All other battery types	H, C, L	Cu, D
E-Waste	Computer Equipment	Keyboard, monitor, hard drives, printers, etc.	H, C, L	Cu, D
	TVs	TVs	H, C, L	Cu, D
	Mobile Phones	Mobile phones, phones, pads, charges, car kits, Bluetooth	H, C, L	Cu, D
	Electrical Items & Peripherals	Radio, iPod, Gameboys, stereos, speakers, VCR, DVD players, power tools, wiring and cables, small electrical items (toaster, blender, etc.), computer discs, cassettes, DVDs, CDs	H, C, L	Cu, D
	Toner Cartridges	Printer and toner cartridges	H, C, L	Cu, D
Glass	Glass bottles	Recyclable (all colours) – beer bottles, wine bottles, spirit cider/fruit-based, flavoured water, fruit juice, sports drinks, plain water	H, C, L	Cu, D
	Glass Jars	Non-beverage containers (all colours) – sauce bottles, jam jars, vegetable oils, other food containers	H, C, L	Cu, D
	Glass fines	Mixed glass or glass fines < 4.75 mm	H, C, L	Cu, D
	Glass other	Plate glass (window and windscreen), Pyrex, mirror glass, Corning ware, light globes, laboratory and medical glass, white opaque glass (e.g. Malibu alcohol bottles)	H, C, L	Cu, D
Hygiene	Feminine hygiene	Used disposable feminine hygiene products	H, C, L	
	Pharmaceutical		H, C, L	
	Nappies	Used disposable nappies/diapers	H, C, L	
	Medical waste	Sharps, human tissue, bulk bodily fluids and blood, any blood-stained disposable material or equipment	H, C, L	
	Other sanitary waste		H, C, L	
Organics	Food	Vegetable/fruit/ meat scraps	H, C, L	
	Wood/timber		H, C, L	

C	Category	Description	EOL Source	Incoming
	Garden organics	Grass clippings, tree trimmings/prunings, flowers, tree wood (< 20 mm diameter)	H, C, L	
	Other organics	Animal excrement, mixed compostable items, cellophane, kitty litter	H, C, L	
Hazardous	Paint	Containers containing paint (dry or wet)	H, C, L	
	Fluorescent Tubes	Fluorescent tubes; compact fluorescent lamps (CFLs)	H, C, L	
	Household Chemicals	Containers containing bleach, cleaning products, unused medical pills	H, C, L	
	Asbestos	Asbestos and asbestos-containing products or building materials	H, C, L	
	Clinical (medical)	Sharps, human tissue, bulk bodily fluids and blood, any blood-stained disposable material or equipment	H, C, L	
	Gas Bottles	Gas bottles	H, C, L	
	Mercury	Mercury used in medical applications	H, C, L	Ministry of health, hospitals
	Hazardous Other	Any other hazardous material	H, C, L	
	Textiles	Wool, cotton and natural fibre materials	H, C, L	
	White goods		H, C, L	Cu, D
	Ceramics		H, C, L	
	Containerised used oil		H, C, L	Cu, Retail
	EOL renewable energy equip	Includes EOL solar panels	H, C, L	Cu, Power company, installers
	End of life Vehicles		H, C, L	Cu
	Tyres		H, C, L	Cu
	Please describe			

Codes used:

H = Household audit

C = Commercial audit

L = Landfill audit

Cu= Customs

D = Distributors

Appendix E: Detailed list of container categories

Date:_____Sample Number:_____

	<500	501–1.5L	>1.51L
Aluminium			
Alcoholic sodas & spirit-based mixers			
Beer/cider			
Water			
Flav. water/soft drink (carbonated)			
Flav. water/soft drink (non-carb)			
Food (human)			
Food (dog and cat)			
Other			
Steel			
Alcoholic sodas & spirit-based mixers			
Beer			
Cider/fruit based etc			
Flav. water/soft drink (carbonated)			
Flav. water/soft drink (non-carb)			
Other			
LPB			
Milk			
Flavoured milk			
Fruit juice (>90% fruit &/or Veg juice)			
Fruit drink			
Flav. water/sports drink, non-carb			
Beauty and personal care			
Home care (including cleaning)			
Other			
PET			
Milk			
Drink pouches			
Flav. milk			
Flav. water/ sports drink etc (non-carb)			
Flav. water/soft drink (carbonated)			
Plain water (carbonated or non-carb)			
Fruit juice (>90% fruit &/or Veg juice)			
Fruit drink			
Beauty and personal care			
Home care (including cleaning)			
Cooking oil			

Other			
HDPE			
milk			
drink pouches			
Flav. milk			
Flav. water/ sports drink etc (non-carb)			
Flav. water/soft drink (carbonated)			
Plain water (carbonated or non-carb)			
Fruit juice (>90% fruit &/or Veg juice)			
Fruit drink			
Beauty and personal care			
Home care (including cleaning)			
Other			
Other Plastic			
Milk			
Drink pouches			
Flav. milk			
Flav. water/ sports drink etc (non-carb)			
Flav. water/soft drink (carbonated)			
Plain water (carbonated or non-carb)			
Fruit juice (>90% fruit &/or Veg juice)			
Fruit drink			
Wine bladders			
Beauty and personal care			
Home care (including cleaning)			
Other			
Glass			
Alcoholic sodas/spirit-based mixers			
Beer			
Cider/fruit based etc			
Flav. water/soft drink (carbonated)			
Plain water (carbonated or non-carb)			
Fruit juice (>90% fruit &/or Veg juice)			
Fruit drink			
Wine (glass only)			
Wine cooler			
Spirit			
Beauty and personal care			
Home care (including cleaning)			
Other			

Appendix F: Landfill Entry Sheet

Date							
Time	**Type of vehicle**	**Waste type**	**Company**	**Premises Type**	**Location**	**Size**	**Plate#**
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		
	F / P / V / C / S / O	Tr / W /M /Mat/Ty/WG/Gr/B/O		Hhl/Shop/Acc/C&D/Of/Caf/PWC/Ch/E/M	1 / 2 /3		

F = Flatbed/ **P** = pickup / **V** = Van / **C** = Compactor (Dump truck) / **S** = Sedan / **O** = other

Hhl = household self haul/**Shop** = any commercial including shopping centre/**Acc** = Resort, Hotel, apartments/**C&D**/**Of** = office/**Caf** = food outlet/**PWC** = Private waste collector/ **Ch** = Charity / **E** = Educational institution/ **M** = municipal waste

Tr = Trash / **W** = Wood/**M** = Metal/**Mat** = Mattresses/ **Ty** = Tyres/**Gr** = Green Waste/**WG** = White goods/**B** = Batteries/**O** = other

Appendix G: Landfill tipface datasheet

Date	Time	Location	Palau (Koror)	
Time				
Plate number				
Type of Vehicle	F / P / V / C / S / O	F / P / V / C / S / O	F / P / V / C / S / O	F / P / V / C / S / O
Size of load				
Source	Hhl/Shop/Acc/C&D / Of/Caf/PWC/Ch/E/ M	Hhl/Shop/Acc/C&D / Of/Caf/PWC/Ch/E/ M	Hhl/Shop/Acc/C&D / Of/Caf/PWC/Ch/E/ M	Hhl/Shop/Acc/C&D / Of/Caf/PWC/Ch/E/ M
Compaction (Circle)	H M L	H M L	H M L	H M L
Garbage bags of rubbish				
Paper - recyclable				
Paper - non-recyclable				
Cardboard				
Food / kitchen				
Nappies				
Dead animals				
Vegetation / garden				
Stumps, logs (10 cm diameter +)				
Wood - furniture, painted wood				
Wood - chipboard, MDF				
Wood - pallets				
Wood - board/pole, untreated				
Wood - board/pole, treated				
Covered furniture				
Carpet & underlay				
Textiles - clothing / cloth				
Textiles - composite (shoes, bags)				
Mattresses - spring				
Rubber - tyres				
Rubber / foam				
Glass - containers recyclable				
Glass - plate / other				
Plastic - containers recyclable				
Plastic - plastic bags & film				
Plastic - polystyrene foam				
Plastic - other				
Metals - recyclable containers				
Metals - ferrous (steel)				
Metals - non-ferrous				

Concrete / cement				
Bricks				
Tiles				
Plasterboard				
Clean fill				
Rock / dirt / soil				
Asphalt				
Sludge				
Toner cartridges vol				
Electrical large i.e. white goods				
Electrical medium i.e. televisions				
Electrical small i.e. blender				
Insulation				
End of life vehicles				
EOL renewable energy equip				
Paint				
Gas bottles				
Containerised used oil				
Other - organic				

Appendix 1a – Mission Team Detailed Work Program

Saturday (02/11)	
SPREP HWMA departs Samoa, stopover in Brisbane	
Sunday (03/11)	
SPREP HWMA arrives Port Moresby	
Monday (04/11)	
08:30-09:30	Presentation of the mission team to CEPA for formal commencement of mission. Identification and introduction of CEPA officer assigned to the mission. Mission Team members confirmed as follows; Joshua Sam (**JS**) - Mission Team Leader, Edward Nicholas (**EN**) - Mission Technical Consultant, Anita Poesi (**AP**) and Patricia Torea (**PT**) - Mission Liaison officers from CEPA.
10:00 - 00:45	Audience with National Department of Health (NDoH) representative. Discussion of mission TOR, agenda and provincial updates of DDT
11:00-14:30	Task broken up into 2 Teams: T1- JS & EN assigned to purchase Mission PPE, Materials & Equipment T2- AP & PT assigned to continued making contact and confirming stakeholders at respective mission centres
15:00-17:00	Revision of Mission Plan, confirmation of training materials and all other relevant information by mission team.
Tuesday (05/11)	
08:30 - 09:30	Task broke up into 2 Teams: T1- EN assigned to continue purchase Mission PPE, Materials & Equipment T2- JS, AP & PT assigned to continued making contact and confirming stakeholders at respective mission centres
10:00 - 11:00	Audience with CEPA focal point and PNG NIPS Project Manager. Discussion of mission TOR and agenda. Finalization of mission agenda.
11:00-13:30	Continue with purchasing of Mission PPE, Materials and Equipment
13:30-14:30	Audience with PNG Power Limited (PPL). Discussion of mission TOR, agenda and update of PCB situation in selected sites
15:00-17:00	Safety and Security briefing, Finalise Mission Plan and confirm all purchases.
18:00-21:00	Packing of materials needed for the mission by JS & EN
Wednesday (06/11) Goroka visit (JS, EN, AP)	
09:45	Mission Team arrival in Goroka and pick up hire vehicle at airport
10:30-12:00	Mission Team convened first stakeholder meeting for EHP Mission with GULLG, EHPHA & PPL reps
13:00-17:00	Mission Team; • Booked into respective hotel • Unpacking mission PPE, materials and equipment to check and prepare for mission work • Review of training material and prepare alternate training information package
Mission Team overnights in Goroka	
Thursday (07/11)	
09:30-12:00	Mission Team conducted further consultation meetings with; • EHP Provincial Administrator • EHP Division of Natural Resources and Environment

13:00-17:00	Mission Team conducted Training on Risk Assessment and practical session on Risk Assessment of Hazardous Substances
Mission Team overnights in Goroka	
Friday (08/11)	
08:30-10:00	Mission Team with EHP Environment Coordinator visited West Goroka Powerhouse to meet the PPL contact; • Conducted site inspection of Powerhouse to identify and confirmed number of items containing transformer oils • Conducted site inspection of Goroka Sub-station to identify and confirmed number of items containing transformer oils
10:00-11:00	Team with PPL contact returned to Goroka town to purchase necessary tools and additional PPE for support personnel for the transformer oil sampling task.
11:30-17:00	Mission Team with help from the EHP Env. Coordinator, the Sub-station Supervisor and groundsman; • Undertook clean-up of overgrown bush next to the oil drums, tanks and obsolete power generation equipment • Undertook sampling of items containing transformer oils
Mission Team overnights in Goroka	
Saturday (09/11)	
08:00-11:00	Mission Team returned to Goroka Powerhouse and; • Undertook clean-up of overgrown bush next to the oil drums, tanks and obsolete power generation equipment • Undertook sampling of items containing transformer oils
12:00-18:00	Mission Team; • checked out of hotel (1200hrs) • Checked into flight (1400hrs) • Departed Goroka (1800hrs)
Mission Team overnights in Port Moresby	
Sunday (10/11) Lae visit (JS, EN, AP)	
08:30-9:30	Mission Team arrival in Nadzab airport. Picked up hire vehicle car and head into Lae and checked into hotel.
10:00-14:30	Unpacking, checking and preparation of mission materials and equipment. Mission Team rest up.
15:00-17:00	Mission Team visit Milfordhaven Powerhouse in Lae city; • Establish contact with PPL personnel • Arrange and confirm work plan for Lae mission
Mission Team overnights in Lae	
Monday (11/11)	
05:00-09:00	Mission Team travel up the Highlands Highway back into EHP to visit the Yonki Hydro Power Scheme
09:30-13:00	After formally meeting the Yonki Hydro Power Scheme Manager, the Mission team commenced transformer oil sampling at; • Yonki Transformer Maintenance Workshop • Ramu 1 Hydro Power Switchyard • Yonki Sub-station • Yonki Transmission Workshop
13:30-17:30	Mission Team departed Yonki for Lae and arrive safely back at hotel

Mission Team overnights in Lae	
Tuesday (12/11)	
09:00-10:00	Mission Team convened consultation meeting with government officials from the Environment and Natural Resources Division (ENRD) of Morobe Provincial Administration and the Lae Urban Local Level Government (LULLG)
11:00-13:30	Mission Team with assistance from an Environment Officer of the ENRD and personnel from the PPL Taraka Sub-station • Undertook transformer oil sampling, and • Convened brief meeting with PPL Momase Region Manager
14:00-17:00	Mission Team; • Arrived back at hotel • Prepared and packed securely all samples for Yonki and Lae • Prepared and packed all work materials and equipment for travel to Rabaul
Mission Team overnights in Lae	
Wednesday (13/11) Kokopo Visit (JS, EN, PT)	
07:30-10:00	Mission Team; • Checked out of hotel and depart for Nadzab airport • Checked into flight • Departed Nadzab for Tokua @ 1000hrs
11:00-12:00	Mission Team arrival in Tokua Airport; • Picked up hire vehicle • Met up with new Team member and picked luggage and cargo and depart for Kokopo • Checked into hotel in Kokopo
13:00-14:00	Mission Team thru mission liaison officer; PT established contact with stakeholders in Kokopo including the East New Britain Provincial Health Authority (ENBPHA) and the PPL Island Region Head office in Kokopo.
14:00-15:00	Mission Team; • Convened meeting with PPL representatives • Tour of the site all obsolete power generation equipment including 205L metal drums containing transformer oil were stored
15:30-17:00	Unpacking, checking and preparation of mission materials and equipment.
Mission Team overnights in Kokopo	
Thursday (14/11)	
08:00-10:00	Mission Team; • Printing of all Risk Assessment Training and Practical Session forms • Preparation of materials into individuals' folders
10:30-14:00	Mission Team; • Established contact with Health Coordinator for Rabaul District using contacts provided by the Public Health Program Manager • Picked up the Health Coordinator at ENBPHA office area • Departed Kokopo for Rabaul • Arrived at Balanataman Local Level Government (BLLG) office in Rabaul District • Inspected the 2 x 20ft containers containing the old stocks of DDT and took note of all necessary PPE, materials and tools required to undertake the safeguarding work. • Briefly discussed casual labour requirements and other equipment needs for the safeguarding work with the Health Coordinator • Dropped off Health Coordinator at Rabaul District Health office and departed for Kokopo
14:30-17:00	Mission Team visited various hardware and industrial supply stores in Kokopo town to purchase all the necessary PPE, materials and tools noted for the DDT safeguarding task.
Mission Team overnights in Kokopo	

Friday (15/11)	
08:00-09:00	Mission Team; • Arrived at the Risk Assessment Training venue located at the Education Division Conference room within the Tarmur Centre, Kokopo. • Prepared the training room and set-up for the training
09:30-13:00	Risk Assessment Training conducted by the Technical Consultant and aided by the Mission Team Leader for the opening including providing input to queries raised, especially those related to SPREP's functions etc.
13:00-14:00	Participants and Mission Team members partake in lunch sponsored by SPREP.
14:00-17:00	Mission Team and Training participants; • Departed Kokopo for BLLG in Rabaul District. • On arrival at the BLLG premises; the participants were taken to the 2 x 20ft container storage area and shown the DDT stockpiles. • Participants observed from afar the DDT stockpiles and undertook the practical assessment exercise using the Hazardous Substance Risk Assessment form with assistance provide by the Mission Team. • Health Coordinator provided the participants with a brief history of DDT stocks and further group discussion held on the outcome of the risk assessment exercise using the form. • Departed BLLG for Kokopo.
Mission Team overnights in Kokopo	
Saturday (16/11)	
8:30-15:30: Safeguarding of DDT stockpiles	
06:00-7:30	Mission Team; • Packed all DDT Safeguarding PPE, materials and tools and depart Kokopo for BLLG
07:30-08:45	Mission Team; • Met up with Health Coordinator and rounded up the casual labour and mobilised to clean up site • Technical Consultant gave a Safety Pre-start talk to all the persons that would be involved in the clean-up and also provided a demonstration on the use of the safety PPE and the individual tools supplied for the clean-up work • The Mission Team Leader; JS was left to oversee the DDT Safeguarding work whilst the other two Mission Team members; EN & PT departed BLLG for Kokopo
09:30-13:30	Mission Team; • Undertook transformer oil sampling, and • Convened brief meeting with PPL Islands Region Manager
14:15-16:30	Mission Team; • Departed Kokopo for BLLG • On arrival noted that the DDT safeguarding work had been successfully completed • Convened a brief meeting with the Health Coordinator and his assistants on next steps for the work regarding removal and disposal of the DDT stocks. • Departed BLLG for Kokopo
18:00-20:00	Mission Team repacked all mission materials and equipment including oil samples in preparation for departure the following day
Mission Team overnights in Kokopo	
Sunday (17/11)	
05:00-07:00	Mission Team; • Checked out of hotel and depart for Tokua airport • Checked into flight • Departed Tokua for Port Moresby @ 1000hrs
08:30	Mission Team arrived in Port Moresby
Mission Team overnights in Port Moresby	

Monday (18/11) Alotau visit (JS, EN, PT)	
07:00-10:00	Mission Team; • Checked into flight • Departed Port Moresby for Alotau (flight delayed from 9am to 10am)
11:15-12:00	Mission Team; • Arrived Gurney Airport (Alotau) • Picked up hire vehicle and drove into Alotau • Checked into hotel
13:00-14:00	Mission Team; • Convened meeting with acting Provincial Planner and Environment officer from the Milney Bay Provincial Administration (MBPA) • The availability of the Environment officer was confirmed to accompany the Mission Team to Misima Island
15:30-16:30	Mission Team; • Convened meeting with Town Manager and staff of Alotau Urban Local Level Government (AULLG)
17:00-18:00	Unpacking, checking and preparation of mission materials and equipment.
Mission Team overnights in Alotau	
Tuesday (19/11)	
08:00-09:00	Mission Team; • Visited the Milney Provincial Health Authority (MBPHA) office to make an appointment to meet with the CEO.
09:00-11:00	Mission Team; • Visited Alotau Powerhouse and convened brief discussion with Powerhouse personnel on status of transformer oil management • Took a guided tour of the Powerhouse
13:00-13:30	Mission Team; • Convened unplanned but informative brief meeting with a/Deputy Director – Policy and Planning, MBPHA (a former District Health Manager for Samarai Mura who was based on Misima Island) • Team obtain good information on whereabouts of DDT stocks on Misima Island and Esa'ala District.
13:30-14:30	Mission Team; • Convened meeting with the MBPHA CEO • Informed the CEO during the meeting the Mission objectives and work program • The CEO directed the team to the Director for Public Health and arranged for the team to meet with the Director
15:00-16:30	Mission Team; • Convened meeting with the Director – Public Health, the Provincial EHO and the District Health Manager for Raba Raba District • Team obtain good information on whereabouts of DDT stocks in Raba Raba District
Mission Team overnights in Alotau	
Wednesday (20/11)	
08:30-09:00	Mission Team' • Arrived at Training venue located within the Tourism Bureau office building • Prepared training room ahead of commencement of training
09:30-12:00	Mission Team conducted the Risk Assessment Training
13:00-16:00	Mission Team conducted the Risk Assessment practical at the Alotau rubbish dumpsite
Mission Team overnights in Alotau	

Thursday (21/11) Misima visit (JS, EN, PT)	
08:00-12:00	Mission Team; • Repack all mission materials and equipment • Checked out of Hotel and • Depart Alotau for Gurney Airport
12:00-14:00	Mission Team; • Arrived at Gurney Airport • Checked into flight to Misima • By 1400hrs, all passengers were advised of the flight cancellation. • Mission Team was re-booked for the next available flight which was scheduled for Sat-23/11/19. • Mission Team collected checked baggage and cargo from airlines and returned to Alotau • Returned hire vehicle
Mission Team overnights in Alotau	
Friday (22/11)	
08:00-17:00	Mission Team members took the day off to update all mission related information and data.
Mission Team overnights in Alotau	
Saturday (23/11)	
08:00-12:00	Mission Team; • Finish of work on updating data and information • Checked out of hotel • Depart Alotau for Gurney Airport
12:00-14:00	Mission Team; • Arrived at Gurney Airport • Checked into flight with MBPA Environment Officer • Depart Gurney Airport for Misima Island
15:00-15:30	Mission Team; • Arrived into Misima Island • Picked up luggage and cargo and departed for accommodation venue using District transport • Checked into Guest House
15:30-16:30	Mission Team; • Caught up with the Samarai Murua District Development Authority (SMDDA) CEO for an informal meeting
Mission Team overnights in Misima	
Sunday (24/11)	
09:00-12:00	Mission Team; • Picked up by SMDDA Driver and taken to Misima Hospital to inspect site of old DDT storage shed. • Taken on a tour of the old Misima Mine and surrounding villages located on the South and North coasts of Misima Island.
12:00-17:00	Free time for Mission Team
Mission Team overnights in Misima	
Monday (25/11)	
09:00-12:00	Mission Team conduct the Risk Assessment Training

13:00-15:00	Mission Team; • In presence of the District Health Manager, visited the Misima Hospital • District Manager confirms and points out old storage locations of the DDT stockpiles • Shown new solar lighting kits at Misima Hospital and Secondary School and the Station's Lord Mayor's office suspected of containing harmful chemicals in their battery packs • Shown the Station's sewerage treatment plant **Note:** No Risk Assessment practical exercise conducted as most participants came from outer islands and had to return right after lunch to avoid the rough seas.
Mission Team overnights in Misima	
Tuesday (26/11)	
08:00-12:00	Mission Team; • Repacked all remaining mission materials and equipment • Checked out of Guest House, and • Departed Guest house for Airport
12:00-13:00	Mission Team; • Arrived at Airport • Checked into flight • Depart Misima Island for Alotau
13:00-17:00	Mission Team; • Arrived at Gurney Airport • Picked up luggage and cargo and hire vehicle • Depart Gurney for Alotau • Checked into Hotel • Visited Alotau General Hospital to meet up with the hospital's Infection Prevention and Control Officer and visited the old DDT storage area within the hospital premise.
Mission Team overnights in Alotau	
Wednesday (27/11) Port Moresby Mission	
08:00-10:00	Mission Team; • Repacked all remaining mission materials and equipment • Checked out of Hotel, and • Departed Alotau for Gurney Airport • Checked into flight • Departed Alotau for Port Moresby
11:00-17:00	Mission Team; • Arrived in Port Moresby • Picked up luggage and cargo • Mission Team disengaged • TC continued mission work by preparing a debrief information brief for presentation to CEPA by JS and EN.
Thursday (28/11)	
09:00-11:00	Mission debrief presentation by JS and EN
12:00	Mission Team Leader departed Port Moresby for Apia Samoa via Brisbane
Friday (29/11)	
Mission fieldwork concluded successfully. **Note:** • On arrival back into Port Moresby, the Mission Team was advised by SPREP that the Dexsil Test Kits had not left Brisbane • Hence the work of the Technical Consultant was further delayed until the receipt of the test kits in early February, 2020	

Appendix 1b – Mission Team Air Travel Itinerary

Task No.	Activity Description	Month	Nov-19																									
		Day	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T
		Date	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1.0	**Mission Team Site Visit - Goroka Lag**	**4**				1	1	1	1																			
1.1	Travel to Goroka from Port Moresby on Air Niugini Flight PX 160																											
1.2	Travel to Port Moresby from Goroka on Air Niugini Flight PX 165																											
2.0	**Mission Team Site Visit - Lae Lag**	**3**								1	1	1																
2.1	Travel to Lae from Port Moresby on Air Niugini Flight PX 104																											
2.2	Travel to Rabaul from Lae on Air Niugini Flight PX 274																											
3.0	**Mission Team Site Visit - Kokopo Lag**	**4**											1	1	1	1												
3.1	Travel to Rabaul from Lae on Air Niugini Flight PX 274																											
3.2	Travel to Port Moresby from Rabaul on Air Niugini Flight PX 275																											
4.0	**Mission Team Site Visit - Alotau/Misima Lag**	**4**																1	1	1						1		
4.1	Travel to Alotau from Port Moresby on Air Niugini Flight PX 154																											

Task No.	Activity Description	Month	Nov-19																									
		Day	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T
		Date	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
4.2	Travel from Alotau to Misima on PNG Air Flight CG 1642	5																			1	1	1	1	1			
4.3	Travel from Misima to Alotau on PNG Air Flight CG 1643																											
4.4	Travel to Port Moresby from Alotau on Air Niugini Flight PX 955																											
	Total Days	20																										

Note: A total of 20 days was spent executing the fieldwork component of the PNG Scoping Mission

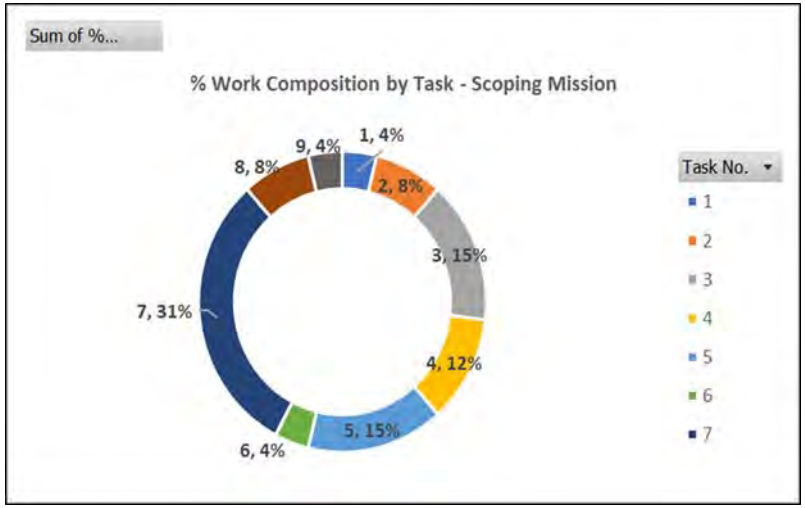
Appendix 2 – Scoping Mission Weekly Update Report Sample

Pacific Child Project (GEF SIDS) PNG Scoping Mission: Duration: 4/11/2019 - 28/11/2019								Program Plan	
Scope of Work								SoW	
Task No.	Activity Description	Work Location	Assigned Days	Due Date	% Work Composition	% Actual Cum. Progress	Status	Plan (%)	Actual (%)
1	Travel for day for Mission Team from SPREP	POM	1	03/11	4%	4%	Completed	4%	4%
2	Mission Team Meetings & Travel Preparations in POM	POM	2	05/11	8%	12%	Completed	8%	8%
3	Mission Team Site Visit - Goroka Lag	GKA	4	09/11	15%	27%	Completed	15%	15%
4	Mission Team Site Visit - Lae Lag	LAE	3	12/11	12%	38%	Completed	12%	12%
5	Mission Team Site Visit - Kokopo Lag	KPO	4	16/11	15%	54%	Completed	15%	15%
6	Mission Team Site Visit Preparation in POM	POM	1	17/11	4%	58%	Completed	4%	4%
7	Mission Team Site Visit - Alotau/Misima Lag	ALT	8	25/11	31%	88%	Completed	31%	31%
8	Mission Team Site Visit - POM Lag	POM	2	27/11	8%	8%	Not Started	8%	0%
9	Mission Team Conclude Mission, POM	POM	1	28/11	4%	12%	Not Started	4%	0%
		Totals Days	**26**		**100%**	88%		**100%**	**88%**

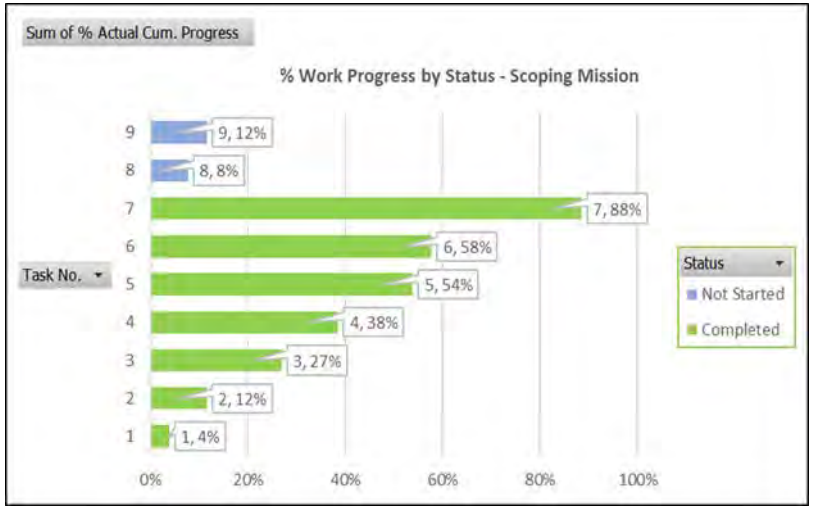
Task Completion Status Legend - Colour Code
Not Started
Commenced/Progressing
Completed
Over Due
Target

Report Update: As at - 25/11/2019

Graph 1 - Showing % Work Composition by Task - Scoping Mission



Graph 2 - Showing % Actual Cumulative Work Progress by Status - Scoping Mission



Appendix 5 – Risk Assessment Trainees List

Risk Assessment Trainees List

Attendee No.	Name	Designation	Organisation	Mission Centre	Province
1	Schola Vano	Infection Prevention & Control Officer	Goroka Provincial Hospital	Goroka	Eastern Highlands
2	Linda Kamaru	Procurement Officer	Goroka Provincial Hospital	Goroka	Eastern Highlands
3	Melisa Foskey	Infection Prevention & Control Officer	Goroka Provincial Hospital	Goroka	Eastern Highlands
4	Danny Benjamin	Environment Coordinator	EHP Administration	Goroka	Eastern Highlands
5	Zamzai Sinikupa	EHPA Consultant	EHP Administration	Goroka	Eastern Highlands
6	Amon Joshua	Environmental Health Officer	EHP Health Authority	Goroka	Eastern Highlands
7	James Kelepuna	Technical Officer - Malaria	EHP Health Authority	Goroka	Eastern Highlands
8	Debbie Ogano	Environmental Health Officer	Goroka Urban LLG	Goroka	Eastern Highlands
9	Ian Mopafi	Vice President	Goroka Chamber of Commerce	Goroka	Eastern Highlands
10	Elsie Peneia	Environmental Health Officer	Kombui LLG - ENBP Administration	Kokopo	East New Britain
11	Sussie Samuel	Quarantine Officer-Rabaul	National Department of Health	Kokopo	East New Britain
12	Cessly Malamut	Environmental Health Officer	Lassul LLG - ENBP Administration	Kokopo	East New Britain
13	Vunai Leba	Environmental Health Officer	Inland Baining - ENBP Administration	Kokopo	East New Britain
14	Peter Johnseu	Senior Quarantine Officer	National Department of Health	Kokopo	East New Britain
15	Relvie Taplar	Environmental Health Officer	Kokopo Urban LLG - ENBP Administration	Kokopo	East New Britain
16	Helen Tade	Senior Environmental Health Officer	Kokopo/Vunamami LLG - ENBP Administration	Kokopo	East New Britain
17	Margaret Yaigom	Environmental Health Officer	Livuan/Reimber LLG - ENBP Administration	Kokopo	East New Britain
18	Jessie Nason	Environmental Health Officer	Central Gazelle LLG - ENBP Administration	Kokopo	East New Britain
19	Joshua Wowo	District Health Coordinator - Rabaul	Rabaul District	Kokopo	East New Britain
20	Paschalis Kinakava	Program Manager - Public Health	ENBP Government	Kokopo	East New Britain

Risk Assessment Trainees List

Attendee No.	Name	Designation	Organisation	Mission Centre	Province
21	Ivan Maraka	Senior Environmental Health Officer	Alotau Urban LLG	Alotau	Milne Bay
22	Narutaka Takahashi	JICA Volunteer	Alotau Urban LLG	Alotau	Milne Bay
23	Lulu Osembo	Acting Environment Officer	Division of Planning - MBP Administration	Alotau	Milne Bay
24	Misa Lionel	Provincial Planner	Division of Planning - MBP Administration	Alotau	Milne Bay
25	Michael Tounokon	Environmental Health Officer	MBP Health Authority	Alotau	Milne Bay
26	Jimmy Evea	Infection Prevention & Control Officer	Alotau Provincial Hospital - MBP Health Authority	Alotau	Milne Bay
27	Steve Tobessa	Coordinator - Disaster & Emergency	MBP Disaster Office	Alotau	Milne Bay
28	Wilson Hillary	District Administrator	Samarai Murua DDA	Misima Island	Milne Bay
29	Rex Wai	Acting Health Extension Officer	MBP Health Authority	Misima Island	Milne Bay
30	Gretel Charlie	Accountant	Samarai Murua DDA	Misima Island	Milne Bay
31	Noel Tabailos	Accounts Officer	Yeleyamba LLG	Misima Island	Milne Bay
32	Kevin Gisa	Religious Educator	Education Division - Samarai Murua DDA	Misima Island	Milne Bay
33	Elsie Mogi	Accounts Clerk	SM District Health - MBP Health Authority	Misima Island	Milne Bay
34	Aggrey max	District Fisheries Officer	Samarai Murua DDA	Misima Island	Milne Bay
35	John Ebenisa	Officer In Charge -	Pambwa - Yeleyamba LLG	Misima Island	Milne Bay
36	Lisa Sabbath	Personnel Assistant	SM HIV/AIDS Office - Samarai Murua DDA	Misima Island	Milne Bay
37	John Metu Sealu	Acting District Manager	SM District Health - MBP Health Authority	Misima Island	Milne Bay
38	Harriet Terman	Janitor/Casual	SM District Administration	Misima Island	Milne Bay
39	Dorish Larry	Acting Area Manager	Lousiade LLG	Misima Island	Milne Bay
40	Sana Kelebi	Project Officer	Member's Office	Misima Island	Milne Bay

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Secretariat of the Pacific Regional Environment Programme

GEF ISLANDS

Pacific Child Project
PNG Scoping Mission

Stakeholder Training
Safeguarding DDT & PCB – Risk Based Approach

Goroka, EHP

Thursday: 07/11/2019

Edward Nicholas
Mission - Technical Consultant

SPREP
Secretariat of the Pacific Regional Environment Programme

HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 1 – Workplace Hazards

Definition of Hazard

What is a Hazard?

