

Agro-industrial parks: success factors, incentive mechanisms and donor roles

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Executive summary

This study reviews the evidence on agro-industrial parks (AIPs) in low- and lower-middle income countries in Africa and Asia. The analysis rests on information gathered through a detailed review of 200 pieces of literature and 12 semi-structured key informant interviews (KIIs). The study seeks to identify what factors – particularly those within the remit of the stakeholders involved – drive AIP success and failure, and how donors can support AIP success, including through their financing of development finance institutions (DFIs) and multilateral development banks (MDBs).

Overview of AIPs

AIPs, broadly defined here as industrial parks focused exclusively or partly on agro-processing and agro-inputs activities, are increasingly recognized as potentially powerful solutions for generating direct and indirect job creation; income generation and security for smallholder farmers; food security; creating export earnings; import substitution; increasing tax revenues; and upgrading into higher value-added industrial activities. Their potential to deliver these impacts derives from AIPs' ability to: (i) concentrate scarce resources to provide priority firms/sectors with high-quality public infrastructure and services; (ii) encourage firm clustering to unlock economies of scale and scope, positive agglomeration externalities and industrial linkages; and (iii) enable the integration of local small and medium-sized enterprises (SMEs), as well as surrounding agricultural production zones to ensure reliable input as well as forward linkages to the market.

AIPs are a relatively recent phenomenon in today's low- and lower-middle income countries in Africa and Asia, emerging in China and East Asia in the 1980s and in South Africa and parts of South Asia (notably India) in the 1990s, and proliferating in the rest of Asia and Africa from the 2000s to date. A new generation of "hub-and-spoke" AIPs with a core park (the hub) and several rural aggregation and primary processing centres (PPCs) (the spokes) have emerged more recently in India ("Mega Food Parks" (MFPs)), Ethiopia ("Integrated AIPs" (IAIPs)) and a handful of other African countries. For many of the more recent AIPs, it is too early to conclusively assess and explain their success or failure.

However, a growing body of literature and hands-on experience helps understand the major success factors and pitfalls of AIPs in Africa and Asia. It shows a wide range of outcomes at different levels – from investment attraction and direct job creation, to broader local economic development impact – and makes attempts of varying rigour to pinpoint the factors driving these outcomes.







AIP success factors

We identify the most important success factors of AIPs in four domains: (i) cross-cutting factors, (ii) designing and developing AIPs, (iii) managing and operating AIPs and (iv) attracting and regulating AIP tenant firms. We also explore the ways in which donors already support AIPs and provide recommendations for more effective AIP support going forward. This includes leveraging their financing of DFIs and MDBs.

Cross-cutting factors: leadership, institutions and management








1. Sustained high-level political leadership and effective coordination and delivery mechanisms: AIPs are complex long-term projects that require strategic and policy continuity and alignment between – and contributions from – numerous stakeholders, including government bodies, financiers, private sector actors, civil society organizations and external supporters. Many AIPs get derailed or delayed due to misaligned incentives and a failure to deliver coordinated infrastructure and services or to enforce incentives and regulations. The key elements for overcoming these pitfalls tend to be:







	<ul style="list-style-type: none"> - a Project Implementing Unit (PIU) dedicated to the management of the AIP project, well embedded in relevant ministries, staffed by highly competent people and able to directly leverage the authority of the Head of State - a powerful political champion who is fully invested, engaged and present throughout the AIP project cycle and who is well embedded in industrial associations, in the AIP's host city and with the park operator/manager - a high-level working group or committee, typically convened or chaired by the champion and involving the most important public and private stakeholders, to set the overarching agenda and secure support for the AIP project
	<p>2. Policy continuity, consistency, transparency and predictability: These are critical for sustained implementation, investor confidence, widespread political support and alignment around clear priorities</p>
	<p>3. Embedding AIPs into broader development strategies: For AIPs to have the desired broader developmental impacts, they must also be embedded in national economic development strategies, urban development plans, regional infrastructure networks and agricultural development strategies</p>
	<p>4. Preliminary research: High-quality research – including demand and raw materials supply analyses and competitiveness assessments – are crucial, first for determining whether an AIP is the right instrument and second for guiding site selection, institutional arrangements, value chain targeting, infrastructure, service provision and other design elements. Critically, high-quality preliminary research is often undertaken but trumped by political considerations during the design of AIP schemes, with the most common pitfall being that governments locate parks in remote areas (one park per region/province is common) to appease political constituencies: these parks almost always fail to deliver the intended results</p>
	<p>5. Mobilizing long-term capital: AIPs are capital-intensive projects but typically take at least 10 years to be fully established and to generate significant public and private revenues. They therefore require long-term capital which is often not available. Particularly in the early stages, large-scale public funds typically need to be mobilized to finance the entire project, co-finance the project via a public–private partnership (PPP) or de-risk or guarantee private financing arrangements</p>
	<p>6. Getting institutional arrangements right: There is growing consensus that government-managed and operated AIPs tend to fail or underperform most often, but private sector operation is no guarantee of success and there are numerous examples of privately operated parks failing to attract tenant firms or to deliver developmental outcomes. This suggests that outcomes are determined not so much by <i>who</i> owns and runs an AIP but <i>how</i> they manage it: their objectives, incentives and capacity</p>
	<p>7. Applying a phased approach to park sizing and the number of parks developed: Many AIPs get park sizing wrong, with detrimental consequences; they should start modestly and plan for expansion with demand. Parks that are too small may not reach the economies of scale required or have the desired impact on the local economy, while also potentially facing congestion and waste disposal problems and tensions between existing and potential tenants for space. Parks that are too big, on the other hand, may not fill up and can create conflicts with surrounding communities. The same goes for the AIP scheme as a whole: a common recommendation is to start with one or two pilot parks to prove the concept and build momentum before proceeding in incremental stages to expand the scheme</p>