1. A situation or natural condition with the ***potential*** to cause harm; e.g. unstable hillside prone to landslips
2. The ***potential*** of a substance, person, activity or process to cause harm (injury or illness); e.g. inhaling dangerous fumes, working at heights without a harness.
3. Anything (material/substance, machine, methods or matters) in the workplace that has the ***potential*** to cause harm; e.g. exposed electrical cords.

Hazards create a situation that poses a level of threat to life, health, property, or environment. Most hazards are dormant or potential, with only a theoretical risk of harm; however, once a hazard becomes "active", it can create an emergency. A hazardous situation that has come to pass is called an incident. Hazard and possibility interact together to create risk.
https://en.Wikipedia.org

Hazards

When considering Workplace Hazards there are 3 key areas:

1. **Safety:** Anything or condition that can cause physical injury
2. **Health:** Any infective agent, substance, workplace condition that directly affect the worker causing occupational illness
3. **Environment:** Substance, state or event which has the potential to threaten the surrounding natural environment, property and / or adversely affect people's health.

Categories and Types of Hazards

Workplace Hazards generally fall into one of 6 categories, and they are:

1. **Physical** – Slippery floors, objects in walkways, unsafe or misused machinery, excessive noise, poor lighting, fire.
2. **Chemical** – Gases, dusts, fumes, vapours and liquids.
3. **Ergonomic** – Poor design of equipment, workstation design, (postural) or manual handling, repetitive movement.
4. **Biological** – Infection by bacteria, virus, fungi or parasites through a cut, insect bite, or contact with infected persons or contaminated object.
5. **Psychological** – Shift work, workload, dealing with the public, harassment, discrimination, fatigue and stress.
6. **Environmental** – Radiation, extreme weather conditions etc...

Categories and Types of Hazards…cont'd.

1. Physical Hazards:

These are the most common and will be present in most workplaces at one time or another. They include unsafe conditions that can cause injury, illness and even death.

Some Physical Hazard types include:

- Slips, trips and fall hazards such as spills on floors or blocked aisles or cords running across the floor
- Working at heights/falling from heights, including ladders, scaffolds, roofs, or any raised work area or objects falling from above
- Unguarded machinery and moving machinery parts; guards removed or moving parts that a worker can accidentally touch
- Electrical hazards like frayed cords, improper wiring

Categories and Types of Hazards…cont'd.

2. Chemical Hazards

Are present when a worker is exposed to any chemical preparation in the workplace in any form (solid, liquid or gas). Some are safer than others, but to some workers who are more sensitive to chemicals, even common solutions can cause illness, skin irritation, or breathing problems.

Some Chemical Hazard types include:

- Liquid chemicals like cleaning products, paints, acids, solvents – ESPECIALLY if chemicals are in an unlabelled container.
- Vapours and fumes that come from welding or exposure to solvents.
- Gases like acetylene, propane, carbon monoxide and helium.
- Flammable material like fuel and explosive chemicals.
- Pesticides including weedicides and herbicides

Categories and Types of Hazards…cont'd.

3. Ergonomic Hazards

Occurs when the type of work, body positions and working conditions put strain on your body. They are the hardest to spot since you don't always immediately notice the strain on your body or the harm that these hazards pose. Short term exposure may result in "sore muscles" the next day or in the days following exposure, but long-term exposure can result in serious long-term illnesses.

Some Ergonomic Hazards types include:

- Work area design - Improperly adjusted workstations and chairs.
- Awkward/Poor posture – slumping or sitting slouched in your chair for long hours
- Repetition - Repeating the same movement over and over.
- Forceful exertions - Using too much force, especially if you have to do it frequently.
- Improper use of tools and techniques – Poor lifting techniques can have lasting impacts.

Categories and Types of Hazards…cont'd.

4. Biological Hazards

Associated with working with animals, people and/or infectious plants materials. Working in hospitals, laboratories, emergency response and sewage treatment etc… may expose you to biological hazards.

Some Biological Hazard types include:

- Pathogens – from blood and other body fluids
- Fungi/mold – fungal infections
- Bacteria and viruses – some airborne viruses and outbreaks are acute
- Water and waste water – most waste related hazards can be managed by practicing good clean hygiene

Categories and Types of Hazards…cont'd.

5. Psychological Hazards

Hazards that cause attenuation of mental response to stress (short term effects) and strain (long-term effects). These hazards could stem from workplace issues and activities such as workload, harassment, etc.

Some Psychological Hazard types include:

- **Work load** – such as work intensity, demands and pace
- **Workplace violence, bullying** – fighting, inciting violence or intimidating others
- **Substance use, misuse and abuse** – illicit drugs and alcohol limits the mental capabilities
- **Sexual harassment** – a form of discrimination. It can be verbal or physical, and it belittles the person
- **Complacency** – a lack of vigilance due to familiarity with the task results in lack of concentration at work

Categories and Types of Hazards…cont'd.

6. Environmental Hazards

Are environmental aspects, and factors within the environment that can harm the body without necessarily touching it.

Some Environmental Hazard types include:

- **Radiation** – including ultra-violet rays, microwaves, radio waves etc…
- **Temperature extremes** – exposure to hot and/or cold
- **Constant loud noise** – acute or chronic exposure to loud noise
- **Weather extremes** – heavy rainfall leading to flood events
- **Natural events** – such as landslides, mud slides, earthquakes and severe droughts
- **Space and lighting** – Poor lighting and lack of space

Summary

What is a Hazard??

- A situation or natural condition with the ***potential*** to cause harm; e.g. unstable hillside prone to landslips
- The ***potential*** of a substance, person, activity or process to cause harm (injury or illness); e.g. inhaling dangerous fumes, working at heights without a harness
- Anything (material/substance, machine, methods or matters) in the workplace that has the ***potential*** to cause harm; e.g. exposed electrical cords.

The 3 key areas/elements when considering workplace hazards are:

Health, Safety and Environment

The 6 common Categories of Workplace Hazards are:

- Physical Hazard
- Chemical Hazards
- Ergonomic Hazards
- Biological Hazards
- Psychological Hazards
- Environmental Hazards

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HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 2 – Hazard Identification

Hazard Identification

Introduction

The aim of this supplement is to give practical advice about how to identify hazards at a workplace for the purpose of managing exposure to potential harm or injury.

What is Hazard Identification

The first step in any risk assessment process - Basically, this is the process of examining each work area and work task for the purpose of identifying all the hazards which are “inherent in the job”. Work areas include but are not limited to machine workshops, laboratories, office areas

Hazard Identification…cont'd

It takes a hazard and someone exposed to the hazard to produce an incident.

Hazard + Exposure

=

Incident

Hazard Identification…cont'd

It takes a hazard and someone exposed to the hazard to produce an incident.

Hazard + Exposure

=

Incident

Hazard Identification…cont'd

Purpose of Identifying Hazards at the Workplace

- Identify potential hazards so they are corrected before an injury/harm occurs
- Display responsibility - concern for workers' safety
- Make your work area safe
- Implement or improve safety programs
- Increase safety awareness
- Communicate safety standards of performance

Hazard Identification…cont'd

Hazards Information Sources

Legislation, employees, customers, unsafe acts and practices, unsafe conditions, operators, suppliers, guides, SDS, warnings, safety professionals, training, discussions, complaints, interviews, inspections, accident/incident reports, investigations, quality control, process observation, house keeping observation, finish product, equipment manuals, magazines, reading, feedbacks, surveys, audits, records, common and natural senses, past experience, good judgment…

Hazard Identification…cont'd

Hazard Identification Methods

Being able to identify hazards is crucial in ensuring tasks are carried out safely. There are 2 common approaches to finding and fixing hazards in the workplace;

Approach 1: Systematic or Formal Identification:

Using a methodical, planned approach in identifying hazards. A systematic approach is particularly helpful when there is limited knowledge about the hazards and how to control the risks in the particular circumstances.

Approach 2: Incidental or Informal Identification:

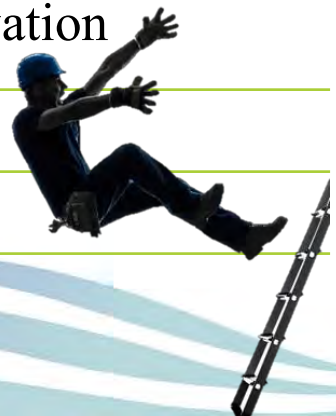
'Is the unplanned, indirect or chance identification of hazards. In most cases this approach results in a learning.

Hazard Identification…cont'd

Examples of Systematic and Incidental Hazards Identification:

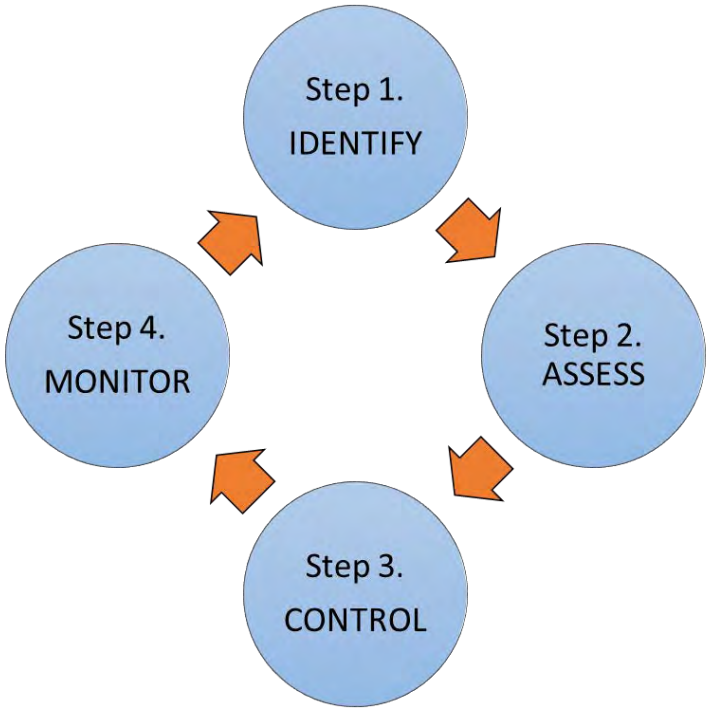
SYSTEMATIC (FORMAL) IDENTIFICATION	
• Safety audits	• Workplace inspections
• Incident/Accident investigations	• Consultation
• Illness & injury records	• Health & Environmental monitoring and audits

INCIDENTAL (INFORMAL) IDENTIFICATION	
• Complaints (from employees or customers)	• Site visits and Observation
• Anecdotal	• New processes
• New equipment/devices	• New information



Hazard Identification…cont'd

Hazard Identification, Assessment and Control



Hazard Identification is a continuous process involving 4 basic steps:

1. Identification of Hazards
2. Assessment & Evaluation of Hazards
3. Controlling Hazards
4. Monitoring & Review controls

Hazard Identification…cont'd

Hazard Identification and Control Steps

1. IDENTIFICATION
   Know what to look for (Look above, to the sides and below/under)

2. ASSESSMENT and EVALUATION
   Decide who might be harmed, how and to what extent

3. CONTROLS
   Decide whether the existing precautions are adequate or more should be done

5. MONITORING and REVIEWING
   Periodic checking for continuous improvement

Hazard Identification…cont'd

Hazard Identification, Assessment and Control

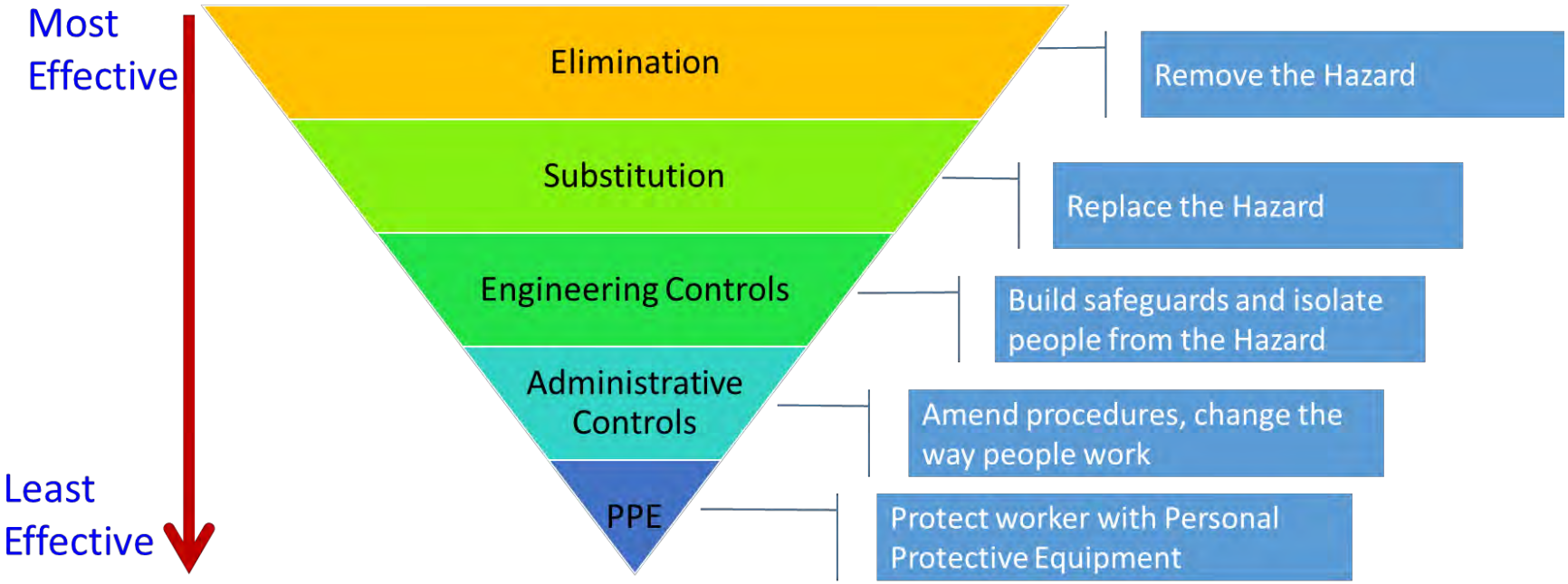
Identifying hazards must be done continuously as new work processes, tasks, equipment and workers come into the workplace.

Some examples of hazards identification and control include:

1. Talking with workers (including contractors) who are or will be performing any tasks to identify all potential hazards and the best ways to control it.
2. Making sure you are aware of any high risk activities, work with new machinery or new work processes before they happen.
3. Understanding the hazards associated with tasks you supervise and have risk controls in place before work starts. This could mean preventing work from being done while a safety issue is being resolved.
4. Taking action to resolve health and safety issues as soon as possible. This includes escalating the issue to more senior management if necessary.

Hazard Identification…cont'd

Controlling Hazards: Hierarchy of Controls



Hazard Identification…cont'd

Hazard Identification, Assessment and Control

Spot the Hazard:

Can you identify the Hazards in this office set-up?

Hazard Identification…cont'd

Hazard Identification, Assessment and Control

Spot the Hazard:

Can you identify the Hazards in this workplace?

Summary

1. Hazard Identification

Hazard ID is a process of identifying hazards within a workplace, situations where there is an actual or potential cause or source of harm.

Approach 1: Systematic or Formal Identification

Approach 2: Incidental or Informal Identification

2. Responsibility

Employer Duty of Care

Employee Duty of Care

3. Hazard Identification

The 4 Step Process in Hazard identification and Control:

Identify, Assess, Control, Monitor

4. Hierarchy of Controls

Elimination – Substitution – Engineering Controls – Administrative Controls - PPE

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HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 3 – Risk Assessment

Risk Assessment

Introduction

The aim of this presentation is to give practical insight on **conducting risk assessments** at a workplace for the purpose of enabling heightened and informative workplace safety awareness and managing exposure to potential harm or injury.

What is a Risk Assessment

Risk Assessment is a systematic approach made up of three processes;

- **Risk identification** - identifying hazards for any work process or activity.
- **Risk analysis** - evaluating the associated (HSE) risk and assigning risk levels.
- **Risk evaluation** - incorporating appropriate measures to manage and mitigate that risk.

Risk Assessment

Why do we need to do Risk Assessments

The main aim of the risk assessment is to **protect workers' health and safety**. And it also helps to minimise the possibility of the **workers or the environment** being harmed due to work-related activities.

Risk Assessments are an integral component of the workplace safety framework, and is a tool for;

- Prevention of workplace accidents or injury – *so everyone goes home safely at the end of the day.*
- Safety awareness and ownership – *so everyone is aware of hazards, risks and controls, and the safe work practices.*

Risk Assessment

Basic Principles of Risk Assessment

A risk assessment must identify all the significant hazards associated with a task and evaluate the risks. A risk assessment should:

- Be suitable and sufficient
- Be planned and thorough
- Be competently executed
- Record all significant findings
- Include monitoring and review

Risk Assessment

Risk Tolerance in Assessing Risks

We perceive risk differently. Many factors influence our decision.

By understanding our **risk tolerance and organisational factors**, we can prevent workplace accidents and injuries

Risk Assessment

Factors Influencing Personal Risk Tolerance

Personal Factors

- Experience (positive/negative)
- Knowledge/Skill
- Age
- Physical Ability

Behavioural Factors

- Nonchalance (lack of concern)
- Resistance to change
- Inability to adapt

Organizational Factors

- Safety System
- Leadership neglect
- Lack of responsibility

Situational Factors

- Stress
- Rushing
- Control

WRONG DECISIONS

Risk Assessment

When to Assess Risks

As a general guide, a risk assessment should be done if:

- there is limited knowledge about a hazard or risk or how the risk may result in injury or illness.
- there is uncertainty about whether all of the things that can go wrong have been found.
- the situation involves a number of different hazards that are part of the same work process or piece of plant and there is a lack of understanding about how the hazards may impact on each other to produce new or greater risks.

Risk assessment involves:

- determining what levels of harm can occur.
- determining how harm can occur.
- determining the likelihood that harm will occur.

Risk Assessment

Undertaking the Risk Assessment

A Risk assessment is a systematic approach to finding and rectifying **hazards** and **risks**. This approach ensures the highest level of protection is in place for people at work. It typically follows five steps:

Step 1 - Identify the hazards.
Step 2 - Decide who might be injured or harmed and how.
Step 3 - Evaluate the risks and decide on precautionary/mitigation measures.
Step 4 - Record your findings and implement them.
Step 5 - Review your assessment periodically, and update if necessary.

Note that findings from risk assessments must always be communicated within the workforce.

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Risk Assessment

Undertaking the Risk Assessment

Use the risk assessment matrix instead of relying on one person's assessment of what is "risky".

Risk Matrix Table

	CONSEQUENCE				
LIKELIHOOD	1. Insignificant	1. Minor	1. Moderate	1. Major	1. Catastrophic
A Almost certain	High	High	Extreme	Extreme	Extreme
B Likely	Moderate	High	High	Extreme	Extreme
C Possible	Low	Moderate	High	High	Extreme
D Unlikely	Low	Low	Moderate	High	Extreme
E Rare	Low	Low	Low	Moderate	High

Risk Assessment

Undertaking the Risk Assessment

View the picture and then…

1. Identify the hazard(s)

2. Decide who might be injured or harmed and how (e.g. workers, visitors)

3. Evaluate the risks and develop a safer solution or plan

4. Record your findings

Risk Assessment

Summary

- Risk assessment is a process for identifying workplace hazards and analysing the risks so that employees' are safe.
- Factors that influence risk tolerance in individuals include; Personal, Organisational, Situational and Behavioural.
- Risk assessment is usually undertaken when there is limited knowledge and uncertainty about a hazard or risk or when there is lack of understanding.
- In a risk assessment, all hazards and their risks must be evaluated, recorded and implemented and periodically reviewed.
- All risk assessment findings and suggested controls must be communicated to the workforce.

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Questions

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GEF ISLANDS

Pacific Child Project
PNG Scoping Mission

Stakeholder Training
Safeguarding DDT – Risk Based Approach

Kokopo, ENB

Friday: 15/11/2019

Edward Nicholas
Mission - Technical Consultant

SPREP
Secretariat of the Pacific Regional Environment Programme

HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 1 – Workplace Hazards

Definition of Hazard

What is a Hazard?

1. A situation or natural condition with the ***potential*** to cause harm; e.g. unstable hillside prone to landslips
2. The ***potential*** of a substance, person, activity or process to cause harm (injury or illness); e.g. inhaling dangerous fumes, working at heights without a harness.
3. Anything (material/substance, machine, methods or matters) in the workplace that has the ***potential*** to cause harm; e.g. exposed electrical cords.

Hazards create a situation that poses a level of threat to life, health, property, or environment. Most hazards are dormant or potential, with only a theoretical risk of harm; however, once a hazard becomes "active", it can create an emergency. A hazardous situation that has come to pass is called an incident. Hazard and possibility interact together to create risk.
https://en.Wikipedia.org

Hazards

When considering Workplace Hazards there are 3 key areas:

1. **Safety:** Anything or condition that can cause physical injury
2. **Health:** Any infective agent, substance, workplace condition that directly affect the worker causing occupational illness
3. **Environment:** Substance, state or event which has the potential to threaten the surrounding natural environment, property and / or adversely affect people's health.

Categories and Types of Hazards

Workplace Hazards generally fall into one of 6 categories, and they are:

1. **Physical** – Slippery floors, objects in walkways, unsafe or misused machinery, excessive noise, poor lighting, fire.
2. **Chemical** – Gases, dusts, fumes, vapours and liquids.
3. **Ergonomic** – Poor design of equipment, workstation design, (postural) or manual handling, repetitive movement.
4. **Biological** – Infection by bacteria, virus, fungi or parasites through a cut, insect bite, or contact with infected persons or contaminated object.
5. **Psychological** – Shift work, workload, dealing with the public, harassment, discrimination, fatigue and stress.
6. **Environmental** – Radiation, extreme weather conditions etc...

Categories and Types of Hazards…cont'd.

1. Physical Hazards:

These are the most common and will be present in most workplaces at one time or another. They include unsafe conditions that can cause injury, illness and even death.

Some Physical Hazard types include:

- Slips, trips and fall hazards such as spills on floors or blocked aisles or cords running across the floor
- Working at heights/falling from heights, including ladders, scaffolds, roofs, or any raised work area or objects falling from above
- Unguarded machinery and moving machinery parts; guards removed or moving parts that a worker can accidentally touch
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Categories and Types of Hazards…cont'd.

2. Chemical Hazards

Are present when a worker is exposed to any chemical preparation in the workplace in any form (solid, liquid or gas). Some are safer than others, but to some workers who are more sensitive to chemicals, even common solutions can cause illness, skin irritation, or breathing problems.

Some Chemical Hazard types include:

- Liquid chemicals like cleaning products, paints, acids, solvents – ESPECIALLY if chemicals are in an unlabelled container.
- Vapours and fumes that come from welding or exposure to solvents.
- Gases like acetylene, propane, carbon monoxide and helium.
- Flammable material like fuel and explosive chemicals.
- Pesticides including weedicides and herbicides

Categories and Types of Hazards…cont'd.

3. Ergonomic Hazards

Occurs when the type of work, body positions and working conditions put strain on your body. They are the hardest to spot since you don't always immediately notice the strain on your body or the harm that these hazards pose. Short term exposure may result in "sore muscles" the next day or in the days following exposure, but long-term exposure can result in serious long-term illnesses.

Some Ergonomic Hazards types include:

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- Awkward/Poor posture – slumping or sitting slouched in your chair for long hours
- Repetition - Repeating the same movement over and over.
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- Improper use of tools and techniques – Poor lifting techniques can have lasting impacts.

Categories and Types of Hazards…cont'd.

4. Biological Hazards

Associated with working with animals, people and/or infectious plants materials. Working in hospitals, laboratories, emergency response and sewage treatment etc… may expose you to biological hazards.

Some Biological Hazard types include:

- Pathogens – from blood and other body fluids
- Fungi/mold – fungal infections
- Bacteria and viruses – some airborne viruses and outbreaks are acute
- Water and waste water – most waste related hazards can be managed by practicing good clean hygiene

Categories and Types of Hazards…cont'd.

5. Psychological Hazards

Hazards that cause attenuation of mental response to stress (short term effects) and strain (long-term effects). These hazards could stem from workplace issues and activities such as workload, harassment, etc.

Some Psychological Hazard types include:

- **Work load** – such as work intensity, demands and pace
- **Workplace violence, bullying** – fighting, inciting violence or intimidating others
- **Substance use, misuse and abuse** – illicit drugs and alcohol limits the mental capabilities
- **Sexual harassment** – a form of discrimination. It can be verbal or physical, and it belittles the person
- **Complacency** – a lack of vigilance due to familiarity with the task results in lack of concentration at work

Categories and Types of Hazards…cont'd.

6. Environmental Hazards

Are environmental aspects, and factors within the environment that can harm the body without necessarily touching it.

Some Environmental Hazard types include:

- **Radiation** – including ultra-violet rays, microwaves, radio waves etc…
- **Temperature extremes** – exposure to hot and/or cold
- **Constant loud noise** – acute or chronic exposure to loud noise
- **Weather extremes** – heavy rainfall leading to flood events
- **Natural events** – such as landslides, mud slides, earthquakes and severe droughts
- **Space and lighting** – Poor lighting and lack of space

Summary

What is a Hazard??

- A situation or natural condition with the ***potential*** to cause harm; e.g. unstable hillside prone to landslips
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- Anything (material/substance, machine, methods or matters) in the workplace that has the ***potential*** to cause harm; e.g. exposed electrical cords.

The 3 key areas/elements when considering workplace hazards are:

Health, Safety and Environment

The 6 common Categories of Workplace Hazards are:

- Physical Hazard
- Chemical Hazards
- Ergonomic Hazards
- Biological Hazards
- Psychological Hazards
- Environmental Hazards

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HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 2 – Hazard Identification

Hazard Identification

Introduction

The aim of this supplement is to give practical advice about how to identify hazards at a workplace for the purpose of managing exposure to potential harm or injury.

What is Hazard Identification

The first step in any risk assessment process - Basically, this is the process of examining each work area and work task for the purpose of identifying all the hazards which are “inherent in the job”. Work areas include but are not limited to machine workshops, laboratories, office areas

Hazard Identification…cont'd

It takes a hazard and someone exposed to the hazard to produce an incident.

Hazard + Exposure

=

Incident

Hazard Identification…cont'd

It takes a hazard and someone exposed to the hazard to produce an incident.

Hazard + Exposure

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Incident

Hazard Identification…cont'd

Purpose of Identifying Hazards at the Workplace

- Identify potential hazards so they are corrected before an injury/harm occurs
- Display responsibility - concern for workers' safety
- Make your work area safe
- Implement or improve safety programs
- Increase safety awareness
- Communicate safety standards of performance

Hazard Identification…cont'd

Hazards Information Sources

Legislation, employees, customers, unsafe acts and practices, unsafe conditions, operators, suppliers, guides, SDS, warnings, safety professionals, training, discussions, complaints, interviews, inspections, accident/incident reports, investigations, quality control, process observation, house keeping observation, finish product, equipment manuals, magazines, reading, feedbacks, surveys, audits, records, common and natural senses, past experience, good judgment…

Hazard Identification…cont'd

Hazard Identification Methods

Being able to identify hazards is crucial in ensuring tasks are carried out safely. There are 2 common approaches to finding and fixing hazards in the workplace;

Approach 1: Systematic or Formal Identification:

Using a methodical, planned approach in identifying hazards. A systematic approach is particularly helpful when there is limited knowledge about the hazards and how to control the risks in the particular circumstances.

Approach 2: Incidental or Informal Identification:

'Is the unplanned, indirect or chance identification of hazards. In most cases this approach results in a learning.

Hazard Identification…cont'd

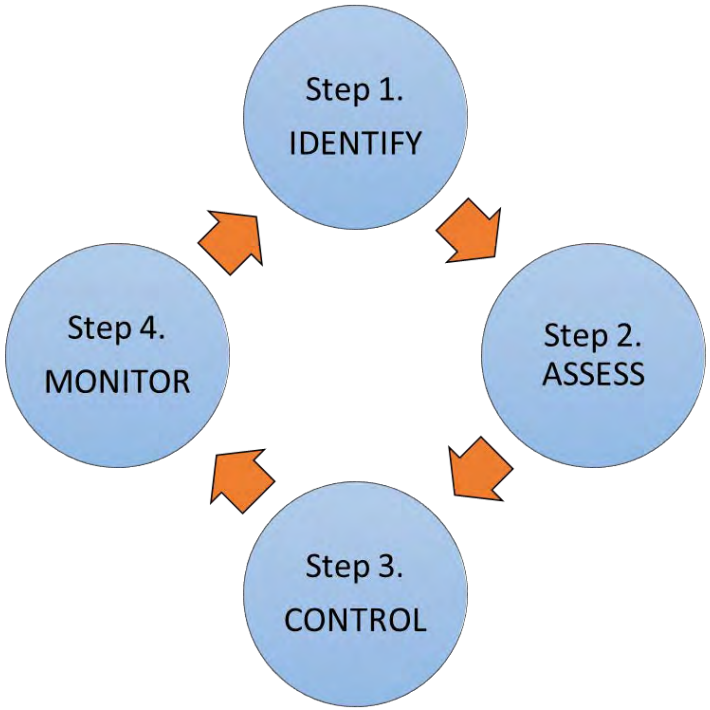
Examples of Systematic and Incidental Hazards Identification:

SYSTEMATIC (FORMAL) IDENTIFICATION	
• Safety audits	• Workplace inspections
• Incident/Accident investigations	• Consultation
• Illness & injury records	• Health & Environmental monitoring and audits

INCIDENTAL (INFORMAL) IDENTIFICATION	
• Complaints (from employees or customers)	• Site visits and Observation
• Anecdotal	• New processes
• New equipment/devices	• New information

Hazard Identification…cont'd

Hazard Identification, Assessment and Control



Hazard Identification is a continuous process involving 4 basic steps:

1. Identification of Hazards
2. Assessment & Evaluation of Hazards
3. Controlling Hazards
4. Monitoring & Review controls

Hazard Identification…cont'd

Hazard Identification and Control Steps

1. IDENTIFICATION
   Know what to look for (Look above, to the sides and below/under)

2. ASSESSMENT and EVALUATION
   Decide who might be harmed, how and to what extent

3. CONTROLS
   Decide whether the existing precautions are adequate or more should be done

5. MONITORING and REVIEWING
   Periodic checking for continuous improvement

Hazard Identification…cont'd

Hazard Identification, Assessment and Control

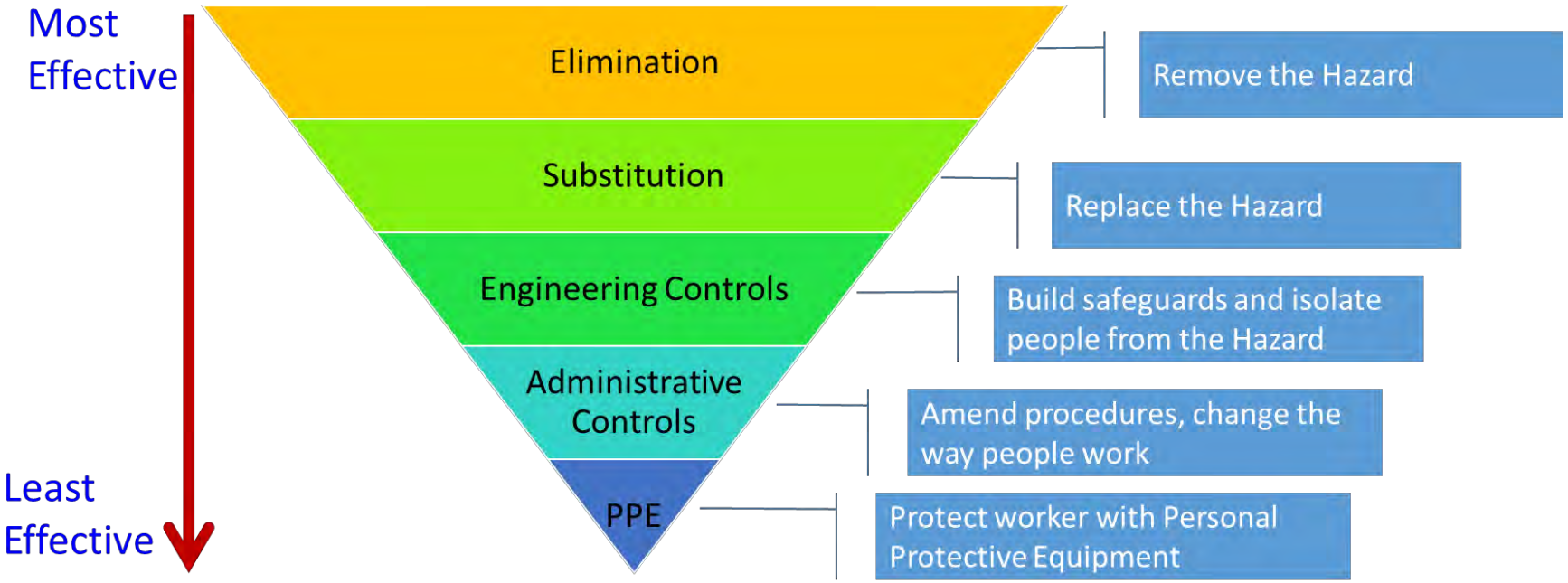
Identifying hazards must be done continuously as new work processes, tasks, equipment and workers come into the workplace.

Some examples of hazards identification and control include:

1. Talking with workers (including contractors) who are or will be performing any tasks to identify all potential hazards and the best ways to control it.
2. Making sure you are aware of any high risk activities, work with new machinery or new work processes before they happen.
3. Understanding the hazards associated with tasks you supervise and have risk controls in place before work starts. This could mean preventing work from being done while a safety issue is being resolved.
4. Taking action to resolve health and safety issues as soon as possible. This includes escalating the issue to more senior management if necessary.

Hazard Identification…cont'd

Controlling Hazards: Hierarchy of Controls



Hazard Identification…cont'd

Hazard Identification, Assessment and Control

Spot the Hazard:

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Hazard Identification…cont'd

Hazard Identification, Assessment and Control

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Summary

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HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 3 – Risk Assessment

Risk Assessment

Introduction

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- Nonchalance (lack of concern)
- Resistance to change
- Inability to adapt

Organizational Factors

- Safety System
- Leadership neglect
- Lack of responsibility

Situational Factors

- Stress
- Rushing
- Control

WRONG DECISIONS

Risk Assessment

When to Assess Risks

As a general guide, a risk assessment should be done if:

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Risk Assessment

Undertaking the Risk Assessment

Use the risk assessment matrix instead of relying on one person's assessment of what is "risky".

Risk Matrix Table

Risk Assessment Matrix Use the Risk Assessment Matrix to determine the level of Risk for each Hazard					
What would the CONSEQUENCE of the occurrence be?	What is the LIKELIHOOD of occurrence?				
	Almost Certain A	Likely B	Possible C	Unlikely D	Rare E
Critical (5)	Extreme 25	Extreme 24	Extrem e 22	High 19	High 15
Major (4)	Extreme 23	Extreme 21	High1 18	High 14	Moderate 10
Moderate (3)	Extreme 20	High 17	High 13	Moderate 9	Low 6
Minor (2)	High 16	High 12	Moderate 8	Low 5	Low 3
Minor (1)	Moderate 11	Moderate 7	Low 4	Low 2	Low 1

Risk Assessment

Undertaking the Risk Assessment

View the picture and then…

1. Identify the hazard(s)

2. Decide who might be injured or harmed and how (e.g. workers, visitors)

3. Evaluate the risks and develop a safer solution or plan

4. Record your findings

Risk Assessment

Summary

- Risk assessment is a process for identifying workplace hazards and analysing the risks so that employees' are safe.
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Alotau, MBP

Wednesday: 20/11/2019

Edward Nicholas
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HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 1 – Workplace Hazards

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Secretariat of the Pacific Regional Environment Programme

HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 2 – Hazard Identification

Hazard Identification

Introduction

The aim of this supplement is to give practical advice about how to identify hazards at a workplace for the purpose of managing exposure to potential harm or injury.

What is Hazard Identification

The first step in any risk assessment process - Basically, this is the process of examining each work area and work task for the purpose of identifying all the hazards which are “inherent in the job”. Work areas include but are not limited to machine workshops, laboratories, office areas

Hazard Identification…cont'd

It takes a hazard and someone exposed to the hazard to produce an incident.

Hazard + Exposure

=

Incident

Hazard Identification…cont'd

It takes a hazard and someone exposed to the hazard to produce an incident.

Hazard + Exposure

=

Incident

Hazard Identification…cont'd

Purpose of Identifying Hazards at the Workplace

- Identify potential hazards so they are corrected before an injury/harm occurs
- Display responsibility - concern for workers' safety
- Make your work area safe
- Implement or improve safety programs
- Increase safety awareness
- Communicate safety standards of performance

Hazard Identification…cont'd

Hazards Information Sources

Legislation, employees, customers, unsafe acts and practices, unsafe conditions, operators, suppliers, guides, SDS, warnings, safety professionals, training, discussions, complaints, interviews, inspections, accident/incident reports, investigations, quality control, process observation, house keeping observation, finish product, equipment manuals, magazines, reading, feedbacks, surveys, audits, records, common and natural senses, past experience, good judgment…

Hazard Identification…cont'd

Hazard Identification Methods

Being able to identify hazards is crucial in ensuring tasks are carried out safely. There are 2 common approaches to finding and fixing hazards in the workplace;

Approach 1: Systematic or Formal Identification:

Using a methodical, planned approach in identifying hazards. A systematic approach is particularly helpful when there is limited knowledge about the hazards and how to control the risks in the particular circumstances.

Approach 2: Incidental or Informal Identification:

'Is the unplanned, indirect or chance identification of hazards. In most cases this approach results in a learning.

Hazard Identification…cont'd

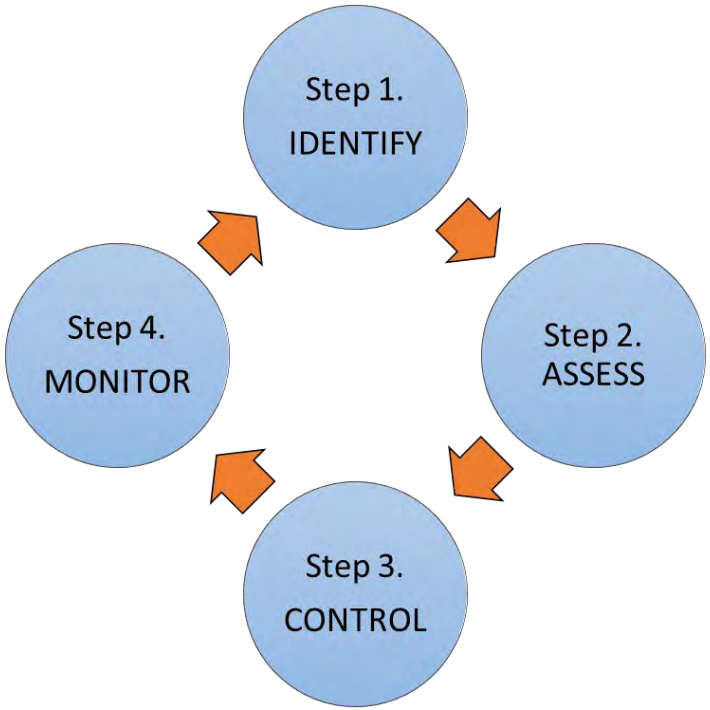
Examples of Systematic and Incidental Hazards Identification:

SYSTEMATIC (FORMAL) IDENTIFICATION	
• Safety audits	• Workplace inspections
• Incident/Accident investigations	• Consultation
• Illness & injury records	• Health & Environmental monitoring and audits

INCIDENTAL (INFORMAL) IDENTIFICATION	
• Complaints (from employees or customers)	• Site visits and Observation
• Anecdotal	• New processes
• New equipment/devices	• New information

Hazard Identification…cont'd

Hazard Identification, Assessment and Control



Hazard Identification is a continuous process involving 4 basic steps:

1. Identification of Hazards
2. Assessment & Evaluation of Hazards
3. Controlling Hazards
4. Monitoring & Review controls

Hazard Identification…cont'd

Hazard Identification and Control Steps

1. IDENTIFICATION
   Know what to look for (Look above, to the sides and below/under)

2. ASSESSMENT and EVALUATION
   Decide who might be harmed, how and to what extent

3. CONTROLS
   Decide whether the existing precautions are adequate or more should be done

5. MONITORING and REVIEWING
   Periodic checking for continuous improvement

Hazard Identification…cont'd

Hazard Identification, Assessment and Control

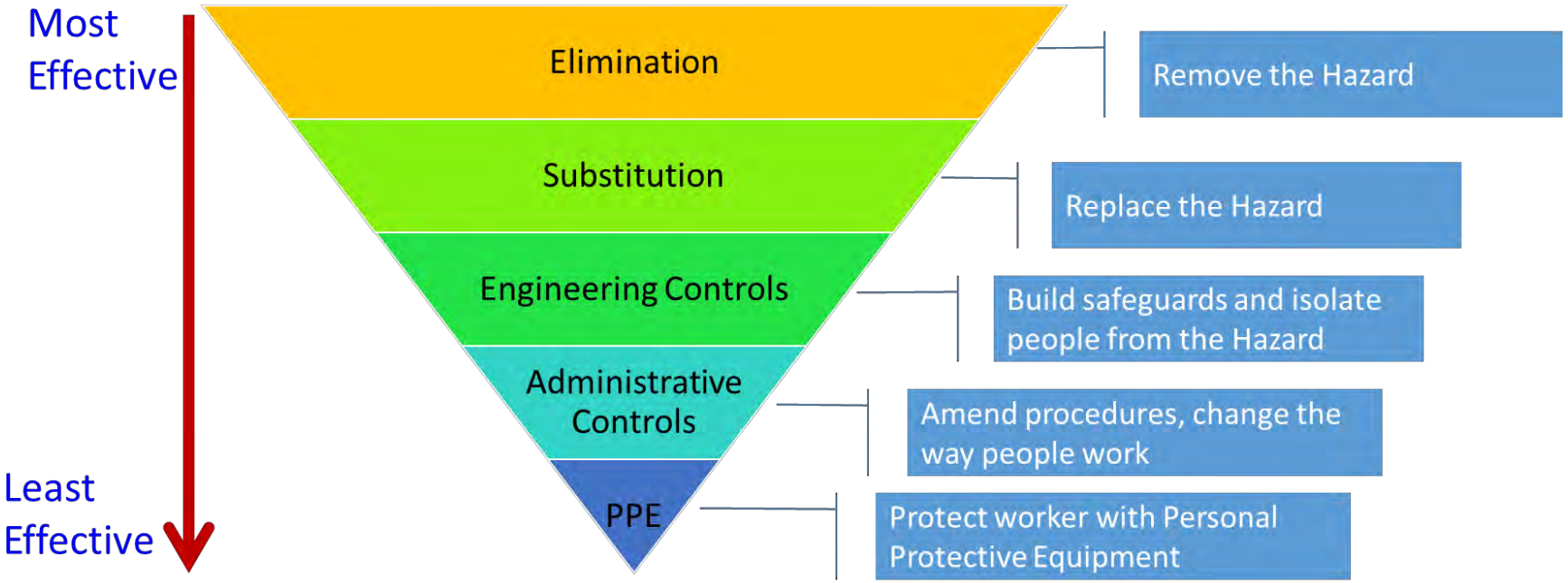
Identifying hazards must be done continuously as new work processes, tasks, equipment and workers come into the workplace.

Some examples of hazards identification and control include:

1. Talking with workers (including contractors) who are or will be performing any tasks to identify all potential hazards and the best ways to control it.
2. Making sure you are aware of any high risk activities, work with new machinery or new work processes before they happen.
3. Understanding the hazards associated with tasks you supervise and have risk controls in place before work starts. This could mean preventing work from being done while a safety issue is being resolved.
4. Taking action to resolve health and safety issues as soon as possible. This includes escalating the issue to more senior management if necessary.

Hazard Identification…cont'd

Controlling Hazards: Hierarchy of Controls



Hazard Identification…cont'd

Hazard Identification, Assessment and Control

Spot the Hazard:

Can you identify the Hazards in this office set-up?

Hazard Identification…cont'd

Hazard Identification, Assessment and Control

Spot the Hazard:

Can you identify the Hazards in this workplace?

Summary

1. Hazard Identification

Hazard ID is a process of identifying hazards within a workplace, situations where there is an actual or potential cause or source of harm.

Approach 1: Systematic or Formal Identification

Approach 2: Incidental or Informal Identification

2. Responsibility

Employer Duty of Care

Employee Duty of Care

3. Hazard Identification

The 4 Step Process in Hazard identification and Control:

Identify, Assess, Control, Monitor

4. Hierarchy of Controls

Elimination – Substitution – Engineering Controls – Administrative Controls - PPE

SPREP
Secretariat of the Pacific Regional Environment Programme

HAZARDS IDENTIFICATION AND RISK ASSESSMENT

Lesson # 3 – Risk Assessment

Risk Assessment

Introduction

The aim of this presentation is to give practical insight on **conducting risk assessments** at a workplace for the purpose of enabling heightened and informative workplace safety awareness and managing exposure to potential harm or injury.

What is a Risk Assessment

Risk Assessment is a systematic approach made up of three processes;

- **Risk identification** - identifying hazards for any work process or activity.
- **Risk analysis** - evaluating the associated (HSE) risk and assigning risk levels.
- **Risk evaluation** - incorporating appropriate measures to manage and mitigate that risk.

Risk Assessment

Why do we need to do Risk Assessments

The main aim of the risk assessment is to **protect workers' health and safety**. And it also helps to minimise the possibility of the **workers or the environment** being harmed due to work-related activities.

Risk Assessments are an integral component of the workplace safety framework, and is a tool for;

- Prevention of workplace accidents or injury – *so everyone goes home safely at the end of the day.*
- Safety awareness and ownership – *so everyone is aware of hazards, risks and controls, and the safe work practices.*

Risk Assessment

Basic Principles of Risk Assessment

A risk assessment must identify all the significant hazards associated with a task and evaluate the risks. A risk assessment should:

- Be suitable and sufficient
- Be planned and thorough
- Be competently executed
- Record all significant findings
- Include monitoring and review

Risk Assessment

Risk Tolerance in Assessing Risks

We perceive risk differently. Many factors influence our decision.

By understanding our **risk tolerance and organisational factors**, we can prevent workplace accidents and injuries

Risk Assessment

Factors Influencing Personal Risk Tolerance

Personal Factors

- Experience (positive/negative)
- Knowledge/Skill
- Age
- Physical Ability

Behavioural Factors

- Nonchalance (lack of concern)
- Resistance to change
- Inability to adapt

Organizational Factors

- Safety System
- Leadership neglect
- Lack of responsibility

Situational Factors

- Stress
- Rushing
- Control

WRONG DECISIONS

Risk Assessment

When to Assess Risks

As a general guide, a risk assessment should be done if:

- there is limited knowledge about a hazard or risk or how the risk may result in injury or illness.
- there is uncertainty about whether all of the things that can go wrong have been found.
- the situation involves a number of different hazards that are part of the same work process or piece of plant and there is a lack of understanding about how the hazards may impact on each other to produce new or greater risks.

Risk assessment involves:

- determining what levels of harm can occur.
- determining how harm can occur.
- determining the likelihood that harm will occur.

Risk Assessment

Undertaking the Risk Assessment

A Risk assessment is a systematic approach to finding and rectifying **hazards** and **risks**. This approach ensures the highest level of protection is in place for people at work. It typically follows five steps:

Step 1 - Identify the hazards.
Step 2 - Decide who might be injured or harmed and how.
Step 3 - Evaluate the risks and decide on precautionary/mitigation measures.
Step 4 - Record your findings and implement them.
Step 5 - Review your assessment periodically, and update if necessary.

Note that findings from risk assessments must always be communicated within the workforce.

Risk Assessment

Undertaking the Risk Assessment

Use the risk assessment matrix instead of relying on one person's assessment of what is "risky".

Risk Assessment Matrix Table

Risk Assessment Matrix Use the Risk Assessment Matrix to determine the level of Risk for each Hazard					
What would the CONSEQUENCE of the occurrence be?	**What is the LIKELIHOOD of occurrence?**				
	Almost Certain A	**Likely B**	**Possible C**	**Unlikely D**	**Rare E**
Critical (5)	Extreme 25	Extreme 24	Extrem e 22	High 19	High 15
Major (4)	Extreme 23	Extreme 21	High1 18	High 14	Moderate 10
Moderate (3)	Extreme 20	High 17	High 13	Moderate 9	Low 6
Minor (2)	High 16	High 12	Moderate 8	Low 5	Low 3
Minor (1)	Moderate 11	Moderate 7	Low 4	Low 2	Low 1

Risk Assessment

Undertaking the Risk Assessment

View the picture and then…

1. Identify the hazard(s)

2. Decide who might be injured or harmed and how (e.g. workers, visitors)

3. Evaluate the risks and develop a safer solution or plan

4. Record your findings

Risk Assessment

Summary

- Risk assessment is a process for identifying workplace hazards and analysing the risks so that employees' are safe.
- Factors that influence risk tolerance in individuals include; Personal, Organisational, Situational and Behavioural.
- Risk assessment is usually undertaken when there is limited knowledge and uncertainty about a hazard or risk or when there is lack of understanding.
- In a risk assessment, all hazards and their risks must be evaluated, recorded and implemented and periodically reviewed.
- All risk assessment findings and suggested controls must be communicated to the workforce.

Questions

Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS) Programme

Pacific Child Project

Papua New Guinea Scoping Mission Report

March 2020

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Notes for the photograph on the Cover Page

Airports for the major centres visited during the PNG Scoping Mission.

Clockwise from Top RH Corner:
Goroka Airport, Nadzab Airport (Lae), Gurney Airport (Alotau) & Tokua Airport (Kokopo)

Executive Summary

The PNG GEF Islands Scoping Mission work has now been successfully completed following the fieldwork undertaken between the 4th to 30th November 2019 and the final conclusion of the planned work undertaken for the PCB screening of transformer oils in the month of February 2020.

The fieldwork covered five (5) provinces and seven (7) towns and cities around Papua New Guinea and include Eastern Highlands Province (Goroka and Yonki), Morobe Province (Lae), East New Britain Province (Kokopo), Milney Bay Province (Alotau and Misima Island) and the National Capital District (Port Moresby).

The team in collaboration with the local medical authority also performed 1 x DDT Safeguarding work in Rabaul (ENBP) by cleaning up the spilled stockpile of DDT and repacking them back into the 2 x 20ft containers. Further safeguarding work included reinstating the integrity of the doors for the 2 x storage containers and locking up the contains with heavy pad locks and putting up warning tapes and signages around the containers. It was estimated that each of the containers held up to about 6 tons of the obsolete DDT stock.

Whilst the missions objective relating to confirming and safeguarding the obsolete DDT stockpiles at the rest of the identified centres turned out to be a disappointing experience, the Mission Team on the other hand did identify a total of **123** items containing new, in-use or waste transformer oils with a total estimated oil volume of **914,005** Litres in 4 of the 7 mission centres visited. Of the **122** oil samples collected, **11** samples tested positive for PCB screening using the Dexsil Test Kits whilst the rest of the samples turned out to be negative.

In line with the Mission Plan, the Mission Team conducted **4** x DDT Safeguarding Trainings (in Goroka, Kokopo, Alotau & Misima) based around the principles of Workplace Hazards, Hazard Identification and Risk Assessment at the Workplace. A total of **40** individuals were trained in the use of the Risk Assessment tools and principles at the **4** x centres were trainings were conducted.

The lack of a proper Chemical Management System for Papua New Guinea remains the highest concern from all views collated across all the mission centres visited during the Scoping Mission whilst the need for more Education and Awareness on importation, use, management (including controlling) and monitoring of chemicals in PNG recorded the next biggest concern.

Acknowledgments

The author of this report wishes to thank the Secretariat of the Regional Environment Program (SPREP) and the United Nations Environment Programme (UNEP) for making this work possible through the funding provided for the Papua New Guinea Scoping Mission under the auspices of the GEF Islands Project. Special mention is noted for SPREP in ensuring to dispatch one of its own staff from the Waste Management and Pollution Control Programme to provide the guidance and leadership for the PNG Scoping Mission Team. The author also humbly extends his gratitude to SPREP for the engagement on this Mission.

The author would also like to extend his appreciation to all those government employees at all the mission centres that were visited by the Mission Team for their time, effort and especially their knowledge shared mainly in regards to information pertaining to the whereabouts of the DDT stockpiles and the status quo of the stockpiles their respective provinces. The management and staff of PNG Power Limited is also hereby acknowledged for making access possible to all its power generating sites at the respective mission centres that were visited by the Mission Team. The cooperation and support provided by its staff ensured the objectives of the mission relating to PCB Sampling were achieved safely at all their provincial operational locations.

The contribution and support provided by the 2 x female staff of the Infrastructure, Utilities and Conventions (IUC) Division of the Conservation and Environment Protection Authority (CEPA) is highly appreciated. Given the tight timeframe for the Mission, the tireless efforts and professionalism demonstrated by these two individuals greatly assisted the job of the Technical Consultant in successfully accomplishing the fieldwork component of the Mission.

Disclaimer Statement

Any views expressed in the document do not necessarily reflect those of SPREP and/or the UNEP.

All care has been taken by the author to ensure every information and/or data collated during the field mission are analysed and presented herein this report are factual information obtained at the time of the field work. The author shall not be liable for any loss and/or damage caused as a result of using the information/data presented in this report for purposes other than those agreed to between the author and SPREP.

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1. Introduction

This Scoping Mission Report has been prepared following the conclusion of the Consultancy Agreement signed between the Mission Technical Consultant (a party) and the Secretariat of Pacific Regional Environment Programme (SPREP; the other party to the Agreement and the Executing Agency) for the Global Environment Facility (GEF) ISLANDS Pacific Child Project, PNG Scoping Mission work and Implemented by the United Nations Environment Programme (UNEP).

The report highlights the findings from the field work implemented from the 4th to the 30th November 2019 and the test work undertaken for the transformer oils collected during the mission fieldwork in February 2020. The report is presented in accordance with the agreed services as spelt out in the Terms of Reference in the Consultancy Agreement

1.1 Background

The National Implementation Plan (NIP) for Management of Persistent Organic Pollutants (POPs) in Papua New Guinea Report (DEC, 2006), states that an inventory and assessment exercise conducted shows the country currently uses about 106 products that contain POPs chemicals. Of these chemicals, Polychlorinated biphenyl (PCB) from electrical equipment and [1]DDT used as a pesticide against malaria are prevalent.

According to the Report, PCBs are contained in used oil drained from electrical equipment during maintenance. PCB is also present in old transformers and capacitors that have been replaced by newer updates. These obsolete equipments are reported to be lying around within the premises of the electricity generating organisation/company storage and/or open areas around the country, exposed to people and the environment with little to no protection and safeguarding or removal and disposal. Approximately 70 tons of PCBS are estimated to be stored in steel drums and obsolete equipment around PNG with reported spills and contamination in Lae, Wewak and Port Moresby.

DDT stocks are spread over a few provinces in PNG. The Report cites a UN study in 2000 that indicates approximately 64 tons of DDT are currently stored in various sites. The bulk of the obsolete stock of DDT are in the Highlands region while East New Britain and Milne Bay provinces hold the remaining balance. Most storage sheds are in poor condition and some DDT has been reportedly buried and contamination of the soil confirmed.

As a Party to the Stockholm Convention, PNG has initiated efforts to meet its obligations. The biggest of these efforts have been the work of developing a national implementation plan for the management of POPs supported by the GEF. The plan took a few years to develop and involved many stakeholders from government, industry, academia and the community. Working groups/task teams were established to work on the different components of the plan and came together in about 6 national workshops to review, update and finalize the plan.

This mission has served as a reconnaissance to verify the main stocks of POPs noted in the report mentioned above and to present an update on the stockpiles recorded for the respective provinces and mission centres visited around the country thus making known their status quo

[1] DDT - 1,1,1-trichloro-2,2-bis(4-chlorophenyl) ethane)

for future management (safe removal and disposal) of these stockpiles under the GEF ISLANDS Programme.

1.2 Objectives

Whilst the overall objective of the consultancy engagement relates to establishing baseline information on the stocks of POPs and other hazardous chemicals in PNG and prepare for their safe removal and disposal, it was agreed to in the Mission Plan that the following objectives were to be adopted for the PNG Scoping Mission and include;

1. Assessment and Safeguarding of DDT stockpiles,
2. Training for Safeguarding of DDT stockpiles,
3. Sampling for PCBs in Transformer oils, and
4. Testing for PCBs in Transformer oils using the Dexsil PCB Screening Test Kits

All necessary funding and resources required for the implementation of the objectives for the Mission were provided by UNEP/SPREP, whilst the in-country stakeholder liaison responsibilities were ably supported by the Conservation and Environment Protection Authority through its respective officers engaged for the PNG Scoping Mission.

1.3 The Mission Team

The PNG Scoping Mission comprised of the following personnel:

1. Mr. Joshua Sam
   Hazardous Waste Management Advisor
   Waste Management and Pollution Control Programme
   Secretariat of Pacific Regional Environment Program (SPREP)

2. Edward Nicholas
   SPREP Technical Consultant for the Mission

3. Anita Poesi
   Project Officer
   IUC Division
   Environment Protection Wing
   Renewable Resources Sector

4. Patricia Torea
   Project Officer
   IUC Division
   Environment Protection Wing
   Renewable Resources Sector

2. Scope of Work

Implementation of the SoW by the mission Technical Consultant (TC) commenced immediately following the signing of the engagement Agreement. All preparations works were completed prior to the arrival of the mission Team Leader (TL) on the 3rd November 2019.

2.1 Accommodation and Logistics

In consultation with the SPREP Mission Team in Samoa, all necessary travel and accommodation arrangements were confirmed and paid for prior to the commencement of the mission fieldwork.

All air travel was arranged in such a manner that it met SPREP/UNEP requirements for a return economy fare by the most direct and economical route. The PNG national airline; Air Niugini was used for all air travel into the major centres listed on the mission plan whilst a third level airline; Airlines PNG was utilized for the Misima Island sector. All air travel was completed for the mission with no safety incidents.

Accommodation at all mission centres was booked and confirmed by the TC according to the Mission Team members preferences and all bookings passed onto the individuals at commencement of the fieldwork for facilitation of the respective accommodation payments etc.

Hire vehicle required by the Mission Team at the respective centres apart from the Misima Island mission was competitively procured from one supplier whom had hire car services in all the mission centres. Again, use of the vehicles by the Mission Team was in line with the rental agreements signed hence no charges for damages and/or loses we accrued by the team upon return of the vehicles.

2.2 Materials and Equipment

The TC was handed a copy of the initial materials (including Personal Protective Equipment-PPE) and equipment list for the PNG Scoping Mission by the TL at the start of the mission preparation work. This list was further reviewed with the updated objectives and activity plans for the mission and all necessary quotations obtained from suppliers for procurement of the goods well in advance of the fieldwork.

Additional work tools, materials and PPE were procured at the respective centres to aid the work of the mission team and for the safety of the various personnel that gave support to the team at the respective sites.

2.3 Scoping Mission Fieldwork

Fieldwork for the scoping Mission was undertaken from the 4th to 28th November 2019. Following the agreed Mission Plan, the Mission Team visited five centres during the month of November 2019 (including Goroka, Lae, Kokopo, Alotau and Misima Island) whilst the last centre of Port Moresby was covered in February 2020 following receipt of the Dexsil Test kits earlier in the month.

The summary of the work program for the respective centres visited are noted herein below.

Table 1. PNG Scoping Mission Summary Work Program

Mission Centre	Visit Dates	Work Program
Goroka	6th – 9th Nov. 2019	• Assessment and Safeguarding of DDT • Training for Safeguarding of DDT • Sampling for PCBs in Transformer oils
Lae	10th – 12th Nov. 2019	• Sampling for PCBs in Transformer oils
Rabaul	13th – 17th Nov. 2019	• Assessment and Safeguarding of DDT • Training for Safeguarding of DDT • Sampling for PCBs in Transformer oils
Alotau	18th – 20th Nov. 2019	• Assessment and Safeguarding of DDT • Training for Safeguarding of DDT
Misima Island	21st – 25th Nov. 2019	• Assessment and Safeguarding of DDT • Training for Safeguarding of DDT
Port Moresby	17th – 31st Feb. 2020	• Sampling for PCB's in Transformer oils • Testing for PCBs in Transformer oils

The above work program also formed the basis for implementation of the mission objectives including providing the guide for the procurement and/or acquisition of the necessary materials and resources required to effectively implement the respective work programs required at the centres noted.

The detailed Work Program and Travel Itinerary for the Mission Team is contained in **Appendix 1a & 1b**.

Weekly progressive updates for the PNG Scoping Mission fieldwork were prepared and supplied to the TL who then reported progress update back to SPREP/UNEP accordingly. An example of this report is presented in **Appendix 2**.

2.3.1 Eastern Highlands Province Mission

The Eastern Highlands Province (EHP) Scoping Mission covered the town of Goroka and the Yonki Hydro Power Generation Station; the largest power generation scheme in PNG. In Goroka, the mission team undertook work relating to assessment of stockpiles of DDT at the Goroka Hospital grounds and conducted a half day DDT safeguarding training. The Mission Team also did sampling of transformer oils at the west Goroka Powerhouse (GPH) and the Sub-station (GSS) at Himitovi whilst the work in the Yonki area mainly covered sampling of transformer oils at the Yonki Transformer Maintenance Workshop (TYMW), Ramu 1 Hydro Power Station (R1PS), Yonki Sub-station (YSS) and Yonki Transmission Workshop (YTW).

The Mission Team's work commenced immediately on the first day of the team's arrival in Goroka on 6th November 2019. A meeting of the stakeholders was convened at the Goroka Urban LLG (GULLG) conference room and attended by representatives from the GULLG, the EHP Health Authority (EHPHA) and PNG Power Limited (PPL). The meeting provided the opportunity for the Mission Team to inform the stakeholders on the objectives of the mission trip and also to give an opportunity for the stakeholders to provide and input to the EHP mission plan. Following the related and general discussions held, the meeting was concluded at 3:00pm with the EHP mission plan updated for implementation for the remainder of the Mission Teams work in Goroka.

Photo 1. Initial meeting with GULLG and EHP HA reps.

2.4.1.1. Assessment and Verification of POPs

In order to assess the presence of POPs chemicals reported in the PNG NIP 2006, for the EHP, the Mission Team convened a stakeholder meeting upon arrival in Goroka to obtain first information on the stockpiles of DDT and PCB in transformer oils and the possible locations of these POPs chemicals. From this meeting, the Mission Team was able to confirm with the relevant persons on the ground information pertaining to the existence, location and rough estimates on amounts for the target POPs chemicals.

On the ground verification of the chemical stockpiles was done through actual site inspections to the locations noted by the respective stakeholders involved in the handling, use, collection and storage of the target POPs chemicals in the province. Further verification was sought from the EHP Administration, the Goroka PPL office and a Consultant to the EHP Administration (the former Team leader of the Task Team 2 for PNG POPs Project) through interviews conducted with the respective persons that had knowledge of the target POPs chemicals in the province.

The outcomes of the findings are further discussed in-detail in this section of the reported noted herein below.

Photo 2. Meeting with EHP Provincial Administrator

Photo 3. Meeting with EHP Natural Resources & Environment reps.

2.4.1.2. DDT Stockpiles

At the meeting of the stakeholders, the Mission Team was informed (by the Technical Officer for the EHP Malaria Control Program) that the DDT stocks that were held in a shed located behind the Goroka General Hospital were no longer there since they had been removed a few years back by unknown persons and no records of their removal exists to date. The building had been demolished and a new building erected in place of the old one. The assertion to the missing stockpile of DDT was further verified the following day when the Mission Team was taken to the site of the old shed and shown the new building that stood over its location.

The 630kg of DDT stockpile identified and secured during the GEF/UNEP funded PNG POPs Project (in 2005) no longer exists with its whereabouts unknown including its final use and disposal. From the interview conducted with the Technical Officer for the EHP Malaria Control Program, it is most likely that much of the stock was moved further up to the other highlands provinces for malaria control work whilst he reluctantly indicated that the small amounts of the stock from the stockpile that remained was distributed locally (through illegal means) for use in subsistence agricultural activities by the locals within the province. This claim relating to use of DDT in local agriculture practice by locals was further verified by the former Team

Leader of Task Team 5 (a former employee of the EHP Administration and now providing consulting services to the EHP Administration) whom had heard about the stocks at the Goroka Hospital grounds been distributed to locals within EHP and the Chimbu Province for use on mainly taro plots in the gardens a few years after the stockpile was secured.

2.4.1.3. DDT Risk Assessment and Safeguarding

The findings of the Mission Team meant that nothing could be done during the mission trip to undertake a thorough risk assessment on the DDT stockpiles and perform any safeguarding work. Despite this fact, the Mission Team instead undertook a practical exercise with the stakeholders following the DDT/Hazardous Substances Risk Assessment training to impart basic knowledge and understanding on the importance of undertaking Risk Assessment on substances considered harmful in their workplaces.

Details of this practical exercise is discussed further below in *Section 3.3, sub-section 3.3.1* of this report

2.4.1.4. Transformer Oil Sampling and Testing

Sampling of the transformer oils for the Goroka mission commenced on the 8th November 2019 at the Sub-station in Himitovi. Sampling for the Powerhouse located at West Goroka was done on the following day; 9th November 2019.

The samples for the Yonki Hydro Power sites were done on the 11th November 2019. Yonki was accessed via the Highlands Highway from Lae since the drive (using a 4WD vehicle) from Lae to Yonki and back to Lae could be achieved in one day utilizing the available day light hours.

The mission team was ably assisted by the Transformer Switchyard Supervisor and his grounds man for the sub-station. The Environment Coordinator for the EHP Administration also provided the necessary support during the course of the sampling exercise. While at the Yonki Hydro Power sites, the Highlands Region Sub-Station Superintendent and his men provided the necessary assistance for the sampling task at all four (4) sites. The testing for all the transformer oil samples using the “Dexsil PCB Screening Test Kits” were carried out in Port Moresby by the Technical Consultant between the 24th and 27th February 2020.

Presented here in below are sampling and test results for the Eastern Highlands Scoping Mission work.

Table 2. Sample Nos. Count vs Estimate Oil Volumes for Goroka and Yonki

Mission Centre	No. of Sample	Est. Oil Vol. (L)
Goroka	27	23,820
Yonki	22	151,856
Total	**49**	**175,676**

A total of 27 samples were collected from the Goroka mission whilst 22 samples were collected from the Yonki mission. Of the total 49 samples obtained for the Eastern Highlands mission, a total of **175, 675 litres** of transformer oils were estimated to be contained in the equipment and/or storage containers sampled.

Table 3. Sample Test Result Count for Goroka and Yonki

Mission Centre	Negative	Positive
Goroka	25	2
Yonki	21	1
Total	46	3

From the 49 samples tested, 2 samples tested positive for presence of PCB (>50ppm) whilst only 1 sample tested positive for the PCB screening test for the Yonki sample batch.

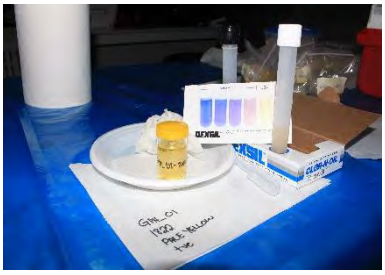

Photo 4. Sample No. GPH_01

Photo 5. Sample No. GSS_07

Photo 6. Sample No.YTW_03

Table 4. Estimate Oil Volumes for Sample Test Results from Goroka and Yonki

Mission Centre	Negative - Est. Oil Vol. (L)	Positive - Est. Oil Vol. (L)
Goroka	23,170	650
Yonki	151,256	600
Total	174,426	1,250

Of the total transformer oils recorded for the Eastern Highlands mission, samples from the **174, 426** litres of transformer oils tested “Negative” whilst 3 samples from the **1,250** litres tested “Positive” for PCB presence in the samples.