8. Flexibility and responsiveness: Due to their long-term and complex nature, AIP performance depends on the capacity of host governments, operators and tenant firms to effectively monitor performance and respond dynamically to changing economic realities

Attracting firms and achieving development objectives

	<p>1. Balancing the business environment inside and outside the AIP: Some investment enablers must be in place at the national level to attract investors, but resource-poor governments in developing countries cannot address all business environment constraints in the entire national territory. Hence, they must prioritize what constraints to tackle and where. The fundamental task of an AIP is to address the most important business constraints for firms in target sectors within the park and in its immediate surroundings. If they achieve this, they enable at least some firms in some locations to enter new value-adding activities and to become internationally competitive, while also attracting these firms into a common location and thus stimulating agglomeration effects</p>
	<p>2. Targeting the right tenant firms: Carefully screening potential investments reduces the risk of failure and ensures investors are aligned with the park’s developmental benefits. If quality is sacrificed in favour of the quantity of tenant firms, there is a risk that investors will fail to operationalize their development plans; the zone will fill up with investors who are not aligned with the zone’s developmental objectives; limited clustering, economies of scale, knowledge spillovers and supplier linkages will occur due to a disparate set of firms locating in the zone; and low-quality tenant firms will repel high-quality would-be investors. There are specific types of firm that successful AIPs tend to target, and whose presence in turn attracts other firms into the park: anchor investors (large lead firms that catalyse the ecosystem), firms providing supporting functions and domestic SMEs</p>
	<p>3. Shifting the focus from fiscal to non-fiscal incentives: AIPs have utilized a wide range of fiscal and non-fiscal incentives to attract agro-industrial firms to establish production facilities in the parks. The most commonly used fiscal incentives are exemptions or reductions on income and value-added tax and exemptions on import duties, typically for imported inputs used for the manufacture of exported products. Non-fiscal incentives include access to dedicated infrastructure (eg transport and utilities), facilities (eg factory shells and product testing labs) and services (eg waste management and training institutes), as well as streamlined customs and regulatory procedures. There is mounting evidence suggesting fiscal incentives, especially income tax breaks, may attract some investors in the short term but are an ineffective tool for making AIPs and SEZs work in the long term. Many authors now warn against a “race to the bottom” caused by competing on the basis of fiscal concessions, calling on parks and zones instead to focus on providing valuable services and infrastructure to tenant firms</p>
	<p>4. Lifting target firms’ binding constraints: AIPs are most successful when they are responsive to the target firms’ needs, constraints and investment drivers. This requires an effective private sector participation mechanism that ensures the park operator understands the shifting needs and capabilities of tenant firms</p>
	<p>5. Getting the balance of incentives and regulations right: To ensure that AIP incentives serve the park’s developmental objectives, they need to be tied to productive performance requirements or targets. These range from requirements to develop allocated land within a certain timeframe to complying with environmental, social and governance (ESG) standards and meeting production, local sourcing, industrial upgrading or local hiring targets. However, stringent targets – particularly export</p>

	requirements – are increasingly criticized on the basis that they are inconsistent with international trade agreements, limit forward linkages into the domestic economy and fail to foster gradual learning-by-doing to enter and upgrade within global and regional value chains
	6. Getting the park location right: AIP performance is closely linked to park location. Successful parks tend to strike a balance between proximity to poorer, more peripheral areas with access to cheaper land, labour and raw materials and good access to the primary city and other demand centres, as well as to airports, ports and other logistics hubs
	7. Securing land: Land security issues have been cited as among the most important constraints affecting AIP development. Land acquisition for AIP development is often thwarted by opposition from local communities, including land-grabbing accusations and “misalignment” between the public AIP sponsors and local authorities who manage the land. Land acquisition challenges can be foreseen in feasibility studies, avoided by locating parks in areas where land is easier to secure, planned for by including land acquisition delays and costs in the AIP development workplan, and sometimes mitigated by engaging with relevant stakeholders (eg the Ministry of Land; local communities and authorities) as early as possible
	8. Providing quality infrastructure in and around the park: Effective external and internal infrastructure are among the most important factors in attracting firms and enabling competitiveness: the absence of these is the most cited pitfall of AIPs. <i>External infrastructure</i> includes roads, railways, airports, seaports, telecommunication infrastructure, subsidized utilities energy (electricity) and water (including conveyance infrastructure and competitive water rates). <i>Internal infrastructure</i> inside the AIP may include dedicated power transformers, water sewage disposal systems, warehouses and cold storage units, to name a few
	9. Ensuring efficient trade facilitation and other bureaucratic processes: Inefficient trade facilitation and other bureaucratic processes are major obstacles to AIP investment and performance. The role of the “one-stop shop” is to embed the offices of federal and regional government agencies, including customs, taxation, finance, commodity inspection, visas, police and the judiciary, into the AIP site. One-stop shops in successful AIPs typically provide both tailored pre-investment support and post-investment aftercare, helping tenant firms navigate the bureaucratic processes involved in setting up in the park, importing, exporting, complying with labour and environmental regulations, and so on. However, many one-stop shops fail because of coordination problems between government agencies: clearly the performance of an AIP is driven by the effectiveness, not the mere presence, of a one-stop shop
	10. Fostering AIP-farmer linkages: Fostering strong relationships between agro-processing firms in AIPs and farmers in surrounding areas is critical for the operational and developmental success of AIPs. Various AIPs have tried to achieve this via integrating farming concessions, facilitating contract farming, brokering linkages, offering aggregation infrastructure and services, integrating extension services, brokering supplier linkages, providing market information and enacting targeted policies and regulations
	11. Integrating SMEs into the AIP ecosystem: AIPs often struggle to find a way of meaningfully integrating domestic SMEs into the AIP ecosystem to spur industrial, employment and knowledge spillovers beyond the larger and mostly international firms that often constitute the core park tenants. Some approaches include direct integration of SMEs via dedicated park space and relaxed entry requirements, tailored financial services (often with partner financial institutions), business development services and services to broker business linkages between SMEs and larger AIP tenants



12. Attracting and developing a skilled labour force and realizing AIPs' potential to create decent employment: Accessing labour with the necessary skills for firm productivity can be a major constraint for AIP tenants. Successful AIPs tend to find a balance between making it easy to import specialists in the short term and inducing and supporting a transition to local hiring in the medium-to-long term. Upgrading domestic skills requires concerted efforts, either through training colleges or on-the-job training. To deliver on-the-job training, firms often need to be compensated as they would not otherwise make this investment for fear of the trained employee leaving and taking their newly acquired skills to a competitor. Improving the quality of life in and around AIPs has also worked to attract skilled (and unskilled) labour from other parts of the country. Finally, there is a tension between the quantity and quality of job creation by AIPs. Labour market flexibility and reduced labour protection can increase firm competitiveness and knowledge spillovers, but often does so at the cost of job decency

Donor roles

Donors have been involved in supporting AIPs since at least the 1990s in the form of financing, technical assistance, direct support to AIP tenants and related firms, knowledge generation and peer learning, and policy influence. Multi-pillar approaches working with AIPs to tackle various constraints under one umbrella programme have seen the most success in influencing and supporting positive AIP outcomes. This should be taken forward and built on.

Based on the evidence reviewed, we propose that donors interested in supporting AIPs should adopt the following four key principles.

Donors should take a long-term and flexible approach to AIP support and results expectations: AIPs are long-term projects that typically take over 10 years from inception to strong occupancy and the first concrete developmental results. By nature of this long-term timeframe, they are also almost guaranteed to face unforeseen circumstances along the journey, from changes in government to pandemics. This uncertainty, combined with the complex multi-stakeholder coordination necessary to make AIPs work, means that long timeframes and frequent delays to progress are the norm, not the exception.

Donors should work with a wide variety of public and private sector actors, both within the AIP and in neighbouring areas: If AIPs are to yield their intended positive impact on economic transformation, they must stimulate the growth and functioning of an entire ecosystem of actors. That ecosystem includes agro-processing firms, farmers supplying agro-produce, “agro-allied” firms and the various government agencies involved in park governance, regulation and infrastructure and service delivery. The actors – their capabilities, incentives and roles – are best understood, and improved, through a market systems development¹ lens.

Donors should work to prevent donor dependence: This can be done by targeting technical assistance that stimulates self-action by industries towards agreed objectives, such as ESG compliance without heavy dependence on external financial and technical support. When AIPs and their tenants become dependent on a single source of finance, that source may dry up and jeopardize the sustainability of the entire project.

Donors should deliver AIP support through well-coordinated programmes aligning with the incentives and capabilities of all stakeholders involved: Because AIPs are large,

¹ Market systems development approaches seek to achieve lasting and widespread pro-poor change by understanding and addressing the incentives, behaviours and relationships between market actors. If successful, they improve the way the entire market system operates, as well as its outcomes for low-income households. A market system consists of the “core exchange” (the supply chain), “supporting functions” (goods and services that enable the supply chain to operate well – delivered by agro-allied firms, non-profits, business groups and/or public agencies) and “rules” (the formal and informal rules, regulations and norms governing exchange in the market system). See the [BEAM Exchange](#) for more detail.

complex initiatives, they typically involve multiple donors that need to coordinate with multiple government counterparts in the host country. This deepens the coordination challenges discussed above, necessitating strong centralized coordination mechanisms interfacing between and among donors and government agencies.

Donors able to embrace these principles and mobilize the necessary long-term outlook, large-scale grant funding, significant concessional capital, technical expertise, networks and political influence, should:

- deliver AIP support **through comprehensive, long-term (10+ years) partnerships with the highest levels of host governments** and other public and private partners involved, crafting a joint vision and strategy and then taking a flexible approach towards tackling both *foreseen and unforeseen challenges* in the long and complex lifecycle of an AIP
- where feasible, leverage the joint strategy to hold host governments and operators accountable: **provide technical and financial inputs against a jointly agreed schedule of milestones**, only if and when recipient organizations fulfil their milestones (this requires flexible annual spend targets on the part of donor agencies)
- support the **design of PIUs**, including incentive and oversight mechanisms, and support PIUs in mobilizing the **short-term expatriate expertise** required (eg through embedded advisors and a demand-driven short-term technical assistance facility) and in phasing this support out by building domestic capacity (eg through scholarships, on-the-job training programmes, best practice guides and exposure placements in well-functioning AIPs abroad, for example in partnership with a private AIP operator also active in other countries)
- **identify and directly support a high-level political champion of the AIP project through technical assistance, networking and diplomatic engagement, while working with existing champion(s) to broaden the coalition of support for the AIP project, backed by careful political economy and stakeholder analysis**
- **be a long-term champion** of the AIP project by helping promote awareness, imbuing a sense of security via international backing and supporting the institutionalization of other longer-term champions
- collaborate with host country governments to set up the **right institutional arrangements for effective park oversight and management**, leaning towards PPPs but recognizing that the devil is in the detail: PPPs work when the incentives and capabilities of the players involved align well with the AIP's developmental objectives
- support PIUs in mobilizing **long-term, patient and concessional capital** – including from DFIs and MDBs – to ensure that the AIP has the resources to secure land, deliver internationally competitive infrastructure and services and mobilize world-class park management expertise
- embed within AIPs (or AIP schemes) **market systems development programmes** aimed at fostering the **integration of farmers as well as “agro-allied” firms** providing ancillary inputs and services to farmers and agro-processors (especially domestic SMEs) into a well-functioning agro-industrial ecosystem in and around the AIP. Such a programme would identify and address the underlying systemic reasons why farmers are not integrated into the supply chain, or why agro-allied firms are not providing their goods and services in and around the AIP. For example, this could entail partnering with agro-allied firms to pilot the provision of supporting services such as soil testing or agro-processing machinery maintenance; partnering with agro-processors to pilot and build capacity for outgrower farming schemes; or strengthening agribusiness associations' capacity to advocate for reforms of regulations hindering value chain integration

- provide technical assistance to help AIP operators and PIUs adopt a client-oriented approach, continuously monitoring and tackling current and prospective tenant **firms' binding constraints**, including via effective **private sector participation mechanisms** (be this through inclusion in AIP governance mechanisms and/or through dialogue platforms)
- actively support efforts to **attract private AIP developers, operators and anchor firms²** into the AIPs through embedded advisors, investment attraction and facilitation training, and direct investment facilitation using donor, MDB, and DFI networks (including via donor country trade and investment missions working with industry associations and departments of trade)
- financially and technically support AIP operators and PIUs to deliver **high-quality infrastructure and services in and around the AIP** as a top priority (over fiscal incentives) for attracting tenant firms and ensuring they deliver against developmental objectives
- throughout the engagement, use the leverage that comes with financial and technical support to **ensure – as far as possible – that ESG standards are met**, for instance in compensating displaced communities, monitoring and upholding decent work and gender-sensitivity standards inside the park and putting in place robust environmental safeguards and monitoring

The ideal scenario laid out above is not always feasible. Donor agencies or offices working with smaller-ticket, shorter-term inputs with less high-level political engagement should, where possible, provide these inputs as part of a larger programme under the umbrella of a larger, long-term partnership led by a large donor or multilateral. The design of such short-term inputs should emanate from a longer-term joint strategy with the host government and PIU and should address the most pressing needs of the AIP and the firms and farms within its broader ecosystem. Less capital-intensive areas of support that do not rely on a long-term time horizon might include:

- co-financing (with a longer-term partner) a technical assistance facility relevant to the current stage of the AIP (be that preliminary research, infrastructure development, operations or evaluation)
- linking a 5+-year (renewably) market systems development programme to one or more AIPs
- financing a series of knowledge products (eg feasibility study, masterplan, best practice guides, design of a private sector participation framework, etc) – it should be stressed again that these should be part of a longer-term partnership and strategy, even if the donor of these inputs is not committed long-term
- supporting a time-limited investment promotion push through a series of promotion, facilitation and linkage activities

Finally, the best practices outlined above should guide donors in deciding when **not** to support AIPs. For instance, donors should proceed with caution where:

- AIP design, investor targeting and other decisions are highly politicized in that short-term political motivations decisively override most technical considerations, for instance in choices regarding park location, tenant firm targeting, performance standards (or the lack thereof) and AIP governance arrangements

² “Anchor firms” refers to large companies whose investment and presence in an AIP spur confidence among other prospective tenants; create significant demand for inputs, services and component parts; and provide a minimum threshold of operating volume and revenue to make an AIP viable.

- no sufficiently effective oversight, coordination or delivery mechanism is in place, making cross-government coordination failures highly likely
- the feasibility of the AIP project is questionable due to insurmountable national business environment challenges (eg conflict and instability) or market dynamics, for instance due to insufficient raw materials supply or access to markets

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³ The Centre for Development Alternatives is an independent think-and-do-tank crafting future-oriented strategies for the inclusive and sustainable transformation of African economies. More information at www.cda.co.ug.

⁴ Tandem Development International is a boutique international development consultancy specializing in monitoring and evaluation (M&E), research and learning. More information at www.tandem-development.com.