2.4.1.5. PCB Contaminated Equipment and Sites

The assessment done on the equipment and/or sites believed to be potentially contaminated by PCB oils is based on the outcome of the test results for the oil samples from the equipment and/or container type at the respective locations.

Table 5. Equipment/Container Type Count vs Test Outcome for Goroka Powerhouse and Sub-station

Equipment/Container Type	Negative Count	Positive Count
10kL Tank	1	
205L Metal Drum	16	
5kL Tank	2	
Obsolete Circuit Breaker	4	1
Obsolete Transformer	2	1
Total	**25**	**2**

For the Goroka mission, oil samples collected from 1 x obsolete circuit breaker and 1 x obsolete transformer tested positive for presence of PCB.

Table 6. Equipment/Container Type Est. Oil Vol. vs Test Outcome for Goroka Powerhouse and Sub-station

Equipment/Container Type	Negative - Est. Oil Vol (L)	Positive - Est. Oil Vol (L)
10kL Tank	10,000	
205L Metal Drum	1,920	
5kL Tank	10,000	
Obsolete Circuit Breaker	800	250
Obsolete Transformer	450	400
Total	**23,170**	**650**

Both obsolete equipment that tested positive for presence of PCB contained a total of **650** litres of transformer oils.

Table 7. Contaminated Sites vs Test Outcome for Goroka

Contaminated Sites	Negative - Area (m^2)	Positive - Area (m^2)
Himitovi Substation	764	36
Power House	679	73
Total	**1,443**	**109**

A total of 109m^2 of land located at the two respective sites for the Goroka mission are assumed to be contaminated with PCB containing transformer oils. The larger area of site contamination recorded for the Goroka mission was located at the Himitovi Sub-station. The site contamination was caused by spilled oil contained in an obsolete 66KVA Circuit Breaker manufactured in Sweden in 1988, whilst the oil from an obsolete 22KVA, Three Phase Distribution Transformer (details missing due to missing name plate) is noted to have contaminated a calculated area of 36m^2 at the West Goroka Powerhouse.

Table 8. Equipment/Container Type Count vs Test Results for Yonki Hydro Power Scheme

Equipment/Container Type	Negative	Positive
205L Metal Drum	4	
Active Transformer	3	
Obsolete Circuit Breaker	1	
Obsolete Transformer	12	1
Power Reactor	1	
Total	**21**	**1**

Of the 21 samples collected from the Yonki Hydro Power sites, only 1 x sample obtained from an obsolete transformer tested positive for presence of PCB in the oil sample.

Table 9. Equipment/Container Type Est. Oil Vol. vs Test Outcome for Yonki Hydro Power Station

Equipment/Container Type	Negative-Est. Oil Vol (L)	Positive- Est. Oil Vol (L)
205L Metal Drum	10,600	
Active Transformer	45,000	
Obsolete Circuit Breaker	500	
Obsolete Transformer	80,156	600
Power Reactor	15,000	
Total	151,256	600

An estimated volume of about 600 litres of transformer oil contained in the obsolete transformer is presumed contaminated with PCB.

Table 10. Contaminated Sites vs Test Outcome for Yonki Hydro Power Scheme Areas

Contaminated Site	Negative- Area (m^2)	Positive- Area (m^2)
Yonki	1118	34
Total	**1,118**	**34**

The obsolete 300KV, Three Phase Pole Transformer that tested positive for the PCB screening test was noted to have contributed to about 34m^2 of land contamination at the Yonki Transmission Workshop equipment bone yard. Details for the transformer could not be confirmed due to missing name plate.

2.3.2 Morobe Province Mission

The Morobe Province (MP) Scoping Mission only focused on sampling of transformer oils per the Mission Plan. The only Sub-station located at West Taraka suburb of Lae city was the main location for the transformer oil sampling work.

On the afternoon of 10th November 2019 at around 3:00pm, the Mission Team visited the Milfordhaven Powerhouse in the heart of Lae city to establish contact with the PPL personnel and also undertake an initial assessment of the power generation facility to identify potential transformer oil containing equipment and/or drums/tanks that would form the numbers for the Lae sampling exercise. Given the fact that it was a Sunday afternoon, the team only managed to talk to the shift Engineer for the Powerhouse and one of his supervisors regarding the purpose of the team's visit. Following this informal meeting, the Mission Team was provided with the contact details for the Manager of the PPL Momase Region. The team than established contact with the Manager and agreed to the work plan for the Lae segment of the transformer oil sampling task.

The Mission Team also paid a courtesy visit to the Morobe Provincial Administration (MPA) on the 12th November 2019 and convened a meeting with its personnel from the Environment and Natural Resources Division and Health officials from the Lae Urban Local Level Government (LULLG) Health Section.

2.3.2.1 Assessment and Verification of POPs

For the Morobe mission, assessment and verification of POPs chemicals present in the province was done through initial consultation with relevant authorities in the province followed by actual sites visits. In the case of assessing presence of DDT stockpiles, the meeting convened between the MPA and the LULLG officials noted to the Mission Team that no stockpiles of DDT existed in Lae or the outer districts of MP. This was due to the fact that Lae Area Medical Store was only used as a staging and transit location for DDT stocks that were eventually delivered up to the five highlands provinces back then.

The Mission Team was however, able to assess the presence of potentially PCB containing transformer oils through individual meetings convened with the various PPL personnel in Lae and through the actual site investigation and sampling exercise conducted at the West Taraka Sub-station.

Photo 7. Consultation meeting with MPA and LULLG officials.

The outcomes of the findings are presented in-detail in this section of the report.

2.3.2.2 Transformer Oil Sampling and Testing

Sampling of the transformer oils at the West Taraka Sub-station was undertaken on the 12th November 2019, a day after the Mission Team had completed work at the Yonki Hydro Power Scheme. 1 x personnel from the MPA's Environment office joined the mission team for the sampling work whilst the sub-station Supervisor and his men provided the necessary support to complete the sampling task with no safety breaches.

Following the completion of the sampling task, the Mission Team had the opportunity to meet with the PPL Momase Region Manager whom had arrived just in time as the team was finishing off its work. During this brief discussion, the Manager noted that significant amounts of waste transformer oils still existed up in the other highlands provinces. This statement alone, confirmed the advice provided by the PPL Highlands Region Sub-Station Superintendent at Yonki when the Mission Team visited him the previous day. The Manager further stated that despite most of the transformer oils from the other Momase regional centres (Madang, Wewak and Vanimo) being shipped to Lae for management, there were still some amounts still being kept at the individual power generation sites in the respective centres.

The testing for all the transformer oil samples using the "Dexsil PCB Screening Test Kits" were carried out in Port Moresby by the Technical Consultant between the 24th and 27th February 2020.

Presented here in below are sampling and test results for the Morobe Scoping Mission work.

Table 11. Sample Nos. vs Estimate Oil Volumes for West Taraka Sub-station

Mission Centre	No. of Sample	Est. Oil Vol. (L)
Lae (West Taraka)	14	46,610
Total	**14**	**46,610**

A total of 14 items were identified to be have contained transformer oils however, only 13 samples were collected these items. The drain valve for the 14th item was blocked with of debris from the inside of the obsolete current transformer. The unit has been included due to the fact that it contained waste transformer oil and the volume was considered necessary to be recorded. The Milfordhaven Powerhouse had nil stocks of waste transformers oils. The 2 x active transformers located within the switchyard could not be accessed due to absence of permitted personnel. Of the total 14 units recorded for the Morobe mission, a total of **46, 610** litres of transformer oils were estimated to be contained in the equipment and/or storage containers sampled.

Table 12. Sample Test Result Count for West Taraka Sub-station

Mission Centre	Negative	Positive
Lae (West Taraka)	13	1
Total	**13**	**1**

Off the 13 samples tested, 1 x sample turned out to be positive for the PCB screening test.

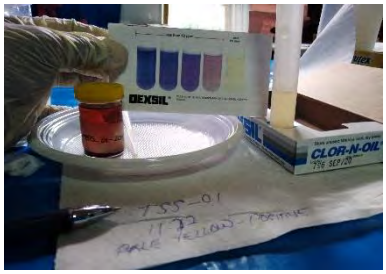

Photo 8. Sample No. TSS_01

Table 13. Estimate Oil Volumes for Sample Test Results from West Taraka Sub-station

Mission Centre	Negative- Est. Vol. (L)	Positive- Est. Vol. (L)
Lae (West Taraka)	46,460	150
Total	**46,460**	**150**

From the total transformer oils estimated for the Morobe mission, **46,460** litres of the transformer oils are noted to be free from PCB contamination whilst **150** litres are deemed contaminated with PCB.

2.3.2.3 PCB Contaminated Equipment and Sites

The assessment done on the equipment and/or sites believed to be potentially contaminated by PCB oils is based on the outcome of the test results for the oil samples from the equipment and/or container type at the respective locations.

Table 14. Equipment/Container Type Count vs Test Results for West Taraka Sub-station

Equipment/Container Type	Negative	Positive
205L Metal Drum	6	1
Active Transformer	3	
Obsolete Transformer	4	
Total	**13**	**1**

The sample collected from a 205L metal drum which contained waste transformer oil was the only sample that tested positive for presence of PCB using the Dexsil Test Kit.

Table 15. Equipment/Container Type Est. Oil Vol. vs Test Results for West Taraka Sub-station

Equipment/Container Type	Negative- Est. Oil Vol. (L)	Positive- Est. Oil Vol. (L)
205L Metal Drum	910	150
Active Transformer	45,000	
Obsolete Transformer	550	
Total	**46,460**	**150**

An oil sample from the 205L metal drum that tested positive for presence of PCB contained an estimated volume of **150** litres of waste transformer oil.

Table 16. Contaminated Sites vs Test Results for West Taraka Sub-station

Lae	Negative- Area (m^2)	Positive- (m^2)
Taraka Substation	190	10
Total	190	10

An area of $10m^2$ is suspected to be contaminated with PCB containing transformer oils.

2.3.3 East New Britain Province Mission

Work for the East New Britain Province (ENBP) Scoping Mission was spread between the old capital for the province; [2]Rabaul and the new capital; Kokopo. The Mission Teams work in Rabaul was related to safeguarding of old DDT stockpiles whilst the training for DDT safeguarding was conducted in Kokopo. Kokopo town was also the location where all of the sampling for transformer oils for the ENBP was done.

The SPREP Team (HWM Advisor and Technical Consultant) that travelled into Kokopo town from Lae on 13th November 2019 were later joined by CEPA's replacement Mission Team member from Port Moresby. A meeting with one of stakeholders was arranged and convened on the same afternoon at the PPL Regional Head Office in Kokopo. At this meeting, the Mission Team again spelt out the purpose of its visit to the PPL officials present and agreed on the date and timing for execution of the transformer oil sampling task.

Following the meeting with the PPL officials, the Mission Team later established telephone contact with the persons responsible for the DDT aspect of the mission to confirm their availability and set up the work plan for the DDT Safeguarding work including the related training.

2.3.3.1 Assessment and Verification of POPs

Through initial telephone contact with the ENBP Program Manager for Public Health, it was established by the CEPA officers that there existed obsolete stocks of DDT however, no further details could be provided by the Program Manager due to his limited knowledge of the status of these stocks at the time of the telephone call. Once the Mission Team got on the ground for the ENBP Mission, further contact was established with the Rabaul District Health Coordinator whom was the main person responsible for overseeing the safety and security of the DDT stockpiles at the premises of one of the Local Level Governments in the Rabaul District. The Health Coordinator later arranged a site visit which enabled the Mission Team to confirm the status of these stockpiles which were later safeguarded during the course of the teams work in ENBP.

The meeting conducted with the PPL officials followed by the site inspection of the storage area for the obsolete transformers and the 205L metal drums containing waste transformer oils established the presence and location of the items to be sampled.

The outcomes of the findings are further discussed in-detail in this section of the reported noted herein below.

[2] The former provincial capital was devasted by the Twin Volcanic eruptions (from Mt. Vulcan and Mt. Tavurvur) in 1994.

2.3.3.2 DDT Stockpiles

The PNG NIP 2006 report stated that the ENBP had stockpiled an amount of 15,880kg of DDT and all of this was located in Rabaul. On 14th November 2019, the Mission Team accompanied by the District Health Coordinator for Rabaul visited the site of the DDT stockpiles at the Balanataman Local Level Government (BLLG) premises.

On arrival at the location, the Mission Team were met with an appalling sight of the stockpile. The doors of the 2 x 20ft containers were opened at one end with the DDT stocks noticeably spilling onto the ground in front of the containers. The DDT stock had been transferred into the 2 containers when the old shed next to it had deteriorated to a point where it could no longer safely and securely house the stockpile. Coupled with the locals accessing the shed to remove various amounts for their own use (fishing and vegetable gardening) and the related health and environment concerns that had come to light surrounding exposure to the obsolete DDT stocks, the Health Coordinator had in 2006 mobilized necessary resources through funding from the Rabaul District[3] to repack and transfer whatever stock that remained in the old shed into the 2 x 20ft containers. The count of the stock at that time had revealed around 1,400 plus boxes however, about 380 boxes were removed by the locals between the time the stocks were identified and transferred from the shed into the 20ft containers.

Despite the Health Coordinator's efforts, the containers had been broken into several times by the locals and stocks removed. Every time the locks had been broken, the Health Coordinator had replaced the locks at his own cost up until the last break-in a year ago when he just could not take it anymore and had neglected the containers as they were when the Mission Teams visited.

Obviously, the amount of the obsolete DDT stocks has been reduced to some extent since been transferred to the container due to the illegal theft overtime. With the help of the Health Coordinator, the team estimated that each container contained up to between 5 to 6 tons each of obsolete DDT stocks.

Photo 9. DDT stockpile container #1 vandalised

Photo 10. DDT stockpile container #2 vandalised

[3] Funding for the DDT safeguarding work was provided under the District Services Improvement Program (DSIP) budget

2.3.3.3 DDT Risk Assessment and Safeguarding

Following the visit to the BLLG where the DDT stocks were being kept, the Mission Team was able to establish the necessary tools, materials and Personal Protective Equipment (PPE) required for the Safeguarding work. All these items were purchased on the afternoon of the same day of the site visit at local hardware stores in Kokopo, prepared and packed for ready for use on the day of the safeguarding work.

On the morning of 16th November 2019, the DDT Safeguarding work commenced. Prior to engaging in the clean-up and safeguarding task, all casuals whom had been engaged by the Health Coordinator to assist the Mission Team for the safeguarding work were taken through a Safety Pre-start briefing by the Technical Consultant. Due to time limitation, no formal Job Safety and Environmental Analysis (JSEA) was done up prior for the safeguarding task however, the Safety briefing was conducted through experience and knowledge of the Technical Consultant.

The critical Occupational Health Safety and Environmental (OHSE) topics covered in the briefing included discussions relating to the hazards posed by the DDT chemicals, the hazards present at the workplace in general, how these hazards should be identified whilst undertaking the various tasks and what should be done if anyone of them was in doubt of undertaking any of the work steps for the safe and successful completion of the safeguarding task.

After concluding the Safety Pre-start briefing, the work party were supplied with the following items;

i. Issue of appropriate safety PPE (to the casuals) and demonstration on how wear and effectively use the respective PPEs including rubber gum boots, disposable cover rolls, nitrile rubber gloves (elbow length), full face goggles and dust masks (organic vapour grade).
ii. Hand out of tools to the individual casuals including shovels, spades, iron rakes, hoes and bush knives and explaining the role of each person with the use of the respective tools.
iii. Provision of the necessary materials including 50kg (capacity) woven polypropylene sack bags, 240L (capacity) heavy duty black bin liners, cable tie pack, jute twine string, 4 x lengths (6m) of 25mm reinforced bars, high speed cutting discs and welding rods.
iv. Electrical equipment including an angle grinder and welding machine required for the final safeguarding work was hired from a local within the BLLG area.
v. Safety consumables which were made available to respond to any work-related incidents and/or trauma and for after work washdown cleaning included a fully stocked First Aid Kit, 15L plastic bucket, scrubs, wipes, liquid detergent and paper towels.
vi. 4 x Large (60mm) pad locks were also handed over to the Health Coordinator to lock the doors to the containers once the reinforced bars were fully welded to the exterior of the doors for additional security.

Once all the formalities relating to the Safety briefing and issuance of all the necessary work PPE, gear and equipment was completed, the safeguarding work got underway immediately in the following chronological order;

a. Barricading of the entire work area using barricading tapes bearing the “Danger” tag.
b. Removal of all vegetation near the container doors and around the general contaminated areas where heaps of DDT substance could be noticed to make way for the manual excavation work.
c. Digging up, stockpiling and filling into the white woven bags which contained in them the heady duty bin liners the spilled DDT substance. All debris including the removed vegetation believed to be contaminated with the DDT were also packed with the spilled DDT stock and residues found on the ground.
d. Once the bags reached a safe manual handling weight, both bags were sealed off using cables ties (for firmly fastening the inner bin liner) and jute twine ropes (for sewing up the woven bag) to completely seal-off the contents ready for repacking into the containers.
e. Manual loading of the filled bags into the respective containers and firmly securing the doors using the lock levels on the doors.
f. Finally, the doors were completely sealed off by welding the pre-cut reinforced bars across the full width of the container doors at 3 sections and apply the pad locks to the lock slots.

Following completion of the safeguarding work, all tools and non-disposable PPE were washed down using the cleaning consumables supplied. The cleanup and safeguarding work was achieved with no safety incident recorded. All this work was safely and successfully concluded under the watchful eyes of the SPREP HWM Advisor and the Health Coordinator.

Photo 11. Safeguarding work - cleanup

Photo 12. Safeguarding work – double bagging

Photo 13. Container #1 fully secured

Photo 14. Container #2 fully secured

2.3.3.4 Transformer Oil Sampling and Testing

Sampling of the transformer oils was undertaken on the same day and time as the DDT Safeguarding work hence the Mission Team was split up to achieve both tasks concurrently. The Mission Technical Consultant and the CEPA Officer undertook the sampling task at the PPL Electrical Maintenance Workshop (EMW) located within the Kokopo town area.

Again, the Mission Team were well assisted by the EMW personnel for the duration of the sampling task. The testing for all the transformer oil samples collected from the EMW storage area were done in Port Moresby by the Technical Consultant between the 24th and 27th February 2020 using the "Dexsil PCB Screening Test Kits".

Presented here in below are the transformer oils sampling and test results for the ENBP Scoping Mission.

Table 17. Sample Nos. vs Estimated Oil Volumes for Kokopo

Mission Centre	No. of Sample	Est. Oil Vol. (L)
Kokopo	28	6,430
Total	**28**	**6,430**

A total of 28 samples were collected from the ENBP. An amount of **6,430** litres of transformer oils were estimated to be contained in the equipment and/or storage containers sampled.

Table 18. Sample Nos. Count vs Test Results for Kokopo

Mission Centre	Negative	Positive
Kokopo	26	2
Total	**26**	**2**

From the batch of 28 samples collected, 2 x samples tested positive for presence of PCB (>50ppm).

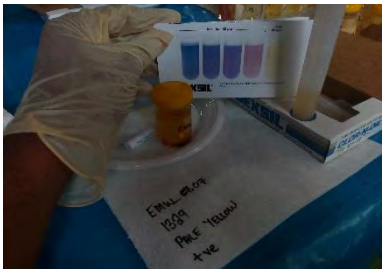

Photo 15. Sample No. EMW_07

Photo 16. Sample No. EMW_22

Table 19. Estimated Oil Volumes vs. Sample Test Results for Kokopo

Mission Centre	Negative- Est. Oil Vol. (m^2)	Positive- Est. Oil Vol. (m^2)
Kokopo	5,730	700
Total	**5,730**	**700**

The 2 x samples that tested positive for presence of PCB, have a combined estimated volume of about **700** litres contained in the equipment sampled.

2.3.3.5 PCB Contaminated Equipment and Sites

The assessment done on the equipment and/or sites believed to be potentially contaminated by PCB oils is based on the outcome of the test results for the oil samples from the equipment and/or container type at the respective locations.

Table 20. Equipment/Container Type Count vs Test Results for Kokopo

Equipment/Container Type	Negative	Positive
205L Metal Drum	8	
Obsolete Transformer	18	2
Total	**26**	**2**

The two obsolete items which have been confirmed as being PCB contaminated include a 10KVA, Single Phase Pole Transformer manufactured in 1990 in South Korea and a 500KVA, Three Phase (Kiosk) Distribution Transformer manufactured in 1989 in Taiwan.

Table 21. Equipment/Container Type Est. Oil Vol. vs Test Results for Kokopo

Equipment/Container Type	Negative- Est. Oil Vol. (L)	Positive -Est. Oil Vol. (L)
205L Metal Drum	1,290	
Obsolete Transformer	4,440	700
Total	**5,730**	**700**

Samples from both obsolete transformers that tested positive for presence of PCB contained a total of **700** litres of transformer oils.

Table 22. Contaminated Sites vs Test Outcome for Yonki Hydro Power Scheme Areas

Contaminated Site	Negative	Positive
Electrical Maintenance W/shop	389	36
Total	**389**	**36**

An area of 36m^2 was calculated to be contaminated with PCB contained in the transformer oils which have since been leaking onto the ground at the location of the storage area at the PPL EMW in Kokopo.

2.3.4 Milney Bay Province Mission

The Milney Bay Province (MBP) mission covered both the provincial capital of Alotau and the island of Misima. Other areas which were reported to have stockpiles of DDT however did not form of the Mission Plan included Raba Raba, Esa'ala, and Bolu Bolu.

Alotau

The Mission Teams focus in Alotau was based around establishing information on the whereabouts of the DDT stocks reported in the PNG NIP 2006 and safeguarding the stockpiles were possible.

After arriving in Alotau on the 18th November 2019, the Mission Team established contact with the respective government officials from the Planning Division of the Milney Bay Provincial Administration (MBPA) and the Alotau Urban Local Level Government (AULLG) to setup the respective meetings with these organizations on the afternoon of the same day. Further consultation meetings and site inspection arrangements were confirmed with the Milney Bay Provincial Health Authority and the Alotau General Hospital staff respectively and undertaken on the days that followed for the Alotau mission.

2.4.4.1. Assessment and Verification of POPs - Alotau

All of the POPs assessment and verification work in Alotau was achieved mainly through arranged consultative meetings and through information obtained whilst in passing and/or through unplanned encounters with individuals in the respective government organisations. 1 x site visit was taken to the Alotau Town dumpsite and another visited was undertaken to the Alotau General Hospital area to ascertain locations were DDT was suspected to be disposed and stored respectively in the past.

Photo 17. Consultation meeting with MBPA officials.

The outcomes of the findings are further discussed in-detail in this section of the reported noted herein below.

Stakeholder Meetings – Day 1: 18/11/2019

The first meeting of the stakeholders was convened with the MBPA were the acting Provincial Planner and the Environment Officer for the province met the Mission Team. At this meeting, the team was informed that information pertaining to the whereabouts of the reported DDT stockpiles would be found with the newly created Milney Bay Provincial Health Authority (MBPHA) since all health services and functions that once came under the MBPA had being passed onto this new institution of government. The Provincial Planner who was the Provincial Environment Officer (prior to moving into his current role) noted to the team that two factors that contributed to lack of proper information about the management of DDT within the MBPA was due to the fact that (i), its use was restricted to the health sector and (ii), that there was an absence of any form of chemical registration system/process in the province.

The later concern was one of the main reasons why a lot of chemicals were being brought into the province undetected mainly by the Oil Palm and Logging companies. The meeting was concluded with the MBPA team and the Mission Team proceeded to the next arranged meeting with the Provincial Environment Officer (PEO) providing the liaison role for the team. The PEO was also appointed by her superior to assist the team for the duration of their stay in MBP.

The meeting with the Town Manager for Alotau and a JICA volunteer commenced at around 3:30pm on the same day. Following the formal introduction of the Mission Team by the PEO, the Mission Team Leader than proceeded to inform the Town Manager and his colleague on the mission objective and work plan. In his response, the Town Manager advised the team that due to the different jurisdictions that dealt with delivery of health services within the province and between the province and the NDoH, his organisation was not directly involved with the Malaria Eradication and Control Program that was run in the past in the province.

The Town Manager however, went on to mention that from anecdotal evidence, the than Health Division of the MBPA had buried some stocks of obsolete DDT at the town dumpsite which were than dug up and removed by the locals in the area for their own use. This story did seem to have some credibility after the Mission Team had collated further statements and leading information from the various staff members of MBPHA. The Town Manager has been working for the AULLG for the last 30 years starting of as a Health Extension Officer. At some point in his working career, he did observe the mosquito spraying program personnel using DDT.

Following the latest encounter, the PEO was much more determined to lead the Mission Team to the appropriate authority whom she believed would have answers to the elusive DDT information. The Mission Team was then guided to the MBPHA office within the town area. On arrival at the MBPHA office, it was noted that they had since closed for business for the

day since it was already 5:00pm. The Mission Team agreed on the work plan for the following day with the PEO and retreated to their hotel.

Stakeholder Visits – Day 2: 19/11/2019

On the morning of 19th November 2019, the Mission Team headed straight to the office of the CEO for MBPHA located within the Alotau General Hospital grounds to make an appointment for a meeting with the CEO on the same day. Following the confirmation of the meeting time, the Mission Team split up into two parties. Patricia from CEPA visited the PNG Customs office whilst the Team Leader and Technical Consultant proceeded to the PPL office to meet up with the Manager. Despite the visit to the PPL premise was not part of the Mission Plan for Alotau, the team decided to make use of the time leading up to the meeting with the MBPHA CEO which was set for 1300hrs. On arrival at the Alotau Powerhouse, the Team met the Power Generation Team Leader and his Supervisor.

Both team members were taken on a tour of the Powerhouse premise after the introductions and the purpose of the visit sensitized with the PPL personnel. The Powerhouse Supervisor noted to the team that all waste transformer oils including obsolete power generating equipment were removed from their premise by the PPL Waste Management Department and taken to Port Moresby earlier in the year hence only a few drums totaling eight in number were accumulated since the last major removal and disposal exercise. The team also noted 3 x obsolete transformers which still contained oil in them. From the outlook of the Powerhouse premise, it seemed to be kept in a very clean and tidy state with not much bulky scrap metal waste and or large oil tanks being kept on site, which obviously confirmed the fact that a good amount of effort was put into cleaning up the premise earlier in the year.

Stakeholder Meetings – Day 2: 19/11/2019

The Mission Team regrouped after lunch the same day and headed for the office of the MBPHA CEO to attend the meeting appointment. On turning up at the CEO's office, the team was advised of his late arrival and had to wait around until he turned up. However, whilst waiting the Mission Team was approached by the acting Deputy Director for Policy and Planning with the MBPHA whom had over head the team's discussion with the CEOs Personnel Assistant and wanted to offer assistance. This unplanned but coincidental meeting turned out to be a very fruitful one since the acting Deputy Director was formerly the District Health Manager posted on Misima Island between 1997 and 2007. Prior to this posting, he had been employed as the District Health Officer for the Esa'ala District as well and possessed very vivid knowledge and some good information regarding the status of the DDT stocks at both Districts during his time.

In the course of the short discussions convened with the acting Deputy Director and the Provincial Environmental Health Officer (PEHO) the Mission Team were advised of the following facts;

- Between 1995 and 1997, 50 x boxes (each weighing 35kg) of old DDT stock were discovered amongst other items in the district health store and removed to a shed

located behind the Esa'ala District Health office. Working from the figures, this translates to about **1,750kg** of old DDT stocks. This figure is closely comparable to the amount (**1,500kg**) noted by the WHO Survey of 2000, but greatly defers from PNG NIP, 2006 reported amount of **5,000kg**.

- The PEHO who frequently travels to the outer districts as part of his duties further informed the Mission Team that the shed had deteriorated overtime since 1995 to a point that the old DDT stocks were taken out and buried in shallow pits next to the location of the shed.
- In Misima, the acting Deputy Director actually undertook a DDT safeguarding exercise with a small team of health workers around the year 2000, by repacking the old DDT stocks which had their packaging damaged into 205L metal drums lined with large plastic bin liners. In total, 100 x boxes (each weighing 35kg) were securely repacked into 50 x metal drums and stored in the same shed located at the current location of the Misima District Hospital. Again, working of the figures supplied, the amount of DDT safeguarded equates to about **3,500kg** of old DDT stocks. This amount falls slightly above the amounts reported by the WHO Survey, 2000 (**2,800kg**) and PNG NIP, 2006 (**3,000kg**).
- The acting Deputy Director advised that he had not returned to Misima Island since 2007, hence could not give a definite answer that the old DDT stocks that he had safeguarded would be found on the island.

The meeting that followed with the MBPHA CEO was somewhat brief and short but to the point. Following views shared by the CEO regarding the objectives of the Mission, he then directed the Mission Team to visit the office of the Director for Public Health since he believed the team would be able to gather further information on status of DDT stocks in the other outer Districts apart from Misima and Esa'ala and ensured to get the Director to expect the teams visit.

The meeting with the Director, Public Health was convened at around 1430hrs. Present at the meeting was the Director – Public Health, the PEHO and the District Health Manager for Raba Raba. By now, much of the MBPHA personnel were already aware of the purpose of the Mission hence little time was spent discussing this need. The Director opened up the discussion and noted that much of the old DDT stocks for Alotau were kept at the premise of the Alotau General Hospital but could not confirm the exact location and amounts of stock kept there. Neither did he confirm if the stocks were still in existence.

The PEHO further clarified the Directors statement by advising that the old DDT stocks were no longer around and stated that the stocks may have been disposed of at the Alotau Town dumpsite. This information was already collaborating the statements made earlier by the Alotau Town Manager during the meeting convened with AULLG the previous day. He offered to show the Mission Team the containers that once housed the DDT stocks following the meeting. By the now, the Mission Team were aware that there were no DDT stocks in present in Alotau and that the need to establish facts around how these stocks got depleted and/or were disposed of was becoming a priority.

The District Health Manager for Raba Raba District whom had been listening to the conversations eagerly, opened up and subsequently informed the meeting that the obsolete DDT stocks in Raba Raba which had been kept in a shed were burnt by arsonist many years ago. Whatever amounts that survived the shed fire were than cleaned up and either buried in shallow pits or piled up in mounds at a location behind the burnt down shed and these stockpiles continue to leach out into the environment during heavy rainfall.

Following the conclusion of the meeting with the officers from the MBPHA Public Health Division, the Mission Team was taken to the location of the former DDT storage containers located within the residential quarters for the hospital workers.

2.4.4.2. DDT Stockpiles - Alotau

The Mission Team had by now established the fact that there existed no stockpiles of old DDT stock in Alotau from all the information obtained through the various meetings and discussions held. The sad reality was that information relating to the actual depletion of the old DDT stocks including any disposal information could not be verified by all persons engaged in all the meetings and/or discussions convened.

The Mission Team was only shown the 2 x storage containers that once housed the old DDT stock as shown in the photos below without any further concrete information on the fate of the stockpiles supplied.

Photo 18. The 2 x 20ft containers that once contained the old DDT stocks

2.4.4.3. DDT Risk Assessment and Safeguarding - Alotau

Unfortunately for this mission, no DDT assessment and safeguarding were undertaken due to the fact the absence of the old DDT stocks. However, during the practical exercise conducted

for Risk Assessment of Hazardous Substances at the Alotau Town dumpsite, the mission Technical Consultant did demonstrate the importance of undertaking risk assessments.

Misima Island

Similar to the Alotau mission, the Misima mission was again based around establishing information on the whereabouts of the DDT stocks reported in the PNG NIP 2006 and safeguarding the stockpiles were possible.

The Mission Team, armed with information and knowledge obtained through prior consultation with relevant personnel of the MBPHA in Alotau was determined to get to the site noted and undertake the necessary assessment and verify the presence of any old DDT stocks. After arriving in Misima on the 24th November 2019, the Mission Team established contact with the respective government officials from the Samarai Murua District Development Authority (SMDDA) and the District Health officials from the MBPHA to setup the respective meetings with these organizations during the teams stay on the island.

Further consultation meetings and site inspection arrangements were confirmed with the SMDDA CEO and District Health Manager and undertaken on the days that followed for the Misima mission.

2.4.4.4. Assessment and Verification of POPs - Misima

All of the POPs assessment and verification work in Misima was achieved mainly through arranged consultative meetings and informal discussions with individuals in the respective government organisations. 1 x site visit was undertaken to the Misima District Hospital o the Alotau General Hospital area to ascertain locations were DDT was suspected to be disposed and stored respectively in the past.

Photo 19. Informal discussions with the SMDDA CEO

Stakeholder Meetings – Day 1, Sat: 24/11/2019

The first meeting of the stakeholders was convened with the SMDDA CEO. At this informal meet and greet gathering, the Mission Team had the opportunity to update the CEP on the objectives of the Mission and also solicit from him assistance with regards to the logistics needs of the team. The CEO without hesitation allocated a fulltime driver and vehicle for the teams use. This gesture alone made it possible for the Mission Team to get around the island unobstructed since there were no hire vehicles available on the island. During the informal meeting, the CEO advised the team that since he was new to his role, he would make every effort to get all those who knew about and/or possessed information relating to the old DDT stockpiles to help the Mission Team during its stay on the island.

Stakeholder Visits – Day 2, Sun: 25/11/2019

Day 2 for the Mission Team commenced with a visit to the District Hospital on Misima Island. The SMDDA Driver whom happens to be a long serving staff had some knowledge on the location of the old DDT storage shed hence was able to show the team members the location of the old shed on arrival at the Misima District Hospital. Unfortunate though, the shed was broken down and the area cleared and a new hospital wing called the Family Health Clinic built over the location of the old shed. The fate of the old DDT stocks remained unknown since the driver did not have any further knowledge apart of showing the team the location of the old storage shed.