Acronyms

ADA	Agricultural Development Agency
AfDB	African Development Bank
AIGC	Agro-Industry Growth Corridor
AIP	Agro-Industrial Park
ATA	Agricultural Transformation Agency (Ethiopia)
B2B	Business-to-Business
BEPZA	Bangladesh Export Processing Zones Authority
CASA	Commercial Agriculture for Smallholders and Agribusiness
CPC	Central Processing Centre
DFI	Development Finance Institution
EIB	European Investment Bank
EIC	Ethiopian Investment Commission
EPZ	Export Processing Zone
ESG	Environmental, Social and Governance
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FPC	Farmer Producer Company
FPO	Farmer Producer Organization
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoE	Government of Ethiopia
Gol	Government of India
GSEZ	Gabon Special Economic Zone
IAIP	Integrated Agro-Industrial Park
IDZ	Industrial Development Zone
IFAD	International Fund for Agricultural Development
IFFCO	Indian Farmers Fertiliser Cooperative Limited
IPDC	Industrial Parks Development Corporation
KII	Key Informant Interview
KINFRA	Kerala Industrial Infrastructure Development Corporation
LNDC	Lesotho National Development Corporation
M&E	Monitoring and Evaluation
MDB	Multilateral Development Bank
MFP	Mega Food Park
MoFPI	Ministry of Food Processing Industries (India)
MSME	Micro, Small and Medium-Sized Enterprises

NABARD	National Bank for Agriculture and Rural Development (India)
NGO	Non-Governmental Organization
PCP	Programme for Country Partnership
PESAPYE	Productivity Enhancement Support to the IAIPs and Youth Employment
PEZA	Philippine Economic Zone Authority
PIU	Project Implementing Unit
PMA	Project Management Agency
PMC	Project Management Consultant
PPC	Primary Processing Centre
PPP	Public–Private Partnership
PROSEAD	Promotion of Sustainable Ethiopian Agro-Industrial Development
R&D	Research and Development
RIPDC	Regional Industrial Parks Development Corporation
RTC	Regional Transformation Centre
SAMPADA	Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters
SAPZ	Special Agro-Industrial Processing Zone
SCPZ	Staple Crop Processing Zone
SEZ	Special Economic Zone
SITP	Scheme for Integrated Textile Parks
SME	Small and Medium-Sized Enterprises
SNNP	Southern Nations, Nationalities and Peoples
SPV	Special Purpose Vehicle
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization

1. Introduction

The objective of this study is to **review the evidence on AIPs in low- and lower-middle income countries in Africa and Asia**: their major **success factors** and **pitfalls** from **design and development to operations and management**, with a special focus on the **mechanisms used to attract prospective tenant firms, as well as ensuring they contribute to the parks' developmental objectives**. The target audiences of the study include donor agencies, DFIs, multilateral institutions, MDBs and governments interested in utilizing AIPs to drive agricultural transformation and agro-industrialization in Africa and Asia.

The rest of **Section 1** details definitions and key terms used throughout the report, presents a typology of AIPs with country examples and discusses what it means for an AIP to be considered successful. **Section 2** highlights our analytical framework, including the four core research questions that help situate AIP pitfalls and success factors across three areas (design and development; management and operations; and incentives) and one cross-cutting area (the role of donors, multilaterals and DFIs) before delving into a summary of the methodology employed throughout the study. **Section 3** provides an overview of AIPs within the focus regions, giving a snapshot of observed trends, more established AIPs and recently emerging parks. **Section 4** makes up the bulk of the analysis. It highlights the most pertinent drivers of AIP success and failure. **Section 5** explores the existing and potential roles of donors, multilaterals and DFIs in supporting AIPs to overcome the challenge areas highlighted earlier. **Section 6** presents summary recommendations. **Annex 1** presents two deep-dive assessments on Ethiopia's IAIPs and India's MFP scheme to bring to life many of the study's findings and highlight how they play out across two different country contexts.

Definitions

Terms like “agro-park”, “food park”, “agro-processing zone” and “agro-pole” are widely used, sometimes interchangeably, and often with overlapping and/or vague definitions (Bost, 2019). The same applies to the broader categories of “industrial park”, “industrial estate”, “industrial zone”, “Special Economic Zone” (SEZ), “Export Processing Zone” (EPZ) and “cluster”. In order to create more clarity, we start with broad criteria that delineate what elements *must* be present in order for an AIP to be called an AIP. The typology presented below then illustrates several additional elements that an AIP within that broad definition may or may not include. Below, we define the following terms: (a) AIPs, (b) agro-industry and (c) industrial parks, with (b) and (c) feeding into (a). In addition, we define (d) SEZs in order to illustrate the differences and overlaps between SEZs and AIPs.

- a. **AIP**:⁵ An industrial park that has a significant or exclusive focus on agro-industries (Norman, 2020; Haile, 2017; Gálvez-Nogales and Isahakyan, 2017)
- b. **Agro-industry**: Any economic activity that delivers material inputs to the farming sector or transforms, distributes or otherwise adds value to agricultural and food products (adapted from the Food and Agriculture Organization of the United Nations (FAO), 2017)

⁵ This definition is intentionally less prescriptive than that of FAO (2017) so that more context-driven variation can be explored and assessed: “An agro-industrial park is a spatially demarcated hard and soft infrastructure platform dedicated to supporting firms and other stakeholders engaged in agroprocessing and related activities. In an agro-industrial park scheme, the following essential conditions coexist:

- A well-defined, centrally managed tract of land developed, subdivided and serviced dedicated to agroprocessing. The ownership and management of the park is controlled by a dedicated entity, often public-private.
- Companies engaged in agroprocessing and related activities, called tenants, are co-located within the park premises. There are also providers of ancillary business services, such as finance, human resources, ICT, knowledge organizations and procurement.
- The park offers infrastructure, logistics and specialized facilities and services (eg cold chain facilities and laboratory and certification services) to its tenants.
- The majority of park activities aim to promote agricultural value addition through processing and storage of food, feed and biofuel products. “Nonagricultural” industries in the park are few or non-existent.” (FAO, 2017: 125)

- c. **Industrial park:** A geographically delimited area, zoned and planned for the purpose of industrial development, with multiple co-located companies and onsite park management (adapted from Norman, 2020; [Chen, 2018](#))
- d. **SEZ:** A geographically delineated area in which the business and trade laws, regulations and administration differ from the rest of the host country (adapted from [Oliver Wyman, 2018](#)). Thus, an AIP may or may not also be an SEZ – this depends on whether it is subject to special business and trade rules. Similarly, an SEZ may or may not be an AIP (eg an SEZ that focuses on tourism or petrochemicals is not an AIP); some SEZs have AIPs located within them (one SEZ might host several different types of industrial park, as well as areas that are not dedicated to industry or do not have onsite management)⁶

Typology of AIPs

This typology is intended to capture the major dimensions along which AIPs can and do vary *within* our general definition of AIP. It takes FAO's (2017) typology of AIPs as a starting point, but departs from this in two ways: first, by seeing AIP variation along each dimension as a continuum instead of as discrete categories;⁷ and second, by considering additional dimensions of AIP variation. The example AIP schemes⁸ populated on the typology cover a range of countries, including Ethiopia's Integrated AIP (IAIP) scheme; Gabon's SEZ Nkok; India's MFP scheme; and Morocco's agro-pole scheme. They illustrate *variation* along numerous dimensions, especially in terms of backward linkages, size,⁹ research and development (R&D) focus, location and industry targeting, as well as considerable *convergence*, especially in terms of infrastructure, services and zoning, site starting points and market orientation.

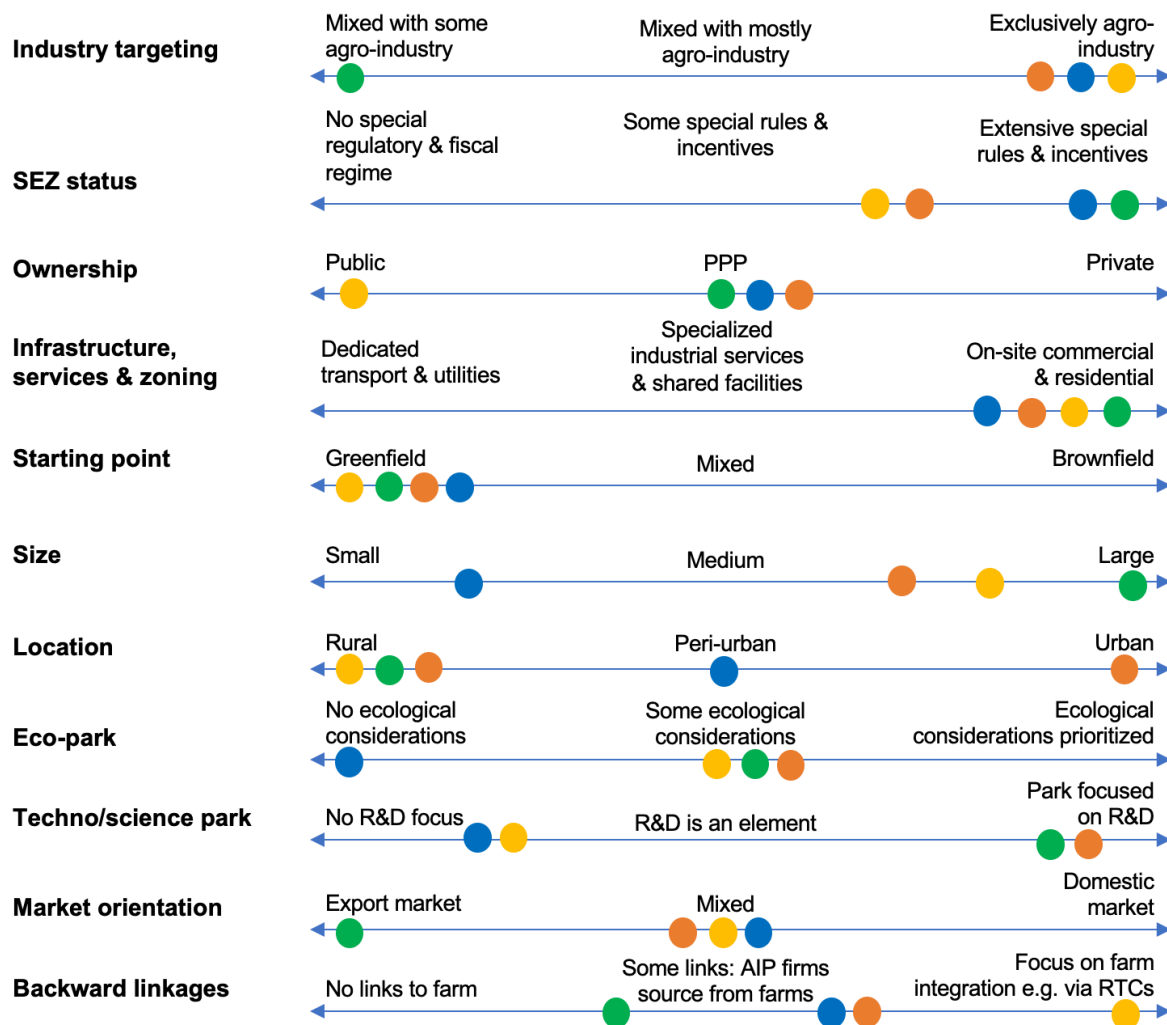
⁶ Our definition of SEZ differs slightly from the way the term is used by some bodies of literature, which include additional elements such as dedicated infrastructure and a focus on industry in the definition, thus blurring the lines between SEZs and industrial parks.