Photo 20. The new wing built on the site of the old DDT Storage Shed

2.4.4.5. DDT Stockpiles - Misima

Following the Risk Assessment Training for the Misima Island participants, a site visit was again undertaken to the Misima District Hospital and this time led by the District Health Manager (DHM). Being the resident health official on the island for quite some time, the DHM provided useful advice that were in line with the information supplied by the acting Deputy

Director for Policy and Planning for the MBPHA back in Alotau. The information supplied are noted herein;

- In the year 2002, about 45 plus metal drums containing old DDT stock were removed from the old storage shed behind the hospital and moved to a shed built beside the hospital mortuary to give way for new developments to the hospital which were being planned by the Misima Mine.
- The old DDT stocks remained in that shed until 2007 when they were removed by a contractor engaged by the Misima Mine as part of the mine's closure cleanup work and brought off island for disposal. Unfortunate though is the fact that no information was obtained regarding the details of the contractor and how they would be disposing off the old DDT stocks.

Photo 21. The shed where the old DDT stocks were kept until 2007

The DHM believed that the old DDT stocks were taken to Alotau for consolidation and disposal. However, this was not probably the case as discovered earlier by the Mission Team

2.4.4.6. DDT Risk Assessment and Safeguarding - Misima

The participant of the Risk Assessment Training never had the opportunity to undergo the practical exercise relating to Risk Assessment of Hazardous Substance due to the fact that most of the participants had come from the outer islands (LLGs) and had to return to their islands following the conclusion of the training to avoid the windy conditions and rough seas that were prevalent at that time.

However, the participants were taken through the templates for the Hazardous Substances Risk Assessment and the Risk Assessment Matrix with some time spent on discussing contents of both documents following conclusion of the main training.

2.3.5 National Capital District Mission

The National Capital District (NCD) Scoping Mission was spread out across 3 of PPL's main areas including the PPL Headquarter at Hohola, the now decommissioned Moitaka Powerhouse and the Hydro Power Generation Schemes, 1 - 4 located at Rouna. All these sites are located within the boundaries of Port Moresby.

The Mission Team conducted an initial site assessment trip to all the PPL sites noted above on the 17th February 2019 to inspect and count the number of items that contained transformer waste oils thus enabling the Mission Technical Consultant to prepare and make available all the required PPE, materials and consumables required for the sampling task. The visit also provided the Mission Team the opportunity to measure out the oil contaminated areas at the respective sites. Following the visit, a brief meeting was convened with the PPL personnel to advise them of the sampling protocols and what they should provide during the sampling exercise the following day.

The NCD mission also included the test work for all samples collected during the November 2019 fieldwork. As part of the initial testing for the transformer oil samples at the PPL Moitaka Powerhouse yard, the Technical Consultant demonstrated how the Dexsil Test Kit should be used to the CEPA and PPL officers by undertaking test on 3 x samples collected from the NCD mission on afternoon of Wed-19/02/20. Due to timing constraints, it was agreed by all parties that the Technical Consultant was to complete the PCB screening test for the remainder of the 122 oils samples in the days following the conclusion of the NCD mission sampling task.

2.4.6.1. Assessment and Verification of POPs

Given the fact that the NCD mission was focused on identifying, assessing and sampling transformer oils, the targets locations were easily identified through the initial site visit undertaken by the combined Mission Team on Mon-17/02/20 than further assessed and verified during the actual sampling period. All identified contaminated areas for Hohola, Moitaka and Rouna sites were measured through estimation by walking the areas on foot. This measurement method was adopted for use since the contaminated areas were unevenly spread out at all the sites assessed.

During the actual sampling dates, further details of the items containing the transformer oils were recorded through photographing the individual items including name plates (especially for the power generating equipment). One on one discussion with the respective PPL staff located at the respective sites provided further insight into the historic and technical information pertaining to the sites and the transformer oil containing items.

The PNG POPs NIP, 2006 reported that the PPL NCD operations was the main location that had the largest stockpile of transformer oils contained in various power generating equipment,

a number of bulk tanks and numerous 205L metal drums. This fact was confirmed by the Mission Team when the respective sites were visited and oil volumes assessed.

The outcomes of the findings are further discussed in-detail in this section of the reported noted herein below.

2.4.6.2. Transformer Oil Sampling and Testing

The transformer oils sampling exercise was conducted over two days from the 18th to 19th February 2019. Sampling for the Hohola and Moitaka sites was completed on Tue-18/02/19, whilst all Hydro Power sites at Rouna were done on Wed-19/02/20, since special Permits had to be obtained by the PPL Environment Officer and necessary personnel informed (to assist with the access and sampling work) prior to the Mission Team gaining access to these sites.

Apart from making available the Environment Officer and all necessary personnel at the respective sites visited, the PPL management provided a vehicle and fulltime driver over the 3-day period to assist the Mission Team achieve its objectives for the NCD mission.

Presented here in below are sampling and test results for the National Capital District Scoping Mission work.

Table 23. Sample Nos. vs Estimated Oil Volumes for Hohola, Moitaka and Rouna

Mission Centres	No. of Sample	Est. Oil Vol. (L)
Hohola	15	4, 649
Moitaka	2	600, 000
Rouna	15	80, 640
Total	**32**	**685, 289**

A total of 32 samples were collected from the three NCD mission sites. From the sampling task, the Mission Team estimated a total of **685, 289** litres of transformer oils for all the items sampled.

Table 24. Sample Nos. Count vs Test Results for Hohola, Moitaka and Rouna

Mission Centres	Negative	Positive
Hohola	13	2
Moitaka		2
Rouna	14	1
Total	**27**	**5**

From the 32 samples tested, 5 samples tested positive for presence of PCB (>50ppm) whilst 27 samples tested negative for the PCB screening test.

Photo 22. Sample No. MPH_01- Askarel

Photo 23. Sample No. MPH_02

Photo 24. Sample No. RH2_01

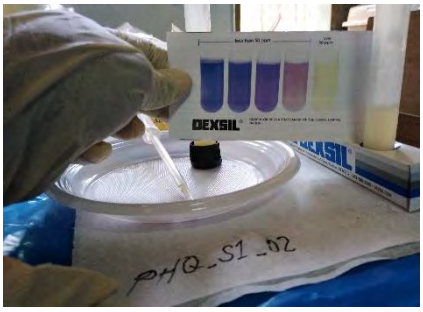

Photo 25. Sample No. PHQ_02

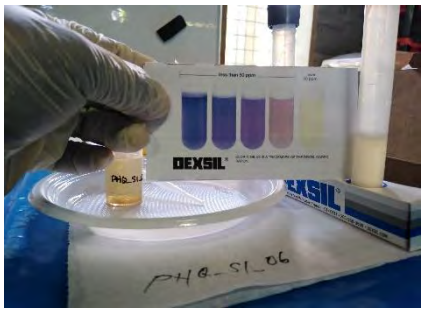

Photo 26. Sample No. PHQ_06

Table 25. Test Results vs Estimated Oil Volumes for Hohola, Moitaka and Rouna

Mission Centres	Negative- Est. Oil Vol. (L)	Positive- Est. Oil (L)
Hohola	3,282	1,367
Moitaka		600,000
Rouna	72,388	8,252
Total	**75,670**	**609,619**

Of the total transformer oils recorded for the NCD mission, **75,670** litres were noted to be free from PCB contamination whilst **609,619** litres were confirmed to be contaminated with PCB through testing of the respective samples.

2.4.6.3. PCB Contaminated Equipment and Sites

The assessment done on the equipment and/or sites believed to be potentially contaminated by PCB oils is based on the outcome of the test results for the oil samples from the equipment and/or container type at the respective locations.

Table 26. Equipment/Container Type Count vs Test Results for Hohola

Equipment/Container Type	Negative	Positive
205L Metal Drum	6	
Obsolete Transformer	7	2
Total	**13**	**2**

For the Hohola site, oil samples collected from 2 x obsolete 500KVA, Three Phase Kiosk Transformers tested positive for presence of PCB.

Table 27. Equipment/Container Type Est. Oil Vol. vs Test Results for Hohola

Equipment/Container Type	Negative- Est. Oil Vol. (L)	Positive- Est. Oil Vol. (L)
205L Metal Drum	1,060	
Obsolete Transformer	2,222	1,367
Total	**3,282**	**1,367**

Samples from both obsolete transformers that tested positive for presence of PCB contained a total of **1,367** litres of transformer oils.

Table 28. Contaminated Site vs Test Results for Hohola

Contaminated Site	Negative- Area (m^2)	Positive- Area (m^2)
Transformer Workshop Yard	1,664	432
Total	**1,664**	**432**

An area of 432m^2 was calculated to be contaminated with PCB contained in the transformer oils which have since been leaking onto the ground at the location of the storage area at Hohola Transformer Workshop yard.

Table 29. Equipment/Container Type Count vs Test Results for Moitaka

Equipment/Container Type	Negative	Positive
200kL Tank		1
400kL Tank		1
Total		**2**

For the Moitaka site, oil samples collected from 1 x 400kL Bulk Tank and 1 x 200kL ISO Tank tested positive for presence of PCB.

Table 30. Equipment/Container Type Est. Oil Vol. vs Test Results for Moitaka

Equipment/Container Type	Negative- Est. Oil Vol. (L)	Positive- Est. Oil Vol. (L)
200kL Tank		200,000
400kL Tank		400,000
Total		**600,000**

Samples from both tanks that tested positive for presence of PCB contained a total of **600,000** litres of transformer oils.

Table 31. Contaminated Sites vs Test Result for Moitaka

Contaminated Site	Negative- Area (m^2)	Positive- Area (m^2)
Moitaka Powerhouse		2
Total		**2**

An area of $2m^2$ was calculated to be contaminated with PCB contained in the transformer oils which have since been leaking onto the ground at the location of the storage area at Hohola Transformer Workshop yard.

Table 32. Equipment/Container Type Count vs Test Results for Rouna

Equipment/Container Type	Negative	Positive
Active Transformer	14	1
Total	**14**	**1**

For the Rouna sites, an oil sample collected from 1 x active 10,000KVA, Three Phase Pad Mounted Transformer located at the Rouna 2 Hydro Power Switchyard tested positive for presence of PCB.

Table 33. Equipment/Container Type Est. Oil Vol. vs Test Results for Rouna

Equipment/Container Type	Negative- Est. Oil Vol. (L)	Positive- Est. Oil Vol. (L)
Active Transformer	72,388	8,252
Total	**72,388**	**8,252**

Sample for the active transformer that tested positive for presence of PCB contained a total of **8,252** litres of transformer oils.

Table 34. Contaminated Site vs Test Results for Rouna

Contaminated Site	Negative- Area (m^2)	Positive- (m^2)
Auto Switch Yard	0	
Rouna 1 Hydropower Station	0	
Rouna 2 Hydropower Station	4	1
Rouna 3 Hydropower Station	3	
Rouna 4 Hydropower Station	2	
Total	**9**	**1**

An area of $1m^2$ was calculated to be contaminated with PCB contained in the transformer oils which have since been leaking onto the ground at the site of active transformer located within the Rouna 2 Switchyard area.

3. Deliverables (Mission Outcomes)

A total of 40 participants from 4 mission centres attended the Risk Based Approach training conducted by the Mission Team. In 3 of the 4 centres visited and trainings conducted, the absence of old DDT stockpiles did not prevent the participants from discussing other matters of real concern to them regarding the presence, use and consequences of unsafe disposal of chemicals in their provinces.

The main list containing the details of the Training Attendees is provided in **Appendix 3**. Details of the training and the outcomes are further discussed in this chapter of the report.

3.1 Training – Risk Assessment

The training materials developed in response to the training objective were greatly influenced by the outcome of the first stakeholder meeting conducted on the 6th November 2019, in Goroka. Following the conclusion of the meeting, the Mission Team realised that the absence of the DDT stockpile posed a challenge for the Technical Consultant (TC) whom would not be able to relate any specific aspects of the training information without making reference to the physical presence of the stockpile.

This obvious predicament faced by the Mission Team caused the Technical Consultant to discuss the next way forward for the training with the mission Team Leader (TL) and proposed to him that the training objective should be delivered using the Risk Based Approach. Through this approach, the TC would use training material adopted from his past jobs, knowledge and experience to put together the necessary training materials relating to Risk Assessment of Hazardous Substances to paint a picture around the risks posed by hazardous substances present in the workplace (including DDT chemicals).

Backed by the fact that updated and/or reliable information was lacking with regards to the existence of old DDT stockpiles, their packaging and storage conditions and the safety and environmental hazards posed by the stockpiles at the respective centres to be visited by the Mission Team including Goroka, an understanding was reached between the TL and TC to proceed with the new training approach.

The TC commenced work on preparing the training materials which were not only delivered successfully in Goroka but used for the entire mission at centres in Kokopo, Alotau and Misima Island. The training participants were introduced to and taken through the following topics and principles including;

- Definition of Hazards
- The 3 Key Elements of Hazards in a Workplace
- The 6 Common Categories of Workplace Hazards
- The Hazard Identification Process
- Responsibilities of Employees and Employers in relation to Workplace Safety

- The 4 Step Process in Hazard Identification and Control
- The Hierarchy of Controls
- The Risk Assessment Process
- Why and When to Do Risk Assessments
- Basic Principles of Risk Assessment
- Risk Tolerance in Assessing Risks
- Factor Influencing Risk Tolerance, and
- Steps in Undertaking Risk Assessment

The individual Training Packages for the respective centres are contained in **Appendix 4a – 4d**.

Further to the class room training materials developed, a practical exercise was also included as part of the training to give the participants the opportunity to put into practice what they had learned. Materials for the practical exercise included a Hazardous Substance Risk Assessment Template and a Risk Matrix which were used as guide out in the field during the practical sessions. Both documents are contained in **Appendix 5a** and **5b** respectively

3.1.1 Goroka Mission

The training for the Goroka mission was conducted at Malaria Training Classroom located within the EHP Health Authority grounds. The training participants were mainly persons working in the Health and Environment sectors within the province whilst 1 x participants came from the Goroka Chamber of Commerce and another individual was invited by the Mission Team based on his past knowledge of the POPs project (being the former Leader of Task Team 2, under the PNG POPs Project between 2004 and 2006).

Table 35. Risk Assessment Training Attendees List - Goroka

No.	Name	Designation	Organisation
1	Schola Vano	Infection Prevention & Control Officer	Goroka Provincial Hospital
2	Linda Kamaru	Procurement Officer	Goroka Provincial Hospital
3	Melisa Foskey	Infection Prevention & Control Officer	Goroka Provincial Hospital
4	Danny Benjamin	Environment Coordinator	EHP Administration
5	Zamzai Sinikupa	EHPA Consultant	EHP Administration
6	Amon Joshua	Environment Health Officer	EHP Health Authority
7	James Kelepuna	Technical Officer - Malaria	EHP Health Authority
8	Debbie Ogano	Environment Health Officer	Goroka Urban LLG
9	Ian Mopafi	Vice President	Goroka Chamber of Commerce

The Goroka training formed the base for the Mission Team's delivery of the Risk Based Approach training materials and resources including testing its relevance and acceptance. Whilst most of the participants, especially the older age group found the training materials to

be new to them, the younger participants possessed some level of knowledge relating to the training materials presented and the principles discussed. One particular participant; the Vice President of the Goroka Chamber of Commerce was the only person in the group who was very familiar with the training materials since he was a former employee of a mining company (Ok Tedi Mine) and was very helpful in relating most of the messages from the training to situations and experiences locally.

However, by the end of the classroom training and practical session, all who attended had grasped the basic principles of the training and generally voiced their desire for such trainings to be conducted at their workplaces regularly and for similar risk assessment principles and processes to be established for all new chemicals and substances that had the potential to cause human health and environmental harm within relevant authorities of government in the province. A fair amount of time was spent listening and responding to various queries from the participants by the Mission Team.

Photo 27. Risk Assessment (RA) Training

Photo 28. Hazardous Substances RA practical session

From the group discussion and views uttered by the participants, it was obvious that a formal chemical registration system was critically needed for the EHP Government since chemical use (especially agricultural chemicals) was widespread in the province thus ensuring all those chemicals that were either brought into the province or transited through the province were properly managed, monitored and controlled. The participants also called on CEPA and SPREP to assist were possible in ensuring such system was established at the national level from which the province could adopt and work off from. Some of the views noted include;

- There were no proper facilities for the management and disposal of chemicals including hazardous (hospital) wastes.
- Most chemicals that were brought into the province by traders did not have proper labels. Most labels were in foreign language.
- Chemicals were brought in bulk than repacked into containers with no proper labelling and sold on the shelves of stores.

- Locals who purchased bulk chemicals (especially fertilizer) usually repacked the chemicals into improper containers or into plastic shopping bags and sold at the local markets.
- Locals who buy and use these chemicals had no regard for correct and safe use of the chemicals including use of proper PPE when apply the chemicals in their gardens.
- Large volumes of hazardous (cyanide, acids, caustic etc.) and dangerous (explosives) chemicals were brought through the centre of Goroka town (since the highlands highway ran right through the center of the town) on route to the mining, oil and gas projects sites further up into the other highlands' provinces. In the case of a major accident resulting in a chemical spill in the town area, it would pose greater risks for the town residence and visitors since the EHP government nor the GULLG had the capacity to response to such emergency if they ever occurred.

Before the group discussion were concluded, the representative from the Goroka Chamber of Commerce raised the point of forming a provincial committee comprising of representatives from organisations represented at the training to further pursue any future discussions with their provincial government and the relevant national authorities on the matters relevant to chemical trade, use and management in EHP.

3.1.2 Kokopo Mission

The training for the Kokopo mission was conducted at Education Division's Conference Room located within the Tarmur Center. All the participants were from the health sector and represented the various Local Level Government (LLG) Health centres. Whilst most of the participants worked directly under the ENB Provincial Administration, 2 x participants were employee representatives from the NDoH working in the province. Noted here in below is the list of the participants.

Table 36. Risk Assessment Training Attendees List - Kokopo

No.	Name	Designation	Organisation
1	Elsie Peneia	Environmental Health Officer	Kombui LLG - ENBP Administration
2	Sussie Samuel	Quarantine Officer-Rabaul	National Department of Health
3	Cessly Malamut	Environmental Health Officer	Lassul LLG - ENBP Administration
4	Vunai Leba	Environmental Health Officer	Inland Baining - ENBP Administration
5	Peter Johnseu	Senior Quarantine Officer	National Department of Health
6	Relvie Taplar	Environmental Health Officer	Kokopo Urban LLG - ENBP Administration
7	Helen Tade	Senior Environmental Health Officer	Kokopo/Vunamami LLG - ENBP Administration
8	Margaret Yaigom	Environmental Health Officer	Livuan/Reimber LLG - ENBP Administration
9	Jessie Nason	Environmental Health Officer	Central Gazelle LLG - ENBP Administration
10	Joshua Wowo	District Health Coordinator - Rabaul	Rabaul District
11	Paschalis Kinakava	Program Manager - Public Health	ENBP Government

All of the participants were Environmental Health Officers (EHOs) by profession, thus were quite familiar with the training content presented by the Mission Team. This formed the basis

of an interactive and productive training session with a few more new information and knowledge acquired by the participants following completion of the classroom and practical sessions.

Similar to the participants from Goroka, they expressed the need for more awareness and education (training) around hazards posed by chemicals and other substances in their respective workplaces and some of these participants noted to use the Hazardous Substances Risk Assessment template to carry out risk assessment for all chemicals at their workplaces when they returned.

Unlike EHP, the people of ENBP did not use a lot of chemicals in local subsistence farming activities hence very little concern was raised around use and abuse of chemicals in the province by locals. However, much was discussed around the use of large amounts of chemicals in the oil palm and logging industry in the province hence the matter relating to registration, management, monitoring and control of chemicals in the province was again raised by these lot of participants.

Photo 29. RA Training opening by the Mission TL

Photo 30. Hazardous Substances RA practical session.

The group also raised some valid points in relation to chemicals management in the province and were noted to include;

- Lack of collaboration amongst agencies of government within the province often led to chemicals coming into the province undetected. A classic case in point was raised regarding chemicals brought into the province by logging companies that never underwent Customs clearance at the main ports of entry into the province. Instead, logging ships discharging cargo for their operations in the remote parts of the province would deliver these chemicals direct to the log ponds undetected. As a result, the logging companies through use of the chemicals and their indiscriminate disposal into the environment continued to pose risks to human health and the environment for communities surrounding the logging operations.

- Lack of action and apprehension by the agencies responsible for development projects at the national level was a cause for concern at the provincial level. This concern was raised in response to ongoing leaching of chemicals from a mine that was closed a few years back by the CEPA and the Mineral Resources Authority (MRA). The mine was located in the hinterlands of the province and the continued leaching of chemicals from the mine posed greater human health and environmental risks for the immediate communities and the wider region. Despite the CEPA and MRA giving assurance (to the locals and provincial authorities) that the mine was safely closed, the actual situation reported at the abandoned mine was somewhat not the case. Provincial Health officials who were called into the abandoned mine area reported cases of ongoing chemical leaching from the mine's old workings in the recent past.
- Lack of proper disposal facilities in the province for old and/or used by date medicine at the District level continued to be a challenge. Given the logistic challenges and bad road conditions into most of the Districts in the province, the health centres usually disposed of the overdue and/or damaged drugs in shallow pits dug beside the health centres. Learning from the training information pertaining to the need to undertake proper risk assessment, some of the participants admitted that the practice of burying drugs in shallow pits did already pose risks unknown to them and the communities.

When the participants visited the location of the old DDT stocks at BLLG in Rabaul, most of them could not believe the fact that such highly hazardous chemicals were still being kept in their province and backyard. Most of the participants were curious to approach the DDT stocks however, were warned of the dangers relating to coming into contact with the stocks without use of any proper PPE hence had to observe from afar. The discussions that followed were more centered around the need to secure the stocks as matter of priority and the need for the stocks to be removed ASAP and the area cleaned up to prevent any further unnecessary exposure to the communities. The mission Team Leader reassured the participants that the stockpile would be safeguarded the following day and all necessary steps taken thereafter to remove them from their location and the contaminated site also cleaned up as part of the GEF ISLANDS Projects in 2020.

The group collectively agreed that a proper Chemical Management System needed to be developed for the country and adopted for use at the provincial level to combat the current challenges presented with the importation, use, exposure, management, monitoring and disposal of chemicals in the province.

3.1.3 Alotau Mission

The training for the Alotau mission was conducted at Media Centre Conference Room located within the Milney Bay Tourism Bureau Building. The participants were mainly from the health sector whilst 1 x person attended from the MBP Disaster Office whilst two others were from the Planning Division of the MBPA. A JICA volunteer who was attached with the AULLG also participated in the training and also contributed meaningfully during the discussion session,

especially relating to community-based awareness and training. List of the participants is noted herein below.

Table 37. Risk Assessment Training Attendees List - Alotau

No.	Name	Designation	Organisation
1	Ivan Maraka	Senior Environmental Health Officer	Alotau Urban LLG
2	Narutaka Takahashi	JICA Volunteer	Alotau Urban LLG
3	Lulu Osembo	Acting Environment Officer	Division of Planning - MBP Administration
4	Misa Lionel	Provincial Planner	MBP Administration
5	Michael Tounokon	Environmental Health Officer	MBP Health Authority
6	Jimmy Evea	Infection Prevention & Control Officer	Alotau Provincial Hospital - MBP Health Authority
7	Steve Tobessa	Coordinator - Disaster & Emergency	MBP Disaster Office

For the Alotau participants, the training was received with a lot of appreciation given the fact that most of them had never come across such risk assessment training in the past. The short group exercises noted during the course of the training proved very useful for broadening the participants views of the subject matter as they attempted the exercises openly with a bit of humour and laughter whilst trying to identify the hazards and relating them back to their workplaces. And like the Goroka and Kokopo participants, the Alotau trainees also found new information and knowledge through the training which drew a lot of perception around the need to undertake proper risk assessment for all materials, substances and tasks before handling or undertaking the tasks.

The local population uses very little to nil chemicals in subsistence gardening, hence the focus of the discussions that ensured were more focused on the large agriculture and logging industries and the business community.

Photo 31. Participants posing for a group photo.

Photo 32. Q&A session following the RA Training

Similar to the views raised by the trainees in Kokopo, the Alotau participants noted a few concerns regarding the importation, use, management and disposal of chemicals and these included;

- The MBPA through its [4]Planning Division was not aware of the types and amount of chemicals that were being brought into the province since there was an obvious absence of a chemical registration system for the province.
- The lack of collaboration and sharing of information amongst agencies of government within the province and between the national level agencies and provincial government authorities was also adding to the problem of chemicals entering the province without being detected.
- Provincial government officials were not easily allowed into large development project sites which were permitted by the national government agencies such as CEPA (environmental permit), National Department of Agriculture and Livestock (agriculture development license) and PNG Forest Authority (Timber Permits) thus the relevant provincial authorities were not able to independently collect information/data on chemicals at the project sites.
- No proper facilities existed in Alotau for the disposal of chemicals and waste associated with to chemicals. The Alotau open dumpsite was only meant to take in municipal solid wastes but some businesses within Town that dealt with hazardous waste continued to use the facility for disposing of chemicals and related wastes. One such company that was identified was involved in the manufacture of fiberglass banana boats.
- The provinces Disaster office did not have the capacity to deal with large chemical spills or incidents hence the Disaster Coordinator emphasized strongly that laws should be put in place to have those industries and/or business houses that brought chemicals into the province to develop their own emergency response plans around the chemicals they import and use to deal with any incidents relating to large chemical spills.
- The JICA volunteer attached with the AULLG raised the need to develop simple but effective awareness and educational information for dissemination to relevant authorities and communities pointing out the hazards of certain chemicals that were being used by the large projects and/or business houses to raise awareness on the dangers of the chemicals and prepare the communities for any emergency response in the event of an unwanted chemical incident.

The participants of the training acknowledged that whilst there was a lack of a proper Chemical Management System at the national level, encouraged the Mission Team to emphasise the need strongly for one to be developed as soon as practical so provinces could also adopt it for use.

[4] The MBPA Planning Division hosts the Environment Unit (EU) for the Province. As part of its mandated role, the EU is required to manage and report on imports of chemicals into MBP and monitor businesses that deal with such chemicals.

3.1.4 Misima Mission

The training for the Misima mission was conducted at Samarai Murua District Headquarters' conference room in Bwagoia Station. This training hosted the biggest number with most of the participants coming from the outer LLG's within the District. The composition of the trainees included the CEO of the District, health officials, education officers, a fisheries officer, finance and accounting personnel, a project officer from the office of the local member and the office janitor. All these persons had shown interest at the advice of the CEO's and most came in from the outer islands.

Table 38. Risk Assessment Training Attendees List – Misima Island

No.	Name	Designation	Organisation
1	Wilson Hillary	District Administrator	Samarai Murua DDA
2	Rex Wai	Acting Health Extension Officer	MBP Health Authority
3	Gretel Charlie	Accountant	Samarai Murua DDA
4	Noel Tabailos	Accounts Officer	Yeleyamba LLG
5	Kevin Gisa	Religious Educator	Education Division - Samarai Murua DDA
6	Elsie Mogi	Accounts Clerk	SM District Health - MBP Health Authority
7	Aggrey max	District Fisheries Officer	Samarai Murua DDA
8	John Ebenisa	Officer In Charge -	Pambwa - Yeleyamba LLG
9	Lisa Sabbath	Personnel Assistant	SM HIV/AIDS Office - Samarai Murua DDA
10	John Metu Sealu	Acting District Manager	SM District Health - MBP Health Authority
11	Harriet Terman	Janitor/Casual	SM District Administration
12	Dorish Larry	Acting Area Manager	Lousiade LLG
13	Sana Kelebi	Project Officer	Member's Office

For these group that attended the training, the principles of the training were found to be very relevant and applicable to their respective workplaces. As is the case, Risk Assessment is never always confined to the ambit of dealing with hazardous substances and/or high risk activities but rather emphasizes a lot on understanding the hazards presented in a workplace and setting in place a process to identify the hazards in a workplace and coming up with systematic approach to undertake a risk assessment of these hazards to manage exposure to potential injury or harm.

Whilst it is unfortunate to state that the participants did not undertake the practical exercise, an hour was allowed following completion of the formal training to discuss scenarios in which the risk assessment principles could be applied in their respective work environments. The task relating to travelling between the outer islands and the Bwagoia Station using fiberglass banana boats was one such scenario discussed with the participants. By using the Risk Matrix, the participants were able to give a "Risk Score" to the task which to most of their surprise was ranked as a "Moderate Risk" activity. Through applying all the necessary controls than assessing the "Likelihood" and "Consequences" of an incident arising with and without the controls, the participants were able to work out the resulting risk score.

At the end of the exercise, it was emphasised to the participants that the Risk Based Approach is applicable to any situation and as such, had there been any old stocks of DDT present on the island, all necessary steps would be taken to complete a risk assessment for the safeguarding work before performing the actual task.

Photo 33. The District Administrator opening the Training.

Being moderately isolated from the mainland, all the participants had very little experience with the use and/or abuse of chemicals in their local settings. However, this peaceful and scenic island was once hosted a major mining activity which was called the Misima Mine. Despite the mine employing the use of various gold processing chemicals in very large amounts, none of the participants had any knowledge nor information on the type and amounts of chemicals used at the mine apart from the chemical; cyanide, which was feared by the communities due its hazardous nature and widely discussed environmental risks.

3.2 DDT Risk Assessment

The physical absence of old DDT stockpiles reported in the PNG NIP, 2006 at 3 of the 4 mission centres including up to date valid and correct information on the DDT contaminated sites were the two main reason that prevented the Mission Team from undertaking proper risk assessment work which would have otherwise enable the team to establish individual Risk Scores for the respective mission centres using the Risk Assessment tools available to the team. The sudden encounter with old DDT stockpiles at Rabaul in ENBP coupled with time limitations also did not allow the Mission Team to develop appropriate documentation for the safeguarding work as well.

However, for the purpose of future work relating to the GEF Islands Project in PNG there exists a need to develop the necessary Health, Safety and Environmental safeguard documentation for teams that will be involved in the clean up and removal exercise especially at BLLLG in Rabaul, ENBP. These documentations will have to follow the process prescribed herein below.

3.2.1 Safe Work Procedure – Obsolete DDT Stockpiles Management

In order to develop a well-suited Safe Work Procedure (SWP) for the management of old DDT stockpiles, one has to make reference to and be guided by the relevant standards relating to Occupational Health, Safety and Environment (OHSE). Such standards exist and include the Occupational Health and Safety Standard; OHSAS 18001 (controlled by the British Standards Institute; BSI) and the Environmental Managements System Standard; ISO 14001 (controlled by the International Organisation for Standardization; ISO).

Both systems can be referenced for the identification of the most relevant safety hazards and risks related to the task whilst also identifying the related environmental aspects and impacts that may arise out of undertaking the task. Utilizing the PDCA (Plan-Do-Check-Act) principle common to both standards, a proper SWP can be developed to safeguard the workers and the environment. The ideal tools that may be utilized include;

- Job Safety and Environmental Analysis (JSEA) Process
  This OHSE documentation is usually deployed in the absence of a Standard Operating Procedure (SOP) or Safe Work Procedure (SWP). The tool allows workers to;

  i. Point out the step by step tasks (job steps) required to fully complete a given task; from start to finish.
  ii. Once the works steps have been established, each work step is than reviewed in detail to identify the OHS hazards and risks including the environmental aspects and impacts.
  iii. Following the detailed review of task noted step ii above, the process of assigning a level of risk (risk ranking) commences. At the completion of this risk ranking exercise, the work steps will show their individual raw risk (without controls) scores and this can range from low risk to extreme risks. The **Risk**

Matrix (RM) is utilized to complete this task. The RM has a Consequence and Likelihood descriptor tables that defined the various risk values set to provide guidance to a risk ranking task.

iv. For the job steps than show risks that are between the risk scores of Moderate to Extreme risks, the next phase of the risk ranking is applied and this time, the necessary controls are applied to manage the hazards in the respective job steps. **The Hierarchy of Controls** (HoC) is utilized to achieve this task.

v. Once the risk control task in step iv above is completed, those job steps which have been subjected to this process will than exhibit their new individual residual risks (with controls) scores. At this point of the RA process, the resulting risk scores for the individual job steps should be lower than their initial raw risk scores. Should the risk scores for the individual job steps remain the same as their raw risk score, further controls will have to be applied until the job steps exhibit a considerable change in their risk ranking.

vi. On establishment of the final risk scores/risk ranking of the individual job steps, a **Risk Ranking and Action Matrix** is developed to assigned corrective action/s tasks identified for the individual job steps to the responsible persons to implement and/or monitor during the actual implementation of the entire work process from start to finish.

vii. Once everyone involved in the JSEA process are satisfied with the RA process applied, the JSEA document will than have to be signed off for implementation.

viii. A final review and close out of the JSEA is conducted at the completion of the task and any new and/or additional corrective actions taken during the course of implementing the task are included for record purposes and for the improvement of the JSEA if such similar task is repeated in the future.

The development, implementation and monitoring of the JSEA for a given task is done in a collaborative manner by all persons that will be involved in the task, hence is usually referred to as a rapid Team Based Risk Assessment tool.

The JSEA usually evolves into a SOP or SWP depending on the repetitive use of the JSEA. The SOP/SWP are usually standard documents required for the safe execution of a given task and are presented in various formats. However, a typical SOP/SWP should include;

Table 39. A typical Table of Content for a SOP/SWP

SOP/SWP Section	Definition
Purpose	Should define the why, what and where questions for the procedure
Responsibilities	Should define who should do what
Associated Documents and Resources	Should list and link related documents which will aid the implementation of the procedure
Procedure	The main body of the document and should include the job steps noted in the JSEA with a bit more detail added on tools/equipment required
Training	Should list the relevant OHSE trainings required for individuals who may be implementing the procedure
Auditing and Review	Should set about the frequency/schedule for the audit and review of the procedure and by whom
Document Information and History	Should contain typically a table in document QA/QC format for tracking document revision history

Using the above guide, the GEF Islands Project for the PNG Mission should be able to develop a SOP/SWP for the Management of the Obsolete DDT Stockpiles as and when required.

3.3 Provisional Budget for Disposal Options

The rational for the development of the preliminary budget is based primarily on information gathered by the Mission Team during visits conducted to the various mission centres. The principles applied for the selection of the options relevant to the costs for clean-up, repacking (if any), handling and transportation of the identified POPs chemicals from location of origin through to location of disposal has been determined purely from observation done, estimation measurements and calculations done and from test results obtained especially for the transformer oils.

It is however, regretful to mention that no actual costs were derived for the preliminary cost presentation in this report due to all companies not responding to request for quotations placed by the author in time for completion of the report. What is presented here in the respective subsections below is a guide that can be developed into acquiring some real costs as and when actual quotations are received from mainly the logistics and equipment hire companies based in respective mission centres.

3.3.1 DDT Stockpiles

- Cost Rationale:
  i. Remove 2 x 20ft containers containing old DDT stocks from BLLG to Rabaul wharf ready for shipment to Lae

- Principal Costs
  i. Hire of 30ton capacity crane
  ii. Hire of prime mover and 40ft trailer
  iii. Hire of container washdown equipment (high pressure water sprayer)
  iv. Procurement of cleaning chemicals, consumables and work PPE
  v. Payment for cleaning contractor and lead consultant
  vi. Payment of wharfage (storage/handling) cost at Rabaul port
  vii. Payment of shipment cost between Rabaul and Lae
  viii. Payment of wharfage cost at Lae port. (see Note 2)

Notes:

1. The above cost rationale is only applicable to the old DDT stocks now secured at the BLLG in Rabaul, ENBP.
2. Cargo from Rabaul will be consolidated with other POPs cargo from the highlands region and Lae then shipped out in one bulk shipment direct to an overseas port for disposal.
3. All costs derived will be for in-country related expenses only

3.3.2 DDT Contaminated Sites

Rabaul (BLLG) Site

- Cost Rationale:
  i. Cleanup approximately 10,000 cubic meters of contaminated soil using primarily a backhoe machine
  ii. Packing of all contaminated soils into 1ton bulker bags and place into 20ft containers.
  iii. Move 20ft containers to Rabaul port ready for shipment to Lae
  iv. Backfill and make good excavated area with fresh soil

- Principal Costs
  i. Hire of 30ton capacity crane
  ii. Hire of prime mover and 40ft trailer
  iii. Hire of backhoe equipment
  iv. Hire of 10 cubic dump truck
  v. Payment of cost for soil material for backfilling
  vi. Hire of container washdown equipment (high pressure water sprayer)
  vii. Procurement of cleaning chemicals, consumables and work PPE
  viii. Payment for cleaning contractor and lead consultant
  ix. Payment of wharfage (storage/handling) cost at Rabaul port
  x. Payment of shipment cost between Rabaul and Lae
  xi. Payment of wharfage cost at Lae port. (see Note 2)

Notes:

1. The above cost rationale is only applicable to the contaminated site at the BLLG in Rabaul, ENBP.
2. Cargo from Rabaul will be consolidated with other POPs cargo from the highlands region and Lae then shipped out in one bulk shipment direct to an overseas port for disposal
3. All costs derived will be for in-country related expenses only

3.3.3 PCB Contaminated Transformer Oils, Equipment and Contaminated Sites

Goroka an Yonki Sites

- Cost Rationale:
  i. Repack approximately 650 litres of PCB contaminated transformer oils into 1 x new 1,000L IBC pod and pack into 20ft container marked “transformer oils only” at Goroka
  ii. Clean and shrink wrap 1 x PCB contaminated 66KV circuit break and 1 x 22KV, 3 Phase obsolete transformer and pack into separate 20ft container marked “equipment only” at Goroka

iii. Cleanup and pack into 1 x new 1ton bulker bag approximately 109 cubic meters of contaminated soil and place in 20ft container marked “transformer oils”.
iv. Move both 20ft containers down to Yonki
v. Repack with 1 x new 1000L IBC pod containing approximately 600 litres of PCB contaminated transformer oils
vi. Repack with 1 x cleaned and shrink wrapped 300KV, 3 Phase pole mounted transformer.
vii. Repack the 1ton bulker bag from Goroka with 34 cubic meters of contaminated soil
i. Backfill of excavated area is small hence making good area will be the responsibility of PPL staff at Goroka and Yonki.
ii. Transport both containers down to Lae for further re-handling and preparation for shipment overseas

- Principal Costs
  i. Hire of 30ton capacity crane
  ii. Hire of prime mover and 40 ft trailer
  iii. Hire of container washdown equipment (high pressure water sprayer)
  iv. Procurement of cleaning chemicals, consumables and work PPE
  v. Payment for cleaning contractor and lead consultant
  vi. Payment of wharfage cost at Lae port. (see Note 2)

Notes:

1. The above cost rationale is only applicable to the PCB contaminated oils, equipment and sites Goroka and Yonki in EHP.
2. Cargo from Goroka and Yonki will be consolidated with other POPs cargo from Lae, Rabaul and Kokopo and shipped out in one bulk shipment direct to an overseas port for disposal
3. All costs derived will be for in-country related expenses only

Taraka Site - Lae

- Cost Rationale:
  i. Move approximately 150 litres of PCB contaminated transformer oils contained in the 205L metal drum to location of the 2 x 20ft containers transported in from the EHP and decant into one of the 1,000L IBC pod containing waste PCB contaminated transformer oils from either Goroka or Yonki and pack into 20ft container marked “transformer oils only” originated from Goroka.
  ii. Clean and shrink wrap 1 x PCB contaminated 205L metal drum and pack into container labelled “equipment only” originated from Goroka
  iii. Cleanup and pack into small sack bags approximately 109 cubic meters of contaminated soil and bring down to location of 2 x 20ft containers brought in from EHP and pack into the 1ton bulker bag marked in the container labelled “equipment only” originated from Goroka.

iv. Backfill of excavated area is small hence making good area will be the responsibility of PPL staff at Taraka.
v. Prepare both 20ft containers originating from Lae for shipment overseas

- Principal Costs
  i. Hire of 2ton forklift
  ii. Hire of prime mover and 40 ft trailer
  iii. Procurement of cleaning chemicals, consumables and work PPE
  iv. Payment for cleaning contractor and lead consultant
  v. Payment of wharfage cost at Lae port. (see Note 2)

Notes:

1. The above cost rationale is only applicable to the PCB contaminated oils, equipment and site in Lae, MP
2. Cargo from Lae will be consolidated with other POPs cargo from the highlands region, Rabaul and Kokopo then shipped out in one bulk shipment direct to an overseas port for disposal
3. All costs derived will be for in-country related expenses only

Kokopo Site

- Cost Rationale:
  i. Repack approximately 700 litres of PCB contaminated used transformer oils into 1 x new 1,000L IBC pod and pack into 20ft container.
  ii. Clean and shrink wrap 1 x 10KV, single phase pole transformer and 1 x 500KV, 3 Phase Kiosk Transformer and pack into same container containing the oils.
  iii. Cleanup and pack into small sack bags approximately 36 cubic meters of contaminated soil and place in same container containing the contaminated oil and equipment.
  iv. Backfill of excavated area is small hence making good area will be the responsibility of PPL staff at Kokopo.
  v. Prepare and secure the 20ft containers and move to Kokopo port for shipment to Lae port

- Principal Costs
  i. Hire of 2ton forklift
  ii. Hire of prime mover and 20ft side lift trailer
  iii. Procurement of cleaning chemicals, consumables and work PPE
  iv. Payment for cleaning contractor and lead consultant
  v. Payment of wharfage cost at Lae port. (see Note 2)

Notes:

1. The above cost rationale is only applicable to the PCB contaminated oils, equipment and site in Kokopo, ENBP
2. Cargo from Kokopo will be consolidated with other POPs cargo from Goroka, Yonki and Lae then shipped out in one bulk shipment direct to an overseas port for disposal
3. All costs derived will be for in-country related expenses only

The PCB contaminated oils, equipment and soils that arrive from Kokopo will then be re-handled and repacked into the 2 x 20ft containers that originated from Goroka and prepared for direct shipment from Lae to the designated overseas port for disposal.

Hohola, Moitaka and Rouna Sites – Port Moresby

- Cost Rationale:
  - i. Repack approximately 1,367 litres of PCB contaminated transformer oils into 1 x new 1,000L IBC pod and 2 x used 205L metal drums and transport to Moitaka Power Station.
  - i. Drain the active transformer of approximately 8,432 litres of PCB contaminated transformer oils at Rouna 2 switchyard into 9 x new 1,000L IBC pods and transport into Moitaka Power Station.
  - ii. Transfer the 367 litres of contaminated oils contained into the 2 x 205L metals drums into the 9th 1,000L IBC pod brought down from Rouna 2 and pack all the 10 x IBC pods into a 20ft container and secure for transport to new Port Moresby port.
  - iii. For the approximately 600,000 litres of PCB contaminated transformer oils stored at the Moitaka Power Station in 1 x 400kL bulk storage tank and 1 x 200kL SIO Tank, the preferred form of transportation of these oils off site will be the use of an oil tanker vessel with large enough capacity to take the total PCB contaminated waste transformer oil content from Moitaka Power House.
  - iv. This will require, making 3 x runs using the 200kL ISO tank between Moitaka and the POM port to discharge the waste oil load into the vessel.
  - v. The contaminated oil from the Hohola and Rouna 2 sites will be shipped in a separate 20ft container
  - vi. Clean and shrink wrap 2 x 500KV, 3 Phase Kiosk Transformers and pack into separate 20ft container at Hohola.
  - vii. Cleanup and pack into 1 x1ton bulker bag approximately 432 cubic metes of contaminated and place into same 20ft container with the contaminated equipment and transport Moitaka Power Station.
  - viii. Cleanup and pack into small sack bags the remaining 3 cubic meters of contaminated soils from Rouna 2 and Moitaka respectively and place in the bulker bag containing the contaminated soils from Hohola.
  - ix. Secure all contaminated equipment and soils in the 20ft container at Moitaka and move to POM port for shipment to the designated overseas port.

iii. Backfill of excavated area is small hence making good the areas will be the responsibility of PPL staff at respective PPL POM sites.
iv.

- Principal Costs
  i. Hire of 100ton capacity crane
  ii. Hire of prime mover and 40 ft trailer
  iii. Hire of prime mover and 20ft side lift trainer
  iv. Hire of high-speed oil transfer pumping gear and hoses
  v. Hire of container washdown equipment (high pressure water sprayer)
  vi. Procurement of cleaning chemicals, consumables and work PPE
  vii. Payment for cost of leasing a 1Mton Waste Oil Tanker Vessel
  viii. Payment for cleaning contractor and lead consultant
  ix. Payment of wharfage cost at Motukea (Port Moresby port). (see Note 2)

Notes:

1. The above cost rationale is only applicable to the PCB contaminated oils, equipment and sites in Port Moresby, NCD
2. Cargo from All Port Moresby sites will be consolidated at the Moitaka Power Station and transported to the new Motukea port for bulk shipment direct to an overseas port for disposal
3. All costs derived will be for in-country related expenses only

Given the wide-ranging cost rationales for the cleanup, removal and disposal of the DDT stocks and contaminated site the PCB contaminated oils, equipment and sites obtaining costs from suppliers of transport and logistics services including equipment lease business proved a complex undertaking without a firm basis for actual engagement as perceived by the individual company and service providers approached. As a result, not detailed costs were obtained to support the respective cost rationales developed for the respective sites noted above.

It is with this experience that the following advice should be taken heed of when implementing the PNG GEF Islands Project';

1. To derive a firm budget for the cleanup and removal for the respective POPs chemicals that were identified during the PNG Scoping, the individual "cost rationale" noted for the respective sites must be firmed up and a **Plan of Action** developed and confirmed.
2. Using the confirmed Plan of Action, at least 3 x Logistics companies who provide both land and sea transport services must be approached to provide competitive quotes for services per the Plan of Action. The supply of sea freight containers must be included in the quotes obtained.
3. For hire of equipment/machinery for the cleanup, packing and loading of the POPs chemicals, quotes must be sourced from local suppliers with reliable and proven service record within the respective mission centres

4. When procuring the services of a cleanup contractor, all costs for materials, consumables and work PPE must be included in the service cost, and
5. Finally, but not the least, a Lead Consultant must be sourced to oversee the implementation of the Plan of Action including managing the service providers at the respective mission centres.

4. Discussions

The PNG Scoping Mission through the work of the Mission Team had endeavored to visit all Provinces and Mission Centres identified through the mission planning stages. Using the PNG NIP, 2006 report as the basis for planning the mission objectives, the outcomes from the actual findings by the Mission Team for the targeted POPs chemicals at the respective mission centres somewhat did not meet the expectations of the mission agenda as planned.

Whilst the outcomes of the mission agenda are presented in detail in the respective sections of the report noted above, the following points noted herein below intend to put into perspective and discuss the obvious findings of the mission against its objectives thus ensuring all relevant matters needed to address the POPs chemicals in PNG and their future management under the GEF ISLANDS Project have been taken into consideration. The matters include but not limited to:

1. The old DDT stocks recorded by the WHO Survey, 2000 and the PNG NIP, 2006 report at all the targeted mission centres have gone missing without any proper records kept on how these stocks were either used up or disposed of, except for the DDT stockpile discovered in Rabaul District of East New Britain Province.

2. The disappearance of the old DDT stocks and the destruction, reuse or conversion of the storage buildings/containers also poses a big challenge for the future management of the assumed contaminated sites since there is a lot of uncertainty about the actual locations of these storage buildings/containers. In cases were the old storage buildings were broken down and new buildings erected over them, the soil contamination issues become more complex and complicated due to lack of information and/or records on how these land use alterations were undertaken.

3. Detailed information relating to the Transformer Oils Sampling and Testing work is contained in **Appendix 6**. Out of the estimated **914,005** litres of either in-use or used transformer oils, about **611,719** litres has been confirmed to be contaminated through tests conducted on the samples obtained using the Dexsil PCB Screening Test Kits. Whilst it is assumed (subject to further lab testing) that the oil lot that test positive will be managed thru the PNG GEF Islands Project, what becomes of the remaining **302,286** litres of transformer oils currently scattered throughout the various locations at the mission centres and continue to be subjected to the elements of weathering due to poor storage conditions resulting in spills to the environment.

4. A total of 5,437 square meters of land has been estimated to be contaminated through unwanted spillages from storage tanks, damaged metal drums, obsolete and operational power generating equipment at all centres visited. Of these amounts, a combined [5]calculated area of **623**m^2 of land is assumed to be contaminated with PCB

[5] Area of land calculated using the average ratio of land contaminated in a given location occupied by the number of transformer oil containing items.

contaminated transformer oils. Whilst the number is comparatively low, the actual extent of land contamination from PCB containing transformer oils could not be established by the Mission Team hence remaining **4,813**m^2 land cannot be ruled out as contaminated by PCBs. Again, the challenge here would be to either leave this non-PCB contaminated land to their fate or taken action in light of their identification.

5. Whilst **10** out of the **11** samples that tested positive for PCB Screening Test were obtained from obsolete power generating equipment or storage tanks and drums, **1** x sample was taken from an active 10,000KV, 3 Phase pad mounted Switchyard transformer manufactured in 2007. This test outcome had confirmed the theory around contamination of newer power generating equipment through reuse of old transformer oils which contained PCB. Whilst the rest of the items may be subjected to the PNG GEF Islands Project to some extent, the challenge remains in future management of this particular active transformer located at the Rouna 2 Switchyard.

6. Another challenge lies in the fact that of the **123** items identified to be containing transformer oils, **112** tested negative to the PCB Screening Test. **21** of these items that tested negative are active transformer whilst 91 of the items are either obsolete power generating equipment or storage tanks and drums which continue to be exposed to the weather and in most cases, have greatly deteriorated in their conditions hence as a result leaking oils into the environment. If these items are not subjected to the PNG GEF Islands Project, then the obvious owner; PNG Power Limited must take responsibility to eliminate further risk of environmental pollution arising from those storage sites.

7. The PPL personnel that were met at the various mission centres and whom provided the Mission Team with a lot of help and support in undertaking the transformer oils sampling task expressed a lot of concern on the lack of education and awareness around the hazards and dangers of handling transformer oils and especially oils that contained PCBs. Whilst there was obvious absence of any proper PPE at all sites visited, the level of PPE coverage presented by the Mission Team greatly challenged the consciences of the staff given the fact that they continued to expose themselves to the unknown hazards of using and handling transformer oils on a daily basis with very little to nil provision of appropriate PPE by the employer.

8. The Risk Assessment trainings conducted at the four mission centres provided the ideal opportunity for further discussion on the challenges presented by the lack of proper management (importation, use, control, monitoring and disposal) of chemicals especially at the provincial levels. The participants called on the CEPA and SPREP to ensure that during the GEF Islands Project, priority should be given to developing a properly integrated and fully functional Chemical Management System for the country which should be easily accessible by the provinces through collaborative means between the provinces and the responsible nation government agencies. Filling this

gap in the entire chemical life cycle management would bring greater benefits for the protection of human health and the environment at large in PNG.

A few key points worth noting have been presented for the purpose of raising awareness on the finding of the Mission Team in relation to the mission objectives.

5. Recommendations

Based on the outcomes of Mission Plan achieved by the work of the Mission Team the following are recommended for further consideration by SPREP/UNEP and include;

1. Whilst there exist definite numbers of old DDT stocks now safeguarded in Rabaul through the work of the Mission Team, other places especially those in Esa'ala and Raba Raba in the Milney Bay Province must be further investigated and necessary actions taken to clean up the contaminated sites as reported by the respective District Health officials from the Province. For the provinces that recorded old DDT stocks per the respective reports especially in the other highlands provinces of Simbu, Wabag, Western Highlands and Southern Highlands, these locations must be further assessed and the stocks verified to ensure they do not miss the future management opportunities brought on by the PNG GEF Islands Project.

2. Visits to the PPL sites listed in the Mission Plan prompted further request from the respective management teams at the mission centres for the Mission Team to visit other PPL sites within the respective regions (especially the Highlands, Momase and Islands) to undertake sampling and testing of the transformer oils at the respective PPL sites within the regions noted. Whilst this mission was limited in its scope of coverage, there exists the need for the proper management of PCBs in the power generation industry in PNG hence a wider coverage of PNG's power generation sector in the immediate future to undertake similar work done by the mission team would go a long way in identifying and riding PNG of one of the main POPs chemicals in the country.

3. The cost related to options for the future management of the targeted POPs through removal and disposal was not established in this report due basically to the reluctance by certain private companies that were approached to provide information in the form of quotations. The need for costing of a complex logistical (land and sea transport) and contractor procurement and management task requires confirmation of an approved Plan of Action for the future management of POPs under the GEF Islands Project. Once this is established, teams that will be required to cost up the future management of POPs in PNG can have a concrete information source to negotiate competitive pricing on related costs. This task alone needs to be established sooner if the success of the GEF Island Project is to be realised in PNG. The cost rationales provided in this report should form the basis of the approved Plan of Action.

6. Conclusion

This document has been set up with the aim of reporting on the findings of the PNG Scoping Mission and sets the basis upon which the next phase of the work under the auspices of the GEF Islands Project is built on and delivered for Papua New Guinea.

In concluding this report, it is noteworthy to mention that having access to all relevant information about the POPs Chemicals in PNG is a fundamental asset to the successful planning and developing future project proposals for the effective management of POPs in PNG. The actual act of going about to collect and collate information about POPs in PNG in reality is a mammoth of a task, and this Mission Team defied all odds and challenges to make it to the end and come out with the outcomes presented in this report.

Thus, using information from this report for the purpose intended will greatly benefit the immediate planning needs for the GEF Islands Project for PNG.

It is with this view that this report is presented in the form and format to engage and share the information and knowledge acquired under a very tight challenging mission schedule whilst ensuring the content and quality of the information is maintained with a very high level of accuracy.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: COOK ISLANDS

<table>
<tr><td colspan="2">Country: Cook Islands</td><td colspan="2">Outputs and activities of reference:
Output 1.1 – activity 1.1.1
Output 3.1 – activities 3.1.1, 3.1.3, 3.1.5
Output 4.1 – activity 4.1.1</td></tr>
<tr><td colspan="2"></td><td colspan="2">Country Focal Point:
Vavia Tangatataia Manager – Compliance & Advisory National Environment Service</td></tr>
<tr><td>National priority:
E-waste</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
Cook Island’s priority has direct links to CP 2025 Strategic Goals 2 & 3. Performance Indicators include the No. of EPR programmes for e-waste and quantity of e-waste stockpiles</td><td>Where do we want to get to?
Robust e-waste/bulky waste management system for Cook Islands</td><td>How will we get there?
• Review of Environment Act to include new provisions for emerging waste streams like e-waste
• Solid Waste and Hazardous Waste Bill
• Set up an Advance Disposal Fee scheme
• Setup and implement a Recycling Amnesty for Rarotonga and the Pa Enua for the recycling and re-exporting of e-waste and bulky waste
• Capacity building, education and awareness reaching out to the community at large, private sectors, government departments etc;
• Dismantling of e-waste training with local recyclers.
• Training on Waigani/Basel Convention Transboundary procedures for stakeholders (recyclers, customs, competent authority, focal points)</td></tr>
</table>

<table>
<tr><td>Current activities in your country related to this issue:
There is currently no formal e-waste collection or recycling program running in Cook Islands. Residents are been advised by the NES to store e-waste in their premises.</td><td>Links to national waste management plan:
The Cook Islands Priority has a direct link to ‘Te Kaveinga Nui - National Sustainable Development Plan (NSDP)2016-2020 Goal 3, Promote sustainable practices and effectively manage solid and hazardous waste. Performance Indicator includes the promotion and supporting of responsible recycling initiatives and ensure that hazardous waste is closely monitored, managed and safely disposed of.</td><td>Related legislation (e.g. Waste Act, environmental legislation):
Public Health Act 2004 Environment Act 2003 Solid & Hazardous Waste Bill</td></tr>
<tr><td>Who else is involved? (list private sector partners, community groups, NGOs, gov departments):
1. Cook Islands General Transport (CIGT)</td><td colspan="2">Are any other donors/partners assisting with this issue? (if, yes provide details):
None</td></tr>
<tr><td colspan="3">Why hasn’t this issue been addressed before? What are the barriers?
Cook Islands did conduct a successful e-waste day back in the 2010s but since then e-waste has not be managed effectively. Cook Islands General Transport is the only recycler into e-waste, but it has since stopped taking e-waste and there is a growing stockpile at their current yard. Barriers include:
1. Lack of manpower
2. Lack of space</td></tr>
</table>

<table>
<tr><td colspan="4">3. Lack of training on dismantling of e-waste components
4. Unattractive markets for e-waste recycling</td></tr>
<tr><td>Who needs to be involved? Stakeholders that can directly impact Project implementation:
1. Relevant Government Ministries,
- National Environment Service
- Infrastructure Cook Islands
- Ministry of Health;
- Ministry of Agriculture
- Ministry of Finance and Economic Management
2. Pa Enua Island Councils/Island Government, i.e. Northern & Southern Group Islands;
3. Shipping Company, ie. Taio Shipping
4. NGO’s/Community Groups, ie. Te Ipukarea Society (TIS), Island Sustainability Alliance Cook Islands (ISACI);
5. Recyclers, ie. Cook Islands General Transport;
6. Major Retailers (importers); CITC, Vonnias, Southseas International, CIPS/Jaycars etc.
7. Island Communities;</td><td>Stakeholders that participate in the project directly or indirectly:
Government: National Environment Services (NES), Ministry of Finance (MFEM), Infrastructure Cook Islands (ICI);
2. Recyclers: Cook Islands General Transport (CIGT);
3. NGO/Community Groups:
4. Pa Enua Island Council/Administration.</td><td colspan="2">Who are the beneficiaries of the project:
1. Cook Island residents
2. Government;
3. Recyclers;
4. Shipping Company;</td></tr>
<tr><td colspan="3">What needs to be done to address this issue:
1. Set Up an Advance Disposal Fee scheme for the Cook Islands;
2. Strengthen and support Public Private Partnership Programmes and Waste Management systems;
3. Establish and implement capacity building, community engagement and awareness, Programmes, and Trainings;
4. Establish/Facilitate Recycling and Waste Transfer Facilities on Rarotonga & the Pa Enua.</td><td>What additional legislation is required?</td></tr>
<tr><td colspan="4">Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?
Both to a small degree</td></tr>
<tr><td colspan="3">Budget breakdown:
Budget breakdown:
$125,000 - Project officer ($25k x 5years)
$60,000 - Advance Disposal Fee</td><td>When shall we start?
Cook Islands is planning on a travel bubble with New</td></tr>
</table>

$%150,000 - Pa Enua Waste Stations, ie. establishment of waste (incl. Ewaste) transfer stations $415,000 - E-waste & Bulky Waste Amnesty Programme - Rarotonga & Pa Enua - Community Outreach Campaign; - Resource Recovery Training - Re-export of waste	Zealand in early 2021 so the NES is ready to start the project then.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: FIJI

<table>
<tr><td colspan="2" rowspan="2">Country: Fiji</td><td colspan="2">Outputs and activities of reference:
Output 1.1 – activity 1.1.4
Output 2.2 – activities 2.2.1, 2.2.4
Output 4.3 – activity 4.3.1</td></tr>
<tr><td colspan="2">Country Focal Point:
Sandeep Singh,
Director, Department of Environment</td></tr>
<tr><td>National priority:
Waste management in rural communities (between 10 – 15 communities)</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
Improving waste management in rural areas is linked to Strategic Goals 1, 2 and 3 of CP 2025.
Indicators and targets include:
1. Per capita generation of municipal solid waste (kg/person/day). Target: 1.3
2. No. of marine pollution. Target: 0
3. Waste recycling rate (%). Target 75%</td><td>Where do we want to get to?
Improved solid waste management in 8 rural communities and 2 informal settlements.</td><td>How will we get there?
1. Confirm pilot communities in rural areas in Fiji
2. Establish municipal waste collection services
3. Establish composting community level compositing
4. Establish community recycling centres
5. Engage community in clean up and litter prevention
6. Develop and implement local management plans</td></tr>
</table>

<table>
<tr><td></td><td>4. No. of municipal composting programmes. Target: 40
5. Waste Collection coverage (% of population). Target: 60%</td><td></td><td></td></tr>
<tr><td colspan="2">Current activities in your country related to this issue:
Ocean trash net project – Waste audit exercise was conducted over the Samabula River, Suva using trashnet. This exercise has been successfully completed. Similar audit will be conducted in the Western and Northern Division. Preparations are on-going at the moment.

Clean Fiji Policy – A Ministry policy that is aligned to the Litter Act 2008 and relevant legislations. Programs include the set-up of anti-litter boards and cameras, the training of non-governmental Litter Prevention Officers, youth partnerships (Samabula Youth). Training of environment officers in prosecution courses for enforcement of Litter Act 2008.

Litter Free Fiji Think Tank around the litter issue –Stakeholders involved include NGOs, CSOs, Private Sectors, Local Authorities, Academics and representatives from the Community level to collectively determine drivers and solutions to the issue of litter, plastic waste and rural waste management. The think Tank is Chaired by the Permanent Secretary for Ministry of Environment.</td><td>Links to national waste management plan:
Fiji's priority under GEF ISLANDS has strong links to the country's National Solid Waste Management Strategy 2019-2029 which is currently under final review by SPREP before its approval and endorsement. Out of the 5 Goals of the strategy, the priority under GEF ISLANDS is linked to 4, namely: 2. Recover resources from wastes, chemicals and pollutants, 3. Improve management of residuals and 4. Improve protection and monitoring of the receiving environment</td><td>Related legislation (e.g. Waste Act, environmental legislation):
• Environment Act 2005
• Environmental Management (Waste Disposal and Recycling) Regulations 2007
• Water Authority of Fiji Act 2007
• iTaukei Affairs Act 1994
• Litter Act 2008
• Public Health Act 1935
• Maritime Transport Act 2013</td></tr>
<tr><td colspan="2">Who else is involved? (list private sector partners, community groups, NGOs, gov departments):
Project communities, Ministry of Local Government, Ministry of iTaukei Affairs, Central Board of Health, Town and City Councils, Conservation Officers, Non-Governmental Organisations, Academic Institutions – University of the South Pacific and Fiji National University, and Public and Private businesses</td><td colspan="2">Are any other donors/partners assisting with this issue? (if, yes provide details):
JICA
European Union - PacWaste</td></tr>
<tr><td colspan="4">Why hasn't this issue been addressed before? What are the barriers?</td></tr>
</table>

<table>
<tr><td colspan="3">The waste issue is being addressed and this assistance will further enable upscaling of services as well as widening of coverage for waste collection and disposal services.</td></tr>
<tr><td>Who needs to be involved? Stakeholders that can directly impact Project implementation:
Ministry of Environment
Ministry of Health and Medical Services/Central Board of Health
Ministry of Youth
Ministry of I-taukei Affairs
Municipal Councils
Rural Local Authorities
Universities/Academics
Community Groups</td><td>Stakeholders that participate in the project directly or indirectly:
Ministry of Environment
Rural Local Authorities
“Litter Free Fiji” Think Tank
Community groups</td><td>Who are the beneficiaries of the project:
Residents of rural communities where project is working;
Residents of informal communities where project is working</td></tr>
<tr><td colspan="2">What needs to be done to address this issue:
1. Select pilot communities in rural areas in Fiji (15 communities)
2. Community level waste audit and assessment – to determine POPs – quantification, and action plan, working with Ocean trash net.
3. Identify available land for community waste management site.
4. Engage an expert to establish processes that need to be in place to connect to municipal waste collection services. Willingness to pay survey. Against costs of collection. Cost/benefit. Consult and agree on appropriate pricing
5. Establish community engagement through clean up campaigns/Placing signboards/bins
6. Establish a community resource recovery program
7. Develop and implement local management plans</td><td>What additional legislation is required?
Litter Act – work through the Think Tank. Revising the fines. Assessing the effectiveness, propose solutions.</td></tr>
<tr><td colspan="3">Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?
Lack of waste collection systems in rural and remote communities have led to indiscriminate illegal disposals. Open burning serves as a means to reduce waste for many communities that have unplanned dumpsites. Open burning exposes many communities and individuals to unintentional persistent organic pollutants from the resulting emissions.</td></tr>
<tr><td colspan="2">Budget breakdown:
$125,000 (to be multiplied per 5 years) - Project coordinator .
$40,000 - Ocean Trash nets - $4,000 per river on major rivers in Fiji (allow ten rivers).
$85,000 - Audit and cost benefit analysis on waste management options.
$500,000 - Establishing and facilitating recycling and waste transfer facilities in 8 rural communities and 2 informal settlements (budget to be broken down in study above).</td><td>When shall we start?
January 2021 – ready to start
Can use local consultants – international support, with legs on the ground.</td></tr>
</table>

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: FSM

<table>
<tr><td colspan="2">Country: FSM</td><td colspan="3">Outputs and activities of reference:
Output 1.1 – activity 1.1.2
Output 3.3 – activities 3.3.1, 3.3.2, 3.3.3, 3.3.4
Output 4.1 – activity 4.1.2</td></tr>
<tr><td colspan="2"></td><td colspan="3">Country Focal Point: FSM DECEM</td></tr>
<tr><td>National priority:
Used oil – disposing of legacy stockpiles and instituting sustainable financing.</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
Used oil management falls under Strategic Goal 2 of the Cleaner Pacific 2025. Goal 2 aims to recover resources from waste and pollutants.
The performance indicator for used oil is the number of EPR programmes and it has a target of 10 programmes by the year 2025.</td><td>Where do we want to get to?
Legacy used oil disposed of, adequate storage space for used oil, and system to dispose of used oil operational.</td><td colspan="2">How will we get there?
The project will address both legacy stocks, and ongoing generation. A roadmap will be drafted to guide and communicate approach.</td></tr>
<tr><td colspan="2">Current activities in your country related to this issue:

Used oil management has been addressed as a priority waste stream for which FSM particularly Pohnpei received assistance in the GEFPAS uPOPs project from 2013-2018.
Pohnpei is managing the used oil facility at the landfill site which was constructed under GEF PAS (GEF ID 4066). Pohnpei state is seeking assistance from Vital for transportation and/or treatment of the used oil as well as finalizing matters with the Korean buyer;
Chuuk has been purchasing used oil tanks for further containment.
Director Mori advised that they are storing used oil in drums and like Kosrae they have sought assistance from OIA unsuccessfully to construct a 100KL storage facility similar to Pohnpei.
Kosrae was managing its used oil through its Utilities system. The Utilities is reusing and recycling used oil since the new Utilities Corporation was installed last year. However due to issues of centralised</td><td>Links to National waste management plan

Strategic Goal and Objective 2:
Adopt an integrated approach with strategies for reducing waste generation, reusing waste, recycling, composting, disposal, and waste collection.</td><td colspan="2">Related legislation (e.g. Waste Act, environmental legislation):

- Title 25 (Environment Act).
- State Environmental Acts.
- CDL (Kosrae, Pohnpei, Yap).</td></tr>
</table>

<table>
<tr><td colspan="2">storage capacity and the quality of used oil from the public the Utilities facility are no longer accepting used oil from the public; and
Yap State Currently the management of used oil is that the public are allowed to take used oil from mechanic shops for personal use at homes.</td><td></td><td></td></tr>
<tr><td colspan="2">Who else is involved? (list private sector partners, community groups, NGOs, gov departments):
Vital (FSM Petro Corp) the national oil company is interested in assisting. Vital have oil facilities in all 4 FSM States. Vital have expressed that it will notify FSM Government of the project they are currently developing. Most likely be the use of used oil to augment diesel in power generation
FSM Public Utility Company (PUC) have a large stockpile of used oil primarily from its electricity power generators. PUC had signed an MoU with a Korean Company for the export of used oil to Korea prior to COVID-19 lock down whoever are awaiting the first shipment.
KYOWA Shipping have commenced discussions on establishing a similar free shipping arrangement to the Swire Moana Taka Partnership for non-commercial waste for PET bottles only. They have indicated that other commodities such as used oil could be considered in the medium to long term.</td><td colspan="2">Are any other donors/partners assisting with this issue? (if, yes provide details):
Under the GEFPAS uPOPs project a baseline assessment was completed complimented by a cost benefit analysis and a management plan. A small capacity used oil storage facility was constructed at the Pohnpei landfill and around 72,000L of used oil was exported to New Zealand for disposal.</td></tr>
<tr><td colspan="3">Why hasn’t this issue been addressed before? What are the barriers?
The GEF PAS project (GEF ID 4066) removed only 72,000L oil due to the high disposal costs.
Like many utility companies the PUC are reluctant to use used oil to augment diesel in its power generation and would rather export it for disposal.
All states need a facility like Pohnpei to store and contain used oil but with more drums.</td><td>What needs to be done to address this issue?
Meet with relevant stakeholders.</td></tr>
<tr><td>Who needs to be involved? Stakeholders that can directly impact Project implementation: National and State Stakeholders from DECEM, R&D, TC&I, Health, Education, FINANCE, EPAs, R&D, T&I/PW, Health, Education, VITAL, State Utilities.</td><td colspan="2">Stakeholders that participate in the project directly or indirectly: National and State Stakeholders from DECEM, R&D, TC&I, Health, Education, FINANCE, EPAs, R&D, T&I/PW, Health, Education, VITAL, State Utilities.</td><td>Who are the beneficiaries of the project:
FSM population, currently at risk to oil exposure through spillage.</td></tr>
<tr><td colspan="3">What needs to be done to address this issue:
1. Construct facilities to temporarily used to store used oil - larger than GEF POPs (for Yap, Kosrae, Chuuk). Does Pohnpei need more storage? (Designs are existing and available from each state0</td><td>What additional legislation is required?
Each state except Chuuk has CDL. Legislation needs to be amended to add used oil in Pohnpei, Yap and Kosrae.</td></tr>
</table>

2. **Development of national road map on used oil – Would go to president, and then Congress for review endorsement. Preventing further build up. This will form the national framework to hold this system.** 3. **Disposal of legacy used oil – project cannot pay for disposal. Two options: find a buyer (all four ports can receive large ships); or use as a diesel extender.** 4. **Ongoing generation of used oil disposal – Legal support to draft legislation on used oil levy; working with Vital to fill empty diesel containers and send them back; or ongoing agreement with Korean buyer.**	Chuuk is progressing CDL, but could also amend the Clean Act to cover used oil.
	Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily? Through work.
Budget breakdown: Total $750,000 $300,000 - Used oil storage facilities ($100,000 Chuuk, $100,000 Kosrae, $100,000 Yap) $100,000 - Cost of project officer: $20,000 per year (5 years) $50,000 - Cost of development of national road map $50,000 - Cost of diesel extender trial $50,000 - Communications and awareness (to be confirmed in national road map report) Other equipment = to be confirmed in national road map report	**When shall we start?** COVID-19 – most directors are on the task force. Borders are closed. Reviewed monthly. Not even repatriating yet. Ready to start in early 2021.