⁷ For example, the extent to which an AIP prioritizes ecological considerations (thus making it an "eco-AIP") can vary widely; it is not a simple yes or no question. Additionally, "Infrastructure, services and zoning" are examined in terms of breadth and depth along a continuum, as most AIP schemes include a variation of infrastructure, services and utilities.

⁸ The constituent parks of each AIP scheme include Ethiopia's IAIPs (Bure IAIP, Bulbula IAIP, Yirgalem IAIP and Baker IAIP); three out of the six Moroccan agro-poles (Agro-Pole Sous Massa; Agropolis Fez-Meknès; and Agropole Berkane); and the Indian Mega Food Park Scheme (22 AIPs with similar properties, only varying in size).

⁹ The size of the AIPs range from "small" (20 ha, eg Indian MFPs) via "medium" (140 ha, eg Morocco's agro-poles, to 260 ha, eg Ethiopia's IAIPs) to "large" (1162 ha, eg Gabon's SEZ Nkok).

Figure 1: Typology of AIPs



AIP schemes:

- Morocco Agropoles scheme
- India Mega Food Parks scheme
- Gabon SEZ Nkok
- Ethiopia IAIP scheme

Defining AIP success

AIPs typically have multiple higher-level developmental goals, including direct and indirect job creation; income generation and security for smallholder farmers; food security; creating export earnings; import substitution; increasing tax revenues; and upgrading into higher value-added industrial activities. They do this by promoting agricultural value chain integration with a focus on the value addition of agricultural production through storage, packing and processing of food, feed, biofuel and other agro-based products (such as garments and wood products) and the industrialization of the agribusiness sector through shared facilities and supporting services. The rationale for AIPs generally rests on their ability to contribute to the abovementioned goals through the following channels:

- AIPs allow for the **concentration of scarce resources** to provide priority firms/sectors with **high-quality public infrastructure and services**: these may include good roads, dedicated power and water supply, solid waste disposal, secure land tenure, efficient government processes such as customs clearing, specialized services such as quality testing and certification, etc

- AIPs encourage **firm clustering** to unlock **economies of scale and scope**, positive **agglomeration externalities**¹⁰ and **industrial linkages**: this is achieved when AIPs manage to bring into close proximity various functions that make an agro-processing ecosystem work: agro-processing firms themselves, enabling service providers (also called “agro-allied” firms), raw materials suppliers and labour. This enables the viability of shared facilities, shared R&D efforts, specialized service providers, joint supply arrangements, joint purchasing, cross-firm learning externalities, etc
- AIPs enable the integration of **backward linkages** with local SMEs, as well as surrounding agricultural production zones to ensure reliable input supplies from farmers, producers, cooperatives and the non-farm economy to sustain the business operations of occupant units and **forward linkages** to the market, eg through efficient aggregation. This can help reduce post-harvest losses, especially in perishable goods, and improve the performance of targeted value chains

2. Summary methodology

The study has sought to answer three **core research questions** corresponding to the three domains illustrated, as follows.

1. What are the *success factors and pitfalls* that drive the effectiveness of the **design and development** of AIPs?
2. What are the *success factors and pitfalls* that drive the effectiveness of the **management and operations** of AIPs?
3. What are the *success factors and pitfalls* that drive (a) an AIP’s ability to **attract (the right) agro-industrial firms** and (b) ensure that those firms contribute to realizing the AIP’s **developmental objectives**? This will include a mapping of firm incentives and performance requirements used by AIPs.

In addition, we examine the following question, which cuts across all three core research questions.

4. Where and how have **donors, multilaterals and DFIs** supported partner countries and AIPs to *avoid these pitfalls and strengthen the success factors*, and what additional or different roles could they play in future (or what could they do differently) to support AIPs more effectively?

The study methodology followed these five steps.

- **Literature review**: The research team gathered more than 200 pieces of literature, consisting of journal articles, government reports, grey literature and more, which were then analysed in terms of how they responded to this study’s four core research questions. The identification of each piece sat alongside our working definition of AIPs to include lessons learned from SEZs more broadly, as well as specific AIP literature with a focus on low- and lower-middle income African and Asian countries. The literature draws lessons from a broader taxonomy of spatial (agro-)industrial development approaches (Norman, 2020; FAO, 2017; Haile, forthcoming)¹¹

¹⁰ “Agglomeration externalities” refers to the benefits of firm co-location: this density leads to cost savings in the movement of goods, people, information, ideas and knowledge between firms.

¹¹ First, there appear to be far more studies on SEZs and industrial parks (particularly “eco-industrial parks”) than on AIPs *per se*. However, the “terminological anarchy” (Bost, 2019) in this field means that many “SEZs” and other “zones”, “clusters” and so on actually meet our definition of AIPs and thus provide relevant evidence. Further, many AIPs are located within broader SEZs (or have SEZ status) and many, if not most, multi-sector parks and eco-industrial parks include significant agro-industry and thus fit our broader typology. Second, there is considerable evidence on AIPs from countries that are no longer low- or lower-middle income but did fall under those categories at the time of the AIP-related evidence in question. These include Malaysia (which became “upper-middle income” in 1992), South Africa (1996) and Sri Lanka (2020) among others. Third, since AIPs face many of the same challenges as industrial parks in general, pertinent lessons can be gleaned from the literature on industrial parks that does not include agro-industrial activities (eg Stein, 2008; Monga, 2011; Greenwald and Stiglitz, 2014; Farole and Moberg, 2017). There is thus a significant body of literature of high relevance to our core research questions on the experiences of territorial