Used Oil Stockpile

Nation	2015 Annual Used Oil Production (L)	2015 National Used Oil Stockpile (L)	2018 National Used Oil Stockpile (L)	Used Oil Storage Tankage Capacity (L)	Current 2018 used oil management options
FSM Chuck	47,880	22,000			Stockpiled
FSM Kosrae	12,000	50,000			Stockpiled
FSM Pohnpei	254,500	891,600	937,000	53,000 (PUC) 102,000 (FSMPC) 5,000 (Landfill)	Stockpiled
FSM Yap	32,920	65,750			Stockpiled

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: KIRIBATI

<table>
<tr><td colspan="2">Country: Kiribati</td><td colspan="2">Outputs and activities reference:
Output 1.3 - activities 1.3.1, 1.3.2
Output 2.4 - activities 2.4.1, 2.4.2, 2.4.3
Output 3.2 - activities 3.2.1, 3.2.2
Output 3.4 - activities 3.4.1, 3.4.2
Output 4.3 - activity 4.3.1</td></tr>
<tr><td colspan="2"></td><td colspan="2">Country Focal Point: Taulehia Pulefou (t.pulefou@melad.gov.ki)
Program Manager, Environment and Conservation Division</td></tr>
<tr><td>National priority:
1. Feasibility study on sanitary landfill design for atolls islands.
2. Sound treatment of obsolete chemical stockpiles and other hazardous wastes including medical wastes.
3. Policy and legislative work on build-up of chemical stockpiles.
4. Review and update of Kiribati National Chemical Profile 2008.
5. Connections with recycling markets (for PET and e-waste).
6. Establish a sustainable and long term used oil recycling system.</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
Kiribati's priority is linked to Strategic Goals 3 and 4 of the Cleaner Pacific 2025. Key performance indicators and targets under Strategic Goals 3 & 4 include:
1. No. of temporary, unregulated open dumps (10% reduction).
2. Quantity of pharmaceutical and chemical stockpiles (tonnes).
3. Quantity of used oil stockpiles (0m³).
4. No. of chemicals and pollution inventories.</td><td>Where do we want to get to?
1. Landfill design for atolls available.
2. Obsolete chemical stockpiles and other hazardous wastes disposed of in a sound manner.
3. Legislation and Policy are in place to prevent build-up of obsolete chemical stockpiles.
4. National Chemical Profile updated
5. Reliable recycling contact and system for e-waste and PET.
6. A permanent used oil recycling system is in place</td><td>How will we get there"?
1. Contract landfill feasibility and design study for atolls.
2. Contract the development of chemical inventory for outer islands including Banaba, Kanton and Kiritimati.
3. Provide drafting support on legislation and policy to regulate imports of chemicals producing hazardous waste.
4. Contract consultant to review and update National Chemical Profile.
5. Regional activity to set up regional disposal agreements with recycling companies using MTP.
6. Regional activity to set up regional recycling arrangement with regional recycler using MTP.</td></tr>
<tr><td colspan="2">Current activities in your country related to this issue:</td><td>Links to national waste management plan:</td><td>Related legislation (e.g. Waste Act, environmental legislation):</td></tr>
</table>

1. **There are 31 islands outside of Tarawa and Kiritimati Island are without landfills, or waste disposal facilities. The current practice involves dumping (land and sea) and burning.** 2. **The Special Programme (SP) national project on "Strengthening Legal Systems, Institutional, and Data Collection Infrastructure in Kiribati" was funded by the UNEP Specific Programme has outputs on strengthening legal and non-legal frameworks on sound chemical management. These outputs would undertake the legal, policy, and institutional gap analysis.** 3. **The Mercury Initial Assessment (MIA) national project has a component on national assessment of infrastructure and capacity for the management of mercury, including national legislation.** 4. **The POPs NIP review and update project, which was funded by GEF and completed in 2019, produced an updated inventory on obsolete laboratory chemicals for South Tarawa only in January 2019. The first comprehensive inventory was produced in 2008 under the initial POPs NIP project.** 5. **The development of national inventory on chemicals, and assessment of national infrastructure and capacity will contribute meaningfully to the proposed review and update of the National Chemical Profile.**	Kiribati waste management and resource recovery strategy (KWMRRS 2020-29) includes support for outer islands. The new Kiribati Integrated Environment Policy (KIEP 2020-36) and new Kiribati Development Plan (KDP 2020-23) both expected to be endorsed and launched in 2020. These important national documents cover national priorities on waste and pollution.	Environment Act 2007 is currently being reviewed (led by Ministry of Justice and utilize the outputs of PWP and SP). The Kiribati Customs Act 2019 has been strengthened to regulate the import the single use plastic though not all-single use plastic is covered.
Who else is involved? (list private sector partners, community groups, NGOs, gov departments): Government ministries and state owned enterprises including the Ministry of Internal Affairs (MIA), Ministry of Infrastructure and Sustainable Energy MISE), Ministry of Foreign Affairs and Immigration (MFAI), Ministry of Health and Medical Services (MHMS), Ministry of Education (MoE), Ministry of Information, Communication, Transport, Tourism Development (MICTTD) Ministry of Justice (MoJ), Ministry of Commerce, Industry and Cooperatives (MCIC), Ministry of Fisheries and Marine Resources Development (MFMRD), Ministry of Employment and Human Resources Development (MEHRD), Kiribati Customs	**Are any other donors/partners assisting with this issue? (if, yes provide details):** There is a NZ funded Urban Development Programme on improving solid waste management at mainly urban centres (South Tarawa and Kiritimati island). This programme does not cover landfill designs but only landfill rehabilitation work like fencing, compaction. This project will be completed in early 2021 and it is likely to be extended for another 5 years. The SP project funded by the UNEP Special Programme. The MIA project funded by the GEF.	

Administration and Enforcement (KCAE), Kiribati Chamber of Commerce and Industry (KCCI), Kiribati Green Energy Solutions (KGES), Public Utilities Board (PUB), Kiribati Oil Company (KOIL), Island Councils, local communities, Kiribati National Council of Churches (KNCC), youth organisations.	

Why hasn't this issue been addressed before? What are the barriers?

1. **<u>Feasibility and landfill design for atolls -</u> There was an expectation to use the Fukuoka method that was developed years back through SPREP with the support from JICA. However, the method/design does not applicable to small atoll islands like Kiribati. The Fukuoka method is more appropriate for high volcanic islands like Fiji, Samoa etc. given the importance of this work to small atoll island countries not only for Kiribati alone but to other small islands in the pacific region like Tuvalu , Marshall islands and also globally, this can be considered as one of the regional project activities only for countries interested in this work.**
2. **<u>Obsolete stockpiles disposal</u> - The chemicals that were produced mainly by the health and school laboratories were accumulated since many decades ago. There was a disposal guideline produced in 2008 under the initial POPs NIP project but was only specific to some school laboratory – chemicals. Some of the obsolete chemicals could not be disposed of on the island and need to be removed for off island sound treatment.**
3. **<u>Policy and legislative work to minimise chemical pollution</u> - The current SP project reviews the existing policies, legislations and institutional arrangement on chemicals and will analyse the gaps in the existing national infrastructure and propose measures for strengthening. One of the important areas to examine the system on importing of secondary laboratory chemicals. There is a need for the school curriculum on the laboratory experiments to be looked at carefully to examine the reason for importing of such chemicals and perhaps to recommend alternative laboratory experiments that won't need such toxic chemicals but still achieve the goals of educating students on science experiments. There is a lack of capacity in the country to do this.**
4. **<u>National Chemical Profile</u> – The first Chemical Profile was developed under the first national SAICM project in 2008 (SAICM I) by a national consultant. Since then there had been a couple of chemical projects including the SAICM II, PacWaste, NIP update undertaken which produced useful information on chemicals. There is a capacity at the national level to undertake the assignment though there was no fund to commission the work.**
5. **<u>Connections with recycling markets (for PET and e-wastes)</u> - currently these are now being stockpiled on the island without knowing where to ship these to for sound disposal. PET bottles used to be shipped off island but since the closure of China (recycling companies) boarder in 2018 these were no longer shipped off the island and are being stockpiled on the island.**
6. **<u>The government has been struggling for the last 15-20years to export used oil to recyclers overseas.</u> There is a need for support at the regional level to establish an agreement with the regional recycler to have a consistent system for all pacific island countries in exporting their used oil for recycling. The regional approach will also assist to negotiate to agree on the value of the used oil to cover some of the expenses of exporting used oil.**

Who needs to be involved? Stakeholders that can directly impact Project implementation:	**Stakeholders that participate in the project directly or indirectly:**	**Who are the beneficiaries of the project?**

Government Ministries and state-owned enterprises (SOEs) including MHMS, MIA, MoE, MoJ, MFMRD, MCIC, MELAD, MEHRD, MIA, MFAI, MICTTD, MISE, PUB, KOIL, KCAE, KGES, etc. Civil Society including the KNCC and NGOs and private sector represented by KCCI and Kaoki Maange (recycling)	Government Ministries and state-owned enterprises (SOEs) including MHMS, MIA, MoE, MoJ, MFMRD, MCIC, MELAD, MEHRD, MIA, MFAI, MICTTD, MISE, PUB, KOIL, KCAE, KGES, etc. Civil Society including the KNCC and NGOs and private sector represented by KCCI and Kaoki Maange (recycling)	A broader society such as local communities including Schoolchildren Women groups, Church members living on the island. As mentioned earlier, all outer islands don't have proper disposal sites and therefore, wastes are buried, burnt or dumped at sea or on land. The workers at the health care waste management system and science school students and teachers
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? Fortunately, Kiribati does not produce/manufacture chemicals for consumption and export. We have been importing chemicals of any kind without a mechanism put in place to control/regulate the import of chemicals. Most of these chemicals are being stockpiled by users when no longer useable and there have been cases in the past where some of the chemicals are simply poured into a drainage system without being neutralised.		**Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?** Chemical exposure is mostly occurred at work but also at home through the use of strong cleaning detergents, skin lightening creams, insects' repellents, automotive lubricant oils, etc
Budget breakdown (total US$750K): **costs below are based on annual estimates** $200,000 - Feasibility and design for atolls $100,000 ($20,000 for 5 years) - National technical assistant $50,000 - Project stakeholder coordination & meetings/consultation $200,000 - TA i) inventory, ii) treatment technical guideline and iii) chemical profile $20,000 - Office equipment $50,000 - Communication and transport $80,000 - Internal travel $50,000 - Legislative and policy support		**When shall we start?** Borders are closed and will remain so until Dec 2020 – National assistance.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: MARSHALL ISLANDS

<table>
<tr><td colspan="2">Country: Republic of Marshall Islands</td><td colspan="2">Outputs and activities of reference:
Output 4.3 – activity 4.3.1</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="2">Country Focal Point:
Moriana Philip
General Manager
RMI Environment Protection Authority</td></tr>
<tr><td>National priority:
Advance Deposit Fee on Bulky Wastes (EOLV, vessels, tyres, whitewares, furniture)</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
RMI’s priority for the GEF ISLANDS Programme is strongly linked to Strategic Goal 2: Recover resources from waste and pollutants. Performance indicators include: waste recycling rate (%) & No. of state EPR programmes. There is a target of 75% by the year 2025.</td><td>Where do we want to get to?

A fully functional Advanced Deposit Fee Scheme for RMI to manage all difficult bulky wastes.</td><td>How will we get there?
1. Use results of the feasibility study on CDL conducted by PacWaste Plus to identify regulatory gaps on ADF
2. Establish/amend enabling legislation to provide the framework of ADF of bulky wastes
3. Rehabilitate landfill to cater for the storage of bulky wastes
4. Set up drop off/take back facility
5. Conduct skills training on dismantling of bulky wastes</td></tr>
<tr><td colspan="2">Current activities in your country related to this issue:
There are currently no formal national programs on bulky wastes in RMI. Owners of bulky wastes store these items in their yards or illegal dump them in public places.</td><td>Links to national waste management plan:
The RMI National Waste Management Strategy (2020 to 2029) is still in its early stages of development. It will most likely be completed and approved for implementation toward the end of 2021.</td><td>Related legislation (e.g. Waste Act, environmental legislation):
1. National Environment Act 1984
2. Solid Waste Regulation 1989
3. Marshall Islands Littering Act 1982
4. Styrofoam Cups and Plates and Plastic Products Prohibition and Container Deposit Act 2016</td></tr>
<tr><td colspan="2">Who else is involved? (list private sector partners, community groups, NGOs, gov departments):
No one</td><td colspan="2">Are any other donors/partners assisting with this issue? (if, yes provide details):
None</td></tr>
<tr><td colspan="4">Why hasn’t this issue been addressed before? What are the barriers?</td></tr>
</table>

1. **Lack of strategic waste management planning**
2. **Lack of funding to purchase equipment needed to treat these wastes**
3. **No financial incentives for owners of bulky wastes to return their items**
4. **Lack of skilled workers in the appropriate dismantling and handling of bulky wastes**

Who needs to be involved? Stakeholders that can directly impact Project implementation:	**Stakeholders that participate in the project directly or indirectly:**	**Who are the beneficiaries of the project?**
1. **RMI Customs** 2. **Environment Protection Authority** 3. **Office of Environment Planning and Policy Coordination** 4. **Ministry of Finance** 5. **Majuro Atoll Waste Company** 6. **Majuro Atoll Local Government**	1. **RMI Customs** 2. **Importers** 3. **Chamber of Commerce** 4. **Marshalls Energy Cooperation**	The entire RMI population and the environment

What needs to be done to address this issue:	**What additional legislation is required?**
1. **Use results of the feasibility study on CDL conducted by PacWaste Plus to identify regulatory gaps on ADF** 2. **Establish/amend enabling legislation to provide the framework of ADF of bulky wastes** 3. **Rehabilitate landfill to cater for the storage of bulky wastes** 4. **Set up drop off/take back facility** 5. **Conduct skills training on dismantling of bulky wastes**	An amendment in the CDL legislation to include bulky wastes or a standalone legislation on ADF

Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?
Most people are exposed to bulky wastes and their components at home or their surrounding environment

Budget breakdown:	**When shall we start?**
$150,000 - Project Technical Assistant – $30K for 5 years $40,000 - Enabling legislation $300,00 - Rehabilitation of landfill $150,000 - Take back/ storage facility $30,000 - Crushers $30,000 - Bailers	2021

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: NAURU

<table>
<tr><td colspan="2">Country: Nauru</td><td colspan="2">Outputs and activities of reference:
Output 2.3 – activities 2.3.2, 2.3.3
Output 3.2 – activity 3.2.3
Output 4.1 – activity 4.1.3
Output 4.3 – activity 4.3.1</td></tr>
<tr><td colspan="2"></td><td colspan="2">Country Focal Point:
Bryan Star
Director Environment
Department Commerce Industry and Environment</td></tr>
<tr><td>National priority:
Recycling/composting and landfill management</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
Recycling and landfill management are important components of CP 2025 and Nauru’s priority links well to Strategic Goals 2 & 4.
Indicators and 2025 target linked to this priority include:
1. Waste recycling rate (%). Target: 75%
2. No. of national composting programmes. Target: 40
3. No. of water and environmentally quality monitoring programme</td><td>Where do we want to get to?
Recyclables being collected and exported.
Food and garden waste made in compost.</td><td>How will we get there?
1. Operationalise the building and recycling efforts.
2. Establish sustainable financing (for recycling)
3. Establish national composting facility</td></tr>
<tr><td colspan="2">Current activities in your country related to this issue:
JAPAN GGP Programme assisting recycling and landfill management efforts in establishing a resource recovery station at the dumpsite. A segregation building with crushing equipment has been bought but much capacity is still required in ensuring proper handling and storage to meet international standards of recycling companies. The project envisages to pilot one community and one school however a sound collection system for recyclables needs to be developed. There have been efforts by Government through the Infrastructure Department</td><td>Links to national waste management plan:
Linked to policy objectives under the draft National Waste Strategy in reducing % of waste going to landfill.</td><td>Related legislation (e.g. Waste Act, environmental legislation):
Environment Management Bill Drafted and awaiting Cabinet Approval to be tabled in Parliament</td></tr>
</table>

in collecting asbestos within communities however they are being stored at a designated area inappropriately. Launched a segregation building on 5 June. Not yet functioning: Cans Cardboard PET bottles Glass India SSC – through UNOPS this project is going to establish a Composting Station at the dumpsite opposite the recycling station, build capacity, and design a sound collection system for recyclables and compost materials. – funding lost due to COVID Special Programme – Chemicals management project is developing an integrated waste management policy that addresses solid, chemicals and hazardous waste.		
Who else is involved? (list private sector partners, community groups, NGOs, gov departments): • **Nauru Rehabilitation Corporation (NRC) – SOE operates the landfill** • **National Waste Management Advisory Taskforce – meets regularly.** • **Waste collectors taking waste to landfill – some private companies** • **Hotels – can segregate waste. One large one.** • **Nauru Phosphate Cooperation - SOE**	**Are any other donors/partners assisting with this issue? (if, yes provide details):** Japan International Cooperation Agency (JICA) - JPRISM European Union – PacWaste Plus	
Why hasn't this issue been addressed before? What are the barriers? • **Lack of funding** • **Lack of capacity on recycling and composting within environment agencies** • **Unattractive markets for recyclables and compost** • **General lack of awareness within the Nauru community**		
Who needs to be involved? Stakeholders that can directly impact Project implementation: • **Whole of island community** • **Local businesses**	**Stakeholders that participate in the project directly or indirectly:** • **Government agencies particularly Border Control (permit and coordination), Infrastructure department, (coordinate and implement collection programmes), NRC (recycling/disposal),**	**Who are the beneficiaries of the project?** • **Local recycling industry** • **The general Nauru community** • **The Nauru Government**

	• **Ministers and island MPs**	
What needs to be done to address this issue: Operationalise – and start recycling Composting – needed. No top soil. National facility making composting. The lack of soil is a major issue. Establishment of sustainable financing mechanisms to support ongoing and future removal of recyclables and asbestos Incentives or mechanisms to decrease non-recyclable or non-compostable imports or look to more environmentally friendly alternatives if possible Change in consumer culture to address wastefulness		**What additional legislation is required?** Environment bill drafted and ready for cabinet consideration however there is still need for a waste management regulation to be drafted under the bill.
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? All men, women, children and other genders can participate in recycling through practicing separation at source. Most likely it will be males in the involved in the collection, wrapping and storing of asbestos.		**Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?** All are exposed to asbestos and are affected as well by an unsustainable culture of managing waste.
Budget breakdown: $25,000 per year x 5 years - Technical assistant. $20,000 - Commissioning and start up of recycling facility. $200,000 - Set up composting facility. $30,000 - Purchase of composting equipment. $50,000 - Drop off stations for recyclables. $100,000 - Seed funding for initial recycling programme.		**When shall we start?** Timing is good. Special Programme. First half of 2021, nothing is going to change.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: NIUE

Country: Niue Island	**Outputs and activities of reference:** Output 1.1 – activity 1.1.3 Output 3.2 – activity 3.2.4 Output 4.1 – activity 4.1.4
	Country Focal Point: Haden Talagi, Director Department of Environment, Ministry of Natural Resources (MNR)

National priority: Bulky waste Car wrecks in communities, old shipping containers, heavy machinery and loose roofing iron and sustainable financing. (Waste streams that require specialised equipment and tools).	**Link to Cleaner Pacific Strategy (performance indicators and targets:** SG 1-2 (appropriate indicators & targets). SG 5-15 (appropriate indicators & targets apply directly/indirectly.	**Where do we want to get to?** Legacy waste disposed of and sustainable financing in place for batters, e-waste, white goods and other wastes. Proper waste programme in place to address the waste streams.	**How will we get there?** Disposal of legacy. Established system of preventing legacy waste. Legal support to Government of Niue to fast-track this draft regulation.

Current activities in your country related to this issue: - 3 dedicated landfills/ rubbish tips however only 2 in operation due to Village Council & family ownership issues with the third site. - Twice weekly island-wide rubbish collection where rubbish disposed at Makato & Vaiea sites. - Waste separation and segregation activities at Makato site but yet to be replicated at Vaiea site due to limited funds Waste separated at HH level. - Makato site manager based on- site. - Green waste shredding operations and composting onsite at Makato - Drop-off area that is segregated for customers taking own waste Fortnightly recycle collection.	**Links to national waste management plan:** Part of the overall Niue National Integrated Strategic Plan (NISP) 2016-2026 on waste management under the Niue Government priorities. Linked to policy objectives under the previous National Waste Management Strategy (2010- 2015). Outdated and needs to be reviewed urgently (PWP supporting this year).	**Related legislation (e.g. Waste Act, environmental legislation):** Environment Act 2003 and amended Environment Act 2015. Draft Customs Regulation on banning the import of non-biodegradable plastic bags Draft regulation on car batteries, whitegoods and e-waste.

Who else is involved? (list private sector partners, community groups, NGOs, gov departments): Department of Environment. Ministry of Natural Resources. Ministry of Social Services. Ministry of Infrastructure. Government of Niue. Niue Chamber of Commerce. Village Councils (VCs) and NGOs.	**Are any other donors/partners assisting with this issue? (if, yes provide details):** Niue Government -Communications & awareness, Recycling Regulations Government of Australia – Project started segregating waste streams, and construction of facility. Established workshop for waste streams to be dismantled. EU-SPREP PacWaste – NSWMS development. Global Environment Facility -Segregation at landfill funded under 4066. Ridge to Reef (IW R2R) - `Feasibility on sewage treatment for Niue and the Coastal Management Plan on waste and litter.

Why hasn't this issue been addressed before? What are the barriers? - **Previous programme was one-off in 2004 following a Category 5 Cyclone.**	**What needs to be done to address this issue?**

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- **Ad hoc approach previously as activities limited by costs and availability of funds.**
- **Markets of recycled materials.**
- **Costs of shipping international.**
- **Lack of sustainable financing.**
- **Lack of infrastructure, heavy machinery, capacity. Occupational Health & safety (OSH).**
- **Lack of supporting regulatory framework.**
- **Legacy waste streams been dumped at landfills with different waste streams being taken to the sites.**
- **On-site invasive species.**

</td><td>

- **Strengthen institutional capacity and capabilities.**
- **Funds investment for proper segregation and removal of legacy waste streams and current waste streams.**
- **Establishment of sustainable financing mechanisms to support ongoing and future removal of different waste streams.**
- **Heavy machinery/operators & technology.**
- **Consistent communication & awareness.**

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Who needs to be involved? Stakeholders that can directly impact Project implementation:
Cabinet.
Minister Ministry of Natural Resources (MNR).
Department of Environment.
Project Management & Coordination Unit (PMCU).
Village Councils.
Chamber of Commerce.

</td><td>

Stakeholders that participate in the project directly or indirectly:
Lead Agency: Department of Environment.
Partner Agency: Project Management & Coordination Unit (PMCU).
Chamber of Commerce.
Niue Tourism.
NGOs.
Village Councils in all 14 villages on Niue.

</td><td>

Who are the beneficiaries of the project:
Government of Niue.
All 14 village communities.
prioritising Villages of Alofi South for Makato and Vaiea Village for Vaiea site.
Private sector businesses.
Niue Tourism.
All schools on the island (ECE, NPS, NHS).

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What needs to be done to address this issue:

- **Urgently update the Niue waste management strategy & action plan.**
- **Strengthen institutional framework, capacity and capabilities including technical/operational skills.**
- **Funds investment for proper segregation and removal of legacy waste streams and current waste streams.**

</td><td>**What additional legislation is required?**</td></tr>
</table>

- **Establishment of sustainable financing mechanisms to support ongoing and future removal of different waste streams.** - **Education & awareness programmes for behavioural & attitude change in consumer culture to address waste, illegal dumping, burning, and littering. This also translating to local language outreach materials.** - **Infrastructure and waste systems established for/from consumers, collections & disposal.** - **Appropriate disposal system and eradication of invasive species onsite.** - **Strengthening of collection systems, recycling collection systems, and waste minimisation transported to landfill sites.** - **"Hands on" operations.** - **Occupational Health & Safety standards.** - **Pollution control and monitoring.**	Legal support to Government of Niue to fast-track this draft regulation. Stand-alone waste legislation on waste. Waste standards.
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? All men, women, youths and children are engaged at different stages including as consumers, collectors around homes and recycling collections. depends on the specific work area and exposure. Recycling stages where appropriate.	**Are women / men / children exposed to [waste] mostly at work or also at home or secondarily?** Yes, to all.
Budget breakdown: $750,000 $160,000 - Technical Assistant. $20,000 - Legal consultant. $70,000 - Technical assessments/ Study – legacy, scenarios, volumes. $100,000 - Education, Awareness, Community outreach & knowledge management. $400,000 - Disposal including costs of heavy machinery, operations, capacity building.	**When shall we start?** Ready to start early 2021 – to maintain momentum. Australian project finishes in 2022.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: PALAU

Country: Palau	**Outputs and activities of reference:** Output 4.3 – activity 4.3.1
	Country Focal Point: Roxanne Siual Blesam Chief Executive Officer

		Palau Environmental Quality Protection Board	
National priority: Holistic approach to chemicals and wastes, recycling and residual waste (overall reduction in waste generation)	**Link to Cleaner Pacific Strategy (performance indicators and targets:** Palau's overall priority for waste minimization covers Strategic Goals 1, 2 & 3. Performance indicators and 2025 tragets include: **1. Per capita generation of MSW (kg/person/day). Target: 1.3** **2. Waste recycling rate (%). Target: 75%** **3. Waste capture rate (%). Target: TBD** **4. No. of national EPR Programmes. Target: 10**	**Where do we want to get to?** Better data management Enforcement (preventing illegal imports) Tarif on tyres/vehicles Assessment of outer islands dump sites Improved outer island waste management – reduced waste dump sites End-of-life vehicles	**How will we get there?** **1. Assessment of all chemical and waste related projects in order to identify potential synergies** **2. Develop a national chemical management system** **3. Develop an Advanced Disposal Fee scheme for selected residual wastes including EOLV and e-waste** **4. Assess existing waste disposal sites for potential rehabilitation.**
Current activities in your country related to this issue: **1. Special Programme activities – institutional strengthening, continuing work that was started under SAICM. Update National Chemicals Profile. Developing new policy, doing marine litter survey. Enhancing capacity of community college. (For regional element would like to enhance the education part).** **2. Palau is hosting the Our Oceans conference in December where waste management is being discussed** **3. The PacWaste Plus Project is assisting Palau to repair and commission incinerators to dispose medical waste including the current stockpiles of expired pharmaceutical drugs.** **4. There is a used oil management system in place in Palau. The government owns a 1-million-gallon storage tank that is used to collect and store used oil. As soon as the tank reaches 50% capacity, tenders are called for to sell the used oil to interest buyers. The last tender was undertaken in 2012 where HP**		**Links to national waste management plan:** The GEF ISLANDS project for Palau is strongly linked to Goal 2 of its National Solid Waste Management Strategy: *The Roadmap towards a Clean and Safe Palau 2017 to 2026* which is to strengthen the country's institutional capacity on waste management. A key strategic action of the strategy is for the government to develop, amend and enforce national policies, strategies and plans and legislations and strengthen institutional arrangements to support and	**Related legislation (e.g. Waste Act, environmental legislation):** • **Environment Quality Protection Act (1981)** • **Environment Quality Protection Board Regulations** • **Recycling Law** • **Littering Law** • **Plastic Bag Ban Act (2017)**

purchased close to a million gallons of used oil. The Palau government has to comply with requirements of the Basel Convention.	promote best practice waste management. Goal 4 calls for the implementation of best practice approaches in waste management. Strategic Action 4.1 is for the implementation of waste reduction and resource recovery programs with a target of 60% waste diversion from landfill.	
Who else is involved? (list private sector partners, community groups, NGOs, gov departments): 1. **Balau National Hospital** 2. **Palau International Coral Reef Center** 3. **State Governments**	**Are any other donors/partners assisting with this issue? (if, yes provide details):** 1. **USEPA helped to fund a chemical inventory on the stockpiles of obsolete chemicals.** 2. **The EU through the PacWastePlus project is assisting Palau with medical waste management** 3. **The UNEP Special Programme is making funding available to build on the previous SAICM work on capacity building for improved chemical management**	
Why hasn't this issue been addressed before? What are the barriers? 1. **Non-alignment of projects leading to piecemeal solutions** 2. **Lack of implementation of National Solid Waste Management Strategy: *The Roadmap towards a Clean and Safe Palau 2017 to 2026*** 3. **No formal recycling programs** 4. **Lack of capacity to manage chemicals**		
Who needs to be involved? Stakeholders that can directly impact Project implementation: 1. **Environmental Quality Protection Board** 2. **Bureau of Public Health** 3. **Division of Solid Waste Management** 4. **Division of Environmental Health**	**Other stakeholders involved indirectly:** 1. **Ministry of Health** 2. **Ministry of Public Infrastructure, Industries and Commerce** 3. **Palau Public Utilities Corporation** 4. **Palau Chamber of Commerce** 5. **General public**	**Who are the beneficiaries of the project:** 1. **Communities who are living close to landfills and dumps** 2. **Schools and government buildings at risk** 3. **Mangroves, and marine protected areas.**

5. **National Environmental Protection Council**		
What needs to be done to address this issue: 1. **Review the chemicals stockpile inventory** 2. **Review EQPB's Solid Waste Management Regulations and the Pesticide Regulations** 3. **Review Draft Chemicals Policy and existing legislations** 4. **Develop Legislations to address buy back policies, levies on import, etc.** 5. **Education and Awareness**		**What additional legislation is required?** Yet to be decided
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? There is currently no study to assess the involvement of the general population in the value chain of specific wastes apart from the people's participation in the formal waste collection, transportation and disposal system.		**Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?** Yes
Budget breakdown: ($750,000) $165,000 - National Technical Coordinator ($33,000 x 5 years) $50,000 - National assessment new import restrictions, and action plan with available alternatives (Component 1) (to estimate remaining activity) $300,000 - Chemical management system $150,000 - Advanced Disposal Fee Scheme for EOLV and others $50,000 - Assessment of outer islands dump sites $40,000 - End-of-life vehicles assessment		**When shall we start?** Palau is ready to start in 2021. The country is currently working on a travel bubble with Taiwan to allow travellers to travel into Palau without going into quarantine.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: PNG

Country: Papua New Guinea	**Outputs and activities of reference:** Output 1.3 – activities 1.3.1, 1.3.2 Output 2.1 – activities 2.1.1, 2.1.2, 2.1.3 Output 2.2 - activity 2.2.3 Output 4.3 - activity 4.3.1
	Country Focal Point: Veari Kula

		Manager Infrastructure, Utilities & Conventions Conservation and Environment Protection Agency	
National priority: DDT and PCB oil disposal and implementation of the Stockholm Convention in particular capacity building and public awareness.	**Link to Cleaner Pacific Strategy (performance indicators and targets:** PNGs priority ties in to **Strategic Goal 3** of the Cleaner Pacific 2025 which calls for the improved management of residuals. A performance indicator for this strategic goal is the quantity of chemical stockpiles. Strategic Action 7: PICTs, supported by SPREP and partners, shall remediate contaminated sites and WCP stockpiles in accordance with best practice. Strategic Actions 2, 11 and 12 on institutional strengthening, capacity building and public awareness and education.	**Where do we want to get to?** 1. **An environment that is free of stockpiles of POPs.** 2. **Legal framework for Chemical Management (Especially POPs) in PNG.** 3. **A better-informed public and key stakeholder.** 64)	**How will we get there?** 1. **Baselining of POPs stockpiles.** 2. **Safeguarding stockpiles** 3. **Removal and export of POPs stockpiles.** 4. **Creation of legislation for chemical management including Codes of Conduct/Practice of chemical management in PNG.** 5. **Conducting training and capacity building programmes on wastes and chemicals.**
Current activities in your country related to this issue: Inventory and temporary safe-guarded completed with national team as part of project preparation. PCB oil field tested – samples were collected for lab tests but contaminated during transport. Resampling is underway and being coordinated by SPREP and CEPA. (Note: Current situation now is that no re-sampling has commenced) CEPA and stakeholders have continued to undertake awareness activities as well as capacity building programmes. The proposed activities will support ongoing activities.	**Links to national waste management plan:** Outcomes of the GEF Islands project will support implementation of the National Waste and Chemical Management Policy (currently in draft).	**Related legislation (e.g. Waste Act, environmental legislation):** Environment Act 2000 and its Regulations. **65)** **What additional legislation is required?** • **Relevant Legislation on Chemical Management.** • **Codes of Conduct/Practice on Chemical Management.**	
Who else is involved? (list private sector partners, community groups, NGOs, gov departments): • **PNG Power Limited (owners of the transformers and the 611,619L of potentially contaminated PCB oil).**	**Are any other donors/partners assisting with this issue? (if, yes provide details):** UNEP Special Programme outputs includes development of legal framework to the Stockholm Convention. Need to draw linkages between the two projects.		

• **National Department of Health.** • **NGO's, provincial governments, municipalities.** • **Private sector (Total Waste Management Ltd).**		
Why hasn't this issue been addressed before? What are the barriers? For the DDT and PCB stockpiles, no specific funding identified to remove the stockpiles. Barriers include high cost of disposal and lack of in-country destruction facility. Also limited funding available to develop national legal framework and conduct capacity building programs and public awareness activities.		**What needs to be done to address this issue?** Agreement with PNG Power for partial funding (also need assistance with provision of equipment). Precise quantification of disposal requirements. Repackaging, transport and disposal of oil and DDT. Development of Legislation of chemical management needs to be done to ensure that there is no future build Up of Obsolete Stockpiles of Chemicals (POPs and others). Also conduct capacity building programs and public awareness activities with stakeholders at national level.
Who needs to be involved? Stakeholders that can directly impact Project implementation: • **CEPA.** • **PNG Power Limited.** • **Total Waste Management.** • **National Department of Health.** • **East New Britain Provincial Health Authority (DDT Stockpiles in Nonga, East New Britain).** • Provincial Governments. • ULLGs. • Academia.	**Stakeholders that participate in the project directly or indirectly:** • **PNG Customs.** • **Department of Justice and Attorney General.** • **National Agriculture and Quarantine Inspection Authority (NAQIA).** • **National Agriculture and Research Institute (NARI).** • **National Institute of Standards and Industrial Technology.** • **University of PNG.** • **PNG University of Technology.**	**Who are the beneficiaries of the project?** 1. **Communities living around DDT storage site in Nonga, East New Britain.** 2. **Communities living around PNG Power sites in Goroka, Yonki, Taraka, Kokopo, Rouna, Hohola and Moitaka.** 3. **PNG Power Limited.** 4. **PNG as a whole.**
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? Most men are engaged in the usage and collection and disposal of PCB Oils in the PNG Power sites where they service and repair transformer Oils. Most women engaged as environment health officers are at OHS risk due to improper disposal of stockpiles within their communities.		**Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?** Most Men and Women are exposed to DDT and PCB at work especially those

	engaged as environmental health worker and workshop workers. However, men, women and children are secondarily exposed to DDT and PCB due to improper use and disposal of this chemicals in their communities
Budget breakdown: $150,000 - National technical officer ($30,000 x 5 years) $967,928 - Onshore costs Disposal costs TBC – Information requested	**When shall we start?** PNG will likely stay in lockdown for the remainder of 2020, due to COVID-19. CEPA staff hoping to have borders open by beginning of 2021 but nothing is certain. All work planned for 2021 should involve local teams only.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: SAMOA

Country: Samoa	**Outputs and activities reference:** Output 2.2 - activities 2.2.2, 2.2.3, 2.2.3 Output 3.1 - activities 3.1.4, 3.1.5, 3.1.6 Output 4.3 - activity 4.3.1
	Country Focal Point: Seumaloisalafai Afele Faiilagi Assistant Chief Executive Officer Division of Environment and Conservation MNRE **Counterparts:** Setoa Apo Principal Solid Waste Management Officer DEC MNRE Fiasosoitamalii Siaosi Principal Chemical and Hazardous Waste Management Officer DEC MNRE

National priority: Reduction of residual waste (that is a by-product of market driven recycling).	**Link to Cleaner Pacific Strategy (performance indicators and targets:** Samoa's priority is linked to Strategic Goals 2 and 3 of the Cleaner Pacific 2025. Key performance indicators and targets under Strategic Goals 2 & 3 include: 5. **Waste recycling rate (75%).** 6. **No. of national EPR programmes for e-waste (8).** 7. **Waste collection coverage (60%).** 8. **Waste capture rate (TBC).** 9. **Quantity of e-waste stockpiles (TBC).**	**Where do we want to get to?** Efficient recycling industry in Samoa with minimal waste (currently it is creating waste, some of this is hazardous).	**How will we get there?** Baseline survey on residual waste (and cost estimate). Training for recyclers on residual waste (and – on POPs in cars, dismantling). Establish process for processing residual waste. Identify potential markets for residual wastes/equipment required.

Current activities in your country related to this issue: • Examples of current recycling activities resulting in a significant new waste stream are: E-waste, fridge (for example insulation materials), end of life vehicles. • The Government is implementing Bulky waste collection every three months through its waste collection services. • The recent Pacific Games hosted by Samoa, implemented a plastic free games in regards to food containers and water bottles and was a success and the first ever initiative for the event. • Household waste collection for all four main islands of Samoa (Upolu, Savaii, Manono, and Apolima). • The Take Back Initiative waste toners (e-waste) collection through a partnership between MNRE, SSAB (private sector) and HP Company Ltd NZ.	**Links to national waste management plan:** Linked to objectives and activities in the National Waste Management Strategy 2019 – 2023. Healthcare Waste Management Plan 2019-2023.	**Related legislation (e.g. Waste Act, environmental legislation):** • Waste Management Act 2010. • PUM Act 2004. • Land, Survey and Environment Act 1989. • Waste (Plastic Bag) Management Regulations 2018. • Health Ordinance 1959. • Pesticides Regulation 2011. • Importation of Waste for Electricity and Energy Recovery Regulations 2015.

Who else is involved? (list private sector partners, community groups, NGOs, gov departments): Pacific recycling – end of life vehicles. • Ministry of Women, Community and Social Development. • Ministry of Finance.	**Are any other donors/partners assisting with this issue? (if, yes provide details):** The regional project JPRISM II resulted in the development of the National Waste Management Strategy in line with the Cleaner Pacific Strategy. The project is also promoting initiatives on solid waste management in the Pacific.

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- Office of the Attorney General.
- Ministry of Education, Sports and Culture.
- Samoa Chamber of Commerce.
- Ministry for Customs and Revenue.
- Ministry of Health.
- Samoa Recycling and Waste Management Association.
- Ministry of Commerce, Industries and Labour.
- Samoa Recycling Association.

</td><td>

PWP, e-waste regulation, dismantling facility. Also producing a regional study on landfills – regional assessment of landfills in the Pacific.

GEF SGP for community-based waste management projects.

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Why hasn't this issue been addressed before? What are the barriers?
At this point recycling in Samoa is market driven. Recyclers are concerned about recovering parts that are economic. This means significant additional waste is generated, and are being directed to landfill. Wastes such as insulation foam from fridges is recyclable. Additional work is required to ensure recycling operations are efficient and have a net environmental benefit.
Current barriers include: There is no fund to address residual wastes in Samoa; Lack of infrastructure and capacity; and lack of awareness.

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Who needs to be involved? Stakeholders that can directly impact Project implementation:

- Communities.
- Waste Collection Contractors.
- Landfill Operation Contractors.
- Schools.
- Recyclers.

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Stakeholders that participate in the project directly or indirectly:

- Ministry of Health.
- Ministry of Finance.
- Ministry of Commerce, Industry and Labour.
- Ministry of Customs and Revenue.
- Ministry of Women, Community and Social Development.
- Ministry of Education, Sports and Culture.
- Office of the Attorney General.
- Samoa Tourism Authority.
- Samoa Chamber of Commerce.
- Samoa Association of Exporters and Manufacturers.
- Ministry of the Prime Minister and Cabinet.
- Samoa Recycling and Waste Management Association.

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Who are the beneficiaries of the project?
The Samoan population will benefit from improved residual waste management, and increased recycling opportunities.

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What needs to be done to address this issue:

- Study quantifying residual wastes and potential recycling options.
- Funding for collection and storage of residual wastes.

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What additional legislation is required?

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• Staff capacity building on management and reduction of residual wastes. • Enhancing collaboration with stakeholders on waste management. • Raising awareness programs and environment education on waste management. • Exploring appropriate practices to deal with residual wastes – such as some primary processing to make recycling of wastes more economic.	• **Waste (E-waste Management) Management Regulations.** • **Waste (Littering Control) Management Regulations.**
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? Samoa promotes gender equality so there are equal opportunities for all genders' engagement in waste management, recycling, usage and disposal.	**Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?** They are all exposed to different extent to chemical/waste at work and home.
Budget breakdown (Total national allocation 750K): $75,000 – study and recycling action plan on residual waste. $25,000 – legislative support. $150,000 - Technical assistant ($30,000 x 5 years). $525,000 – scale up of recycling activities (to be fully. Outlined in action plan).	**When shall we start?** Only repatriating citizens. Borders staying closed. Ready to start in 2021.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: SOLOMON

Country: Solomon Islands	**Outputs and activities of reference:** Output 2.3 – activity 2.3.3 Output 3.1 – activities 3.1.2, 3.1.3, 3.1.5 Output 4.3 – activity 4.3.1
	Country Focal Point: Debra Kereseka Chief Environment Officer Ministry of Environment, Climate Change, Disaster Management and Meteorology

	Rosemary Apa Deputy Director Environment Ministry of Environment, Climate Change, Disaster Management and Meteorology		
National priority: E-waste (with legislation support for used oil)	**Link to Cleaner Pacific Strategy (performance indicators and targets:** Solomon Island's priority is linked to Strategic Goals 1 & 2 of CP 2025. Performance indicators include the no. of EPR programmes for e-waste and quantity of e-waste stockpiles. The 2025 target for EPR programmes for e-waste is 8. For used oil the indicator is the no. of national EPR programmes for used oil. There's a target for 10 EPR programmes by 2025.	**Where do we want to get to?** 1. **Fully functional national e-waste management system** 2. **A national used oil levy to finance a used oil management system**	**How will we get there"?** 1. **Develop e-waste and used oil levy policies, draft legislation and regulations.** 2. **Collect additional baseline data on e-waste and potential levy** 3. **Establish e-waste collection and drop off infrastructure** 4. **Pilot the system in Honiara and scale up throughout the country**
Current activities in your country related to this issue: 1. **A baseline survey for e-waste on Malaita was conducted by PacWaste** 2. **Solomon Islands participated in the PacWaste Project and piloted a project on uLABs.** 3. **A private recycler is trying to collect used oil.** 4. **JPRISM has supported the establishment of the recycling association** 5. **There has been some related work to this priority under the Ridge to Reef project currently implemented by the SPC.**	**Links to national waste management plan:** E-waste and used oil are identified in the National Waste Management and Pollution Control Strategy 2017-2026 of Solomon Islands as important streams of wastes that should be targeted under Major Focus Area 9. Specifically, the strategy calls for the creation of an enabling environment for waste management to thrive. A key outcome is for a robust policy and legislative framework which this GEF ISLANDS Project will enhance.	**Related legislation (e.g. Waste Act, environmental legislation):** 1. **Environment Act 1998** 2. **Environment Act 1990** 3. **Provincial Government Act 1997** 4. **Solomon Islands Ports Authority Act** 5. **Solomon Islands Shipping Act 1998**	
Who else is involved? (list private sector partners, community groups, NGOs, gov departments):	**Are any other donors/partners assisting with this issue? (if, yes provide details):**		

1. **Solomon Telecom** 2. **B-mobile** 3. **Solomon Islands Waste Management & Recycling Association** 4. **JPRISM is assisting the association to develop its strategic action plan.**	The Japan International Cooperation Agency (JICA) through the JPRISM Project – established a recycling association and providing recycling equipment.

Why hasn't this issue been addressed before? What are the barriers?

Stockpiles of e-waste throughout the Solomon Islands in offices. IT companies. Lots ends up in landfill.

Who needs to be involved? Stakeholders that can directly impact Project implementation:	**Stakeholders that participate in the project directly or indirectly:**	**Who are the beneficiaries of the project?**
1. **Ministry of Environment, Climate Change, Disaster Management and Meteorology** 2. **Solomon Islands Chamber of Commerce** 3. **Solomon Telecom** 4. **B-mobile** 5. **Solomon Islands Waste Management & Recycling Association** 6. **Ministry of Transport** 7. **Customs** 8. **Solomon Islands Port Authority**	1. **SPREP** 2. **UNEP** 3. **Swire Shipping**	1. **Solomon Islands communities that are exposed to the dangers of e-waste** 2. **Community recycling groups** 3. **Business houses**

What needs to be done to address this issue:	**What additional legislation is required?**
1. **A policy on e-waste.** 2. **Develop draft legislation for a used oil levy.** 3. **Set up an extended importer responsibility programme for computer and other electronic retailers** 4. **Establish a collection point for e-waste and provide a refund.** 5. **Pilot the system in Malaita to assess its effectiveness** 6. **ISLANDS to assist Solomon Islands by finding an e-waste buyer.**	1. **Legislation supporting the used oil levy** 2. **Amendments to existing legislation to establish the extended producer responsibility programme for electronic equipment**

How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? There is currently no e-waste programme in Solomon Islands so men and women are not involved in any capacity.	**Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?** Men and women are exposed to e-waste at work places and in open spaces where e-waste is dumped
Budget breakdown: $25,000 - 30,000 per 5 years - Technical assistant. $100,000 - Legislative support – for e-waste and used oil levies. $500,000 - E-waste collection and recycling pilot project. $30,000 - Training on proper dismantling of e-waste. $40,000 - Education and awareness.	**When shall we start?** Work can start in 2021 but boarders are likely to remain closed up to the 3rd quarter of 2021. A few repatriation flights were organised for returning residents from abroad but that has been suspended due to the importation of 2 COVID-19 cases.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: TONGA

Country: Tonga		**Outputs and activities reference:** Output 2.3 - activities 2.3.1, 2.3.2 Output 3.2 - activities 3.2.1, 3.2.2, 3.2.4	
		Country Focal Point: Mafile'o Masi, Chief Environmentalist Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications	
National priority: Remediation of landfills in Ha'apai and ʻEua, using the semi-aerobic method, and increased recycling.	**Link to Cleaner Pacific Strategy (performance indicators and targets:**	**Where do we want to get to?** 1. **Two remediated landfills.**	**How will we get there"** • **Contract and oversee landfill remediation and climate proofing.**

	Strategic Goal: Prevent generation of wastes and pollution. Performance Indicator: Per capita generation of municipal solid waste (kg/person/ day). Target: 1.3kg by 2025. Strategic Goal: Recover resources from waste and pollutants. Performance Indicator: Waste recycling rate (= amount recycled, reused, returned／amount recyclable) (%). Target: 75% by 2025. Strategic Goal: Improve management of residuals. Performance Indicator: Waste collection coverage (% of population). Target: 60% (nationally). Performance Indicator: No. of temporary, unregulated and open dumps. Target: 10% reduction.	**2. Waste separation and transfer/recycling systems.**	• **Need to strengthen the capacity of the recycling companies.** • **Identify and establish markets for recyclables.** • **Utilize the Moana Taka Partnership.**

Current activities in your country related to this issue: • **JICA together with Waste Authority Limited did a preliminary assessment of both landfills. A community meeting was also conducted to gain community support.**	**Links to national waste management plan:** Not applicable as Tonga has no waste management plan or strategy in place yet.	**Related legislation (e.g. Waste Act, environmental legislation):** 1. **EIA for the rehabilitation project.** 2. **Permit to rehabilitate the landfills .**

• **Other landfills are currently in operation throughout the Kingdom. All of them have been constructed with the support of donors.** • **There is currently an active recycler in both islands (Ha'apai and 'Eua) who is taking tin cans, aluminium cans, beer bottles, scrap metals, iron, brass, copper, and car batteries.**		3. **Implementation and enforcement of the Environment Impact Assessment Act 2003, Environment Impact Assessment Regulation 2010, Waste Management Act 2005, Hazardous Waste and Chemicals Act 2010, Environmental Management Act 2010, Waste Management (Plastic levy) Regulation 2013, Litter Control Regulation 2016 and Public Health Act 2002.**
Who else is involved? (list private sector partners, community groups, NGOs, gov departments): JPRISMII team – are focused on capacity building (Usually have a project officer) gone home due to COVID-19. GIO recycling company in both islands. Waste Authority Limited (public enterprise). Japanese Embassy/JICA Resident representative.	**Are any other donors/partners assisting with this issue? (if, yes provide details):** • **The Government of Australia through the Tonga Solid Waste Management Project funded the establishment of the Tapuhia new landfill.** • **The Government of New Zealand funded the rehabilitation of the old landfill at Popua. The responsibility for its management and maintenance is with the Ministry and Prime Minister's Office.** • **The Government of Japan through the JICA/JPRISM Project funded the rehabilitation of Kalaka Landfill. The semi-aerobic landfill was well designed to better manage waste in Vava'u.**	
Why hasn't this issue been addressed before? What are the barriers? 1. **Lack of funds and technical expertise in landfill design and construction.** 2. **Difficulty in finding international markets for recyclables.** 3. **Costs of international shipping.**		**What needs to be done to address this issue?** 1. **Funding mechanism should be in place.** 2. **Capacity building trainings either short or long term.** 3. **Knowledge sharing with other recyclers in the Pacific to identify common international markets for recyclables.**

		4. Utilize the Moana Taka Partnership to reduce the costs of international shipping.
Who needs to be involved? Stakeholders that can directly impact Project implementation: 1. Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications. 2. Waste Authority Limited. 3. JICA. 4. Ministry of Infrastructure. 5. Ministry of Health. 6. Recycling companies.	**Stakeholders that participate in the project directly or indirectly:** 1. Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications. 2. Waste Authority Limited. 3. JICA/JPRISM II Project Team. 4. Ministry of Infrastructure. 5. Ministry of Health. 6. Ministry of Tourism. 7. Recycling companies. 8. Local Communities. 9. Supermarkets, vendors, local shops, local markets, bar and restaurants etc.	**Who are the beneficiaries of the project:** 1. Government of Tonga. 2. Ha'apai and 'Eua communities. 3. Waste Authority Limited. 4. Recycling companies.

What needs to be done to address this issue: 1. Conduct feasibility study. 2. Establishment of PMU. 3. Establishment of Project Management Committee. 4. Establishment of Project Technical Working Group. 5. Selection of appropriate landfill sites. 6. Conduct EIA of selected sites. 7. Construction/Rehabilitation of landfill sites. 8. Conduct community consultations. 9. Conduct public education and awareness. 10. Strengthening the capacity of the recyclers and locals.	**What additional legislation is required?** Development of a Plastic Ban regulation under the Waste Management Act 2005 or Environment Management Act 2010 or have it as a separate legislation.
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)?	**Are women / men / children exposed to [specify**

Single Use Plastic (SUP) **Production/Usage** Women- use SUP when out shopping for basic consumer products such as food, health items, clothing and household products more than men. They also use SUP for food packaging (as takeaways) in special events such as funerals, weddings etc. more than men. Men- use less SUP than women as they then to buy bulky items such as cars, electronics etc. However, women and men with high-income, tend to spend more and use more SUP as oppose to low-income earners. **Collection/Recycling** Women and men with high-income tend to generate more SUP for collection as oppose to low-income earners. With a fix household collection fee of TOP$15/month, the poor is subsidising the rich in the sense that high income earners may put out 10 rubbish bags for collection and low-income earners put out 2 rubbish bags for collection and both ends up paying the same household collection fee is a bit unfair to low-income earners. Household collection fee should be determined according to the amount of waste generated/household to be fair to low-income earners and also a means to reduce the amount of waste generated to save money. Women with low-income tend to recycle more than men in-order to save money and get money in return. However, there are more men working as waste household collectors and in the recycling sector than women. **Disposal** It is estimated that 70% of SUP ends up in the landfill and the remaining 30% ends up in the ocean (due to illegal dumping, littering etc.). Women plays a huge role is beach clean up campaigns and public education and awareness than men.	**chemical/waste] mostly at work or also at home or secondarily?** Yes.
Budget breakdown: $750,000 Technical officer 2021 – can start comms work. On-ground preparations. National project plan. Tongan Independent EIA consultant (2021) Japanese expert on semi-aerobic (2022) Environmental and monitoring plan. Permitting (2021) Rehabilitation (2022-2023) Hire of equipment (2021-2023) Development of operations manual (2022)	**When shall we start?** Only remote activities for 2021. Works in 2022.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: TUVALU

<table>
<tr><td colspan="2">Country: Tuvalu</td><td colspan="2">Outputs and activities of reference:
Output 3.2 – activities 3.2.1, 3.2.2
Output 4.2 – activity 4.2.4</td></tr>
<tr><td colspan="2"></td><td colspan="2">Country Focal Point:
Walter Pulogo
Acting Director
Tuvalu Department of Waste Management

Miriam Taukiei
Waste Operational Officer
Tuvalu Department of Waste Management</td></tr>
<tr><td>National priority:
Plastics: increase recycling capacity at the transfer station (in Funafuti); and export.</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
Plastics are strongly linked to 3 Strategic Goals of CP 2025. Under Goal 1, the indicators and targets are:
1. Per capita generation of msw (kg/person/day). Target: 1.3kg
2. No. of marine pollution incidents. Target: 0
Goal 2 indicator and target:
1. Waste recycling rate (%). Target: 75%
Goal 3 indicators and targets:
1. Waste collection coverage (%). Target: 60%
2. Waste capture rate (%). Target: TBD</td><td>Where do we want to get to?

A plastic free Tuvalu and a thriving recycling industry</td><td>How will we get there?
1. Assess the effectiveness of the plastic ban and amend where necessary
2. Widespread education and awareness to drive behaviour change
3. Increase capacity of storage facility for plastics and recyclables at the transfer station in Funafuti
4. Improve enforcement of the single use plastic ban
5. Technical training for processing of recyclables
6. Engaging with community to assess alternatives to plastic bags</td></tr>
</table>

Current activities in your country related to this issue: PWP – working on outer island transfer stations (cans, bottles glass and PET, car batteries), including Vaitupu. Assisting in domestic shipping. Waste Transfer Station in Funafuti – collecting, sorting and packing plastic waste. Waste officers beginning work in outer islands (backloading of plastic bottles and other recyclables to the main island) Refund under the Waste Management Levy Regulation commenced. $90K in levy account. (Levies – August 2019, refunds from January 2020). Outer islands collectors of recyclables paid back via bank transfer. Government initiative: Plastic teams – collects different kinds of plastics from islands. Plastic free Tuvalu – 6.8 million EU – finishes under 2022. Procurement of heavy equipment. Excavators for all the islands. Helps with rehabilitation of dumpsites. Converting green waste and pig waste – being done on separate site. Procuring a weighbridge, so we can know the volume of waste coming in.	**Links to national waste management plan:** To develop a financial mechanism (CDL or Waste Levy to financially support waste recycling programmes and activities) Recruitment of waste recycling workers (Waste Recycling Superviser and attendants) Ensure the promotion of circular economy in terms of 3R's + Return Encourage private partnership between public sector and private sector in waste management Human capacity development (increase the capacity of waste service provider)	**Related legislation (e.g. Waste Act, environmental legislation):** • Waste Management Act 2017 • Waste Management (Litter and Waste Control) Regulation 2018 • Waste Management (Levy Deposit) Regulation 2019 • Waste Management (Prohibition on the Importation of Single Use Plastic) Regulation 2019. • Waste By-Laws (Outer Islands) 2018
Who else is Involved? (list private sector partners, community groups, NGOs, gov departments): ▪ Department of Waste Management is the leading department ▪ Department of Environment ▪ Department of Health ▪ Ministry of Education ▪ Marine Department ▪ Fisheries Department ▪ Tuvalu national private sector organisation ▪ TANGO – involved in awareness raising ▪ Tuvalu Waste Recycling Association ▪ Tuvalu National Youth Council ▪ Tuvalu National Council of Women ▪ Fishermen on Funafuti Association	**Are any other donors/partners assisting with this issue? (if, yes provide details):** ▪ EU funded the establishment of the transfer station co-funded with the Government of Tuvalu ▪ EU providing 6.8 million for Waste Management goals indicated in the Waste Policy and Action Plan 2017 – 2026 ▪ UK funded the non-plastics pacific island forum (PIF) 50th anniversary. ▪ UK CCOA – marine litter and microplastics project ▪ PacWaste Plus Project will assist on recyclables and capacity building	

<table>
<tr><td colspan="3">Why hasn't this issue been addressed before? What are the barriers?
▪ Out of Moana Taka partnership zone (not covered by Swirers), so no access to free shipping.
▪ Limited inter-island shipping (Ministry of transportation responsible for this). Irregular, infrequent. No containers to transport the recyclables in.
▪ Poor market value for plastics to recycle
▪ Despite banning 14 types of single use plastics, these are still used in country. This is due to existing stocks of single use plastics items banned after August 1st 2019 allows to sell withing the grace period. Phase out will be commenced once the 7 months of grace period is over.</td></tr>
<tr><td>Who needs to be involved? Stakeholders that can directly impact Project implementation:
▪ Department of Business and Trade
▪ Tuvalu National Private Sector
▪ Customs office
▪ Marine Department
▪ Local Importers and Suppliers
▪ TANGO – on community behaviour
▪ Church leaders
▪ Island chiefs
▪ Women's groups</td><td>Other stakeholders involved indirectly:
Department of waste management
Department of environment
Department of transport
Department of marine and port services
Department of health
Customs office
Dep of aviation – they clean the airstrip before the planes land</td><td>Who are the beneficiaries of the project?
Whole country – everyone is close to the waste
Outer island communities with limited resources and facilities to recycle</td></tr>
<tr><td colspan="2">What needs to be done to address this issue:
▪ Establish partnership with Pacific Direct Line to join SWIRE in Moana Taka Partnership.
▪ Improve capacity of inter-island shipping – equip outer islands with transfer stations, and containers to ship
▪ Enforce the single use plastic ban
▪ Educate people to recycle – using designated bin.
▪ Improve recycling rates at household level
▪ Increase waste education and awareness programmes</td><td>What additional legislation is required?
At this stage, all required legislations to improve waste management including single use plastic are in place now.

Enforcement of these legislations is the central focus now for the Department of Waste Management and concerned sectors.</td></tr>
<tr><td colspan="2">How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)?
• Recycling at the household level – both men and women put the rubbish in the bin, men put it outside.
• As part of the EU financial support requirement. Gender balance is highly prioritised in any recruitment process since 2018
• Women do most of the shopping, so are the ones that choose non-plastic alternatives
• Currently, there are youths at the transfer station who focus on the collection of recyclables, cleaning, compacting and packing</td><td>Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?
There is a lot of plastics in the environment – everyone is exposed. Beach and airstrip mainly (which is a social space)

Exposure level for women and men are the same. Hence children can be lower due to awareness and consciousness given</td></tr>
</table>

Budget breakdown: $50,000 - Assessment to map out technical assistance – drawing on the PWP small-scale tech review $150,000 - National technical assistant ($30K x 5 years). $100,000 - Technical training processing recyclables $500,000 - investment in recycling technologies and other assistant (to be defined during the technical assistance requirement assessment)	**When shall we start?** Ready to start in January 2021.

APPENDIX 12 – TECHNICAL PROJECT SPCIFIC ANNEXES: VANUATU

<table>
<tr><td colspan="2" rowspan="2">Country: Vanuatu</td><td colspan="2">Outputs and activities of reference:
Output 1.1 – activity 1.1.1
Output – activities 3.1.1, 3.1.3, 3.1.5
Output 4.3 - activity 4.3.1</td></tr>
<tr><td colspan="2">Country Focal Point:
Ms Ionie Bolenga – Principal Officer: Waste Management & Pollution Control
Environmental Protection Division
Department of Environmental Protection and Conservation (DEPC)</td></tr>
<tr><td>National priority:
E-waste management</td><td>Link to Cleaner Pacific Strategy (performance indicators and targets:
Vanuatu’s priority is linked to Strategic Goals 1 & 2 of CP 2025. Performance indicators include the no. of EPR programmes for e-waste and quantity of e-waste stockpiles. The 2025 target for EPR programmes for e-waste is 8.</td><td>Where do we want to get to?
A holistic approach or pathway on E-waste Management to address the current volume of E-waste in Vanuatu and avoid E-waste accumulation overtime.</td><td>How will we get there?
First by assessing the issue of e-waste and developing a national action plan to manage e-waste.
The plan with then be implemented together with other relevant policies/strategies and stakeholders.</td></tr>
<tr><td colspan="2">Current activities in your country related to this issue:
No-one is collecting e-waste.
The PacWaste project collected some containers of e-waste, in cooperation with Recycle Corp. This e-waste was not disposed of during the project. E-waste collected during Pac Waste Project Phase I are still stored in containers at the Recycle Corp premises.</td><td>Links to national waste management plan:
• National Solid Waste Management Strategy – Also considers</td><td>Related legislation (e.g. Waste Act, environmental legislation):
1. Waste Management Act No.24 of 2014.
2. Pollution Control Act No.10 of 2013</td></tr>
</table>

<table>
<tr><td>UNEP Special Programme – is establishing a national chemicals framework. There is also a legislative component (which may do some of the work on Advanced Disposal Fee).</td><td colspan="2">Hazardous Waste Management which includes E-waste
• National Environment Policy and Implementation Plan (NEPIP).
• National Energy Road Map (NERM) under the Department of Energy</td><td>3. Ozone Layer Protection Act No. 22 of 2019</td></tr>
<tr><td colspan="2">Who else is involved? (list private sector partners, community groups, NGOs, gov departments):
Recycle Corp – is a private company recycling across Vanuatu. Focused on cans and batteries
GoV hoping to engage more entrepreneurs in e-waste recycling</td><td colspan="2">Are any other donors/partners assisting with this issue? (if, yes provide details):
PacWaste did some initial work on e-waste a few years ago.
PWP working on – organic market waste in several provinces</td></tr>
<tr><td colspan="4">Why hasn't this issue been addressed before? What are the barriers?
Capacity and training needed for government on how to manage e-waste.
There is an awareness that e-waste is a problem, but currently there is nowhere for residents/businesses/or government offices to take e-waste for recycling. As such, it's being stockpiled in numerous locations awaiting a solution.</td></tr>
<tr><td>Who needs to be involved? Stakeholders that can directly impact Project implementation:
• Recycle Corp
• Office of the Government Chief Information Officer (OGCIO)
• Government IT department staff would have a long-term role in managing e-waste.
• Department of Energy</td><td>Other stakeholders involved indirectly:
E-waste generators/entities with e-waste stores
• Government offices
• Business Houses (Offices)
• Shop's/Stores
• NGO's
• Schools
• Communities</td><td colspan="2">Who are the beneficiaries of the project?
Vanuatu population, as most households produce e-waste.</td></tr>
<tr><td colspan="3">What needs to be done to address this issue:
- Assessment and e-waste management plan for Vanuatu (assessing quantities from all sectors; potential collection points; and noting import levies required; and plan for dismantling operation)
- Drop off point/containers for e-waste to be collected – collecting.
- Establish MOU's with Recycle Corp, Licenced Private Waste Collectors, government offices, businesses and others.
- Engagement of Licenced Private Waste Collectors.</td><td>What additional legislation is required?
Advanced disposal fee (e-waste levy) and related regulations</td></tr>
</table>

- **Technical support in the form of trainings, tools & equipment to the Department of Environmental Protection & Conservation to existing Licenced Private Waste Operators** - **Awareness on E-Waste in Port Vila, Luganville and nationwide. Awareness campaigns to target specific audiences.** - **Export e-waste to an environmentally sound disposal facility.** - **Sustainable finance for the initiative through an import levy.**	
How are women and men engaged in the value chain of the specific chemical / waste at issue (e.g. at production, usage, collection, recycling, disposal stages)? Electronics are not produced in Vanuatu so the people of Vanuatu are not engaged with specific chemical content of E-wastes. Majority of the population including men, women, youths, disabilities and other vulnerable groups are engaged in the usage of electronics. In terms of collection this current project is looking to also including Licensed Private Waste Collectors as they are engaged in waste collection all year round. Collections are done by men while women administer the local businesses. Recycle Corp is the only Recycling Company in Vanuatu so it does all the recycling. All waste to be disposed (even those from the Recycling Company) are dumped at the Bouffa Landfill at Etas, Efate Island.	**Are women / men / children exposed to [specify chemical/waste] mostly at work or also at home or secondarily?** Secondarily
Budget ($750,000) $125,000 - Technical assistant (Approximately USD 25,000 per year per 5 years). $75,000 - E-waste management plan (completed by a national consultant, or remote international/national consultant) $25,000 - Legislative support for advanced disposal fee $525,000 - Roll out of e-waste management system likely to include: Develop relevant activities that will continue to involve relevant stakeholders. Establish Government-Private Public Partnerships with relevant Business Houses to provide data on electronics sold out. Extend responsibility of relevant Business Houses (Distributors/Sales) on the recapture of sold electronics after product end of use. Establish a permanent storage site for E-waste. Establish & facilitate recycling & waste transfer facilities.	**When shall we start?** Borders are closed through 2021. Ready to start.

Capacity Building Training to relevant stakeholders including communities. Implementation of the E-waste Management Plan Awareness and outreach programs – multimedia awareness. Administrative and Logistics Cost including travel, per diems, accommodation, meeting venues, transportation)	

Appendix 13 - TORs for main posts

Position Titles	*Tasks to be performed*
Project Coordinator	• Facilitate, coordinate, and manage the components of the ISLANDS project including coordinating and supervising the reports to the steering committee and UNEP (quarterly financial and narrative report, PIRs, co-financing reports) • Coordinate the organization of the steering committees (agenda, report) • Execute the workplan as approved by the Steering Committee • Maintain regular contacts with countries focal points • Provide technical and policy advice on strategies and measures to support the implementation of the ISLANDS Project in the Pacific island countries • Develop and implement the ISLANDS programme communications plan in collaboration with the CCKM project (component 4) • Ensure programmatic-level reporting through the CCKM project is done (component 4)
Administrative Officer	• Prepare management financial information and reports in accordance with reporting schedule • Compile monthly performance output reports and interpret data in order to provide management information for decision making • Verification of financial and accounting processes and records • Assist the administrative organization of project meetings
Procurement Specialist	• Implement sustainable procurement guidelines, procedures, and policy (component 1 & 3) • Provide guidance to countries on Green Procurement (component 1 & 3) • Implement annual procurement plan as approved by UNEP and steering committee for the execution of the components (all components)
Tide Turners UNV	• Oversee the work in the region and support the implementing partners • Confirm partner support, collect implementation proposals from partners • Creation of MoU, implementation plans and SSFAs with the partners • Manage funding allocation to partners • Oversee the reporting and monitoring of partners' performance

	• Production of implementation and outreach assets in collaboration with UNEP-Youth.