- **KIIs:** Twelve semi-structured interviews collected insights from a range of key stakeholders, including agro-economists; AIP and SEZ policy experts; bilateral donors involved in AIP support projects; technical leads of multilaterals involved in research, planning and implementation; and a DFI assessing AIP viability and ongoing strategies informing the wider sector. Interview questions were adapted to each stakeholder's expertise and particular experience in relation to the overarching research questions
- **Quality of evidence scoring:** The research team assessed each piece of literature's method quality, method relevance (to the research questions) and overall focus relevance. The simple three-point scale scores were cross-assessed by the review team to ensure consistency of grading (see the strength of evidence assessment in Annex 2)
- **Synthesis:** The relevant findings from each piece were then synthesized into a large database and grouped according to recurring themes and topics against the research questions. The synthesis made distinctions between specific AIP examples in the literature and non-AIP or wider SEZ examples. These groupings were then used to inform the various sections of the report
- **Case studies:** Two country cases were then compiled from the synthesized evidence base to form deep-dive assessments that help bring to life specific AIP success factors and pitfalls across two different country contexts

For the full research methodology, see Annex 2.

3. Overview of AIPs in Africa and Asia

AIPs are a relatively recent phenomenon in today's lower and lower-middle income countries in Africa and Asia. Industrial parks that cater to agro-industries have been present in Asia since the late twentieth century, beginning in the East Asian "tiger" economies during the early 1980s. In the mid-1980s, they emerged in China and South Asia (notably India) and more recently in Vietnam, Singapore, Malaysia and the Philippines (FAO, 2017). In Africa, AIPs are more nascent but have received a high level of attention in recent years. South Africa's Spatial Development Initiative and Industrial Development Zones (IDZs) were commissioned in the mid-1990s and targeted agro-industrial production zones for exports, with the Coega IDZ among the standout examples (Kleynhans et al., 2003; the African Development Bank (AfDB), 2021). So-called *agro-poles* have begun to proliferate around West and North Africa, from Morocco in 2011 to Senegal in 2019 (AfDB, 2021). Several other African countries have embarked on AIPs and agro-based SEZs in the 2010s – with prominent examples including Ethiopia's IAIPs, Special Agro-Industrial Processing Zones (SAPZs) in Nigeria and beyond and Gabon's SEZ Nkok – and more African countries are currently planning SAPZs and similar schemes (AfDB, 2021). While there is a growing trend towards agro-specific SEZs and industrial parks, most zones and parks containing agro-industries are mixed rather than exclusively dedicated to agro-industry (AfDB, 2021, Haile, 2017).

The relatively thin but fast-growing literature on AIPs in Africa and Asia shows a wide range of AIP performance. At one end of the spectrum, Gabon's SEZ Nkok has achieved an estimated US\$ 1.7bn worth of foreign direct investment (FDI) linked to over 140 investors and exceeded expectations in attracting foreign and local companies into the zone (AfDB, 2021). At the other end of the spectrum, Nigeria's Calabar Free Zone failed due to an unclear legal and regulatory framework, lack of commitment at the federal level and a lack of government understanding of private sector drivers and decision factors (AfDB, 2021; Norman, 2020). Within-country variation can be as stark: while China's Suzhou Industrial Park succeeded in securing US\$ 30bn in international investment, the agro-food park Greenport Shanghai was dissolved during the commercialization phase (van Someren and van Someren-Wang, 2012).

development tools, spatial development models and AIPs in Asia (eg Rao, 2006; FAO, 2017), North Africa (eg Gálvez-Nogales, 2011) and sub-Saharan Africa (eg Zeng, 2015; AfDB, 2019; AfDB, 2021). Note that China, which previously focused largely on mixed industrial parks and SEZs, is increasingly embracing agro-specialized parks, investing over US\$ 700m into 62 national AIPs in 2017 (Kladaki and Cai, 2020).

AfDB (2021) finds that, in general (and with important exceptions), the performance of African AIPs has been disappointing against both operational and developmental objectives. However, it is too early to assess the impacts of many, if not most, African AIPs due to their very recent establishment. In Asia, AIP performance has been mixed. Many Korean and Chinese SEZs from the 1980s onwards, including those covering agro-industries,¹² have been highly successful at inducing productive investment, global value chain integration and industrial upgrading, playing a central role in driving those countries' rapid economic transformations (FAO, 2017; Aggarwal, 2019; Kim, 2015). Saleman and Jordan (2014) conclude that most of India's ambitious AIP efforts in the 1980s and 1990s showed disappointing results, while a new major textiles-focused AIP scheme established in the 2000s demonstrates strong outcomes.

Box 1: Snapshot of a successful AIP – Gabon's NKOK SEZ

In 2010, the Gabon SEZ (GSEZ) was established as a joint venture between Olam International Ltd, the Republic of Gabon and Africa Finance Corporation, with a mandate to develop infrastructure, enhance industrial competitiveness and build a business-friendly ecosystem in Gabon. The GSEZ has rapidly emerged as one of West Central Africa's major multisector manufacturing hubs and features some prominent agro-industrial activities, such as wood processing.

The zone has attracted 141 investors, thanks in large part to the construction of specialized infrastructure; PPP commitments aligned with SEZ laws; an operational one-stop shop for fast-track customs and regulatory services; and over 3m ha of forests allocated to zone-based processors.

Access to capital for smaller firms has been facilitated through several micro, small and medium-sized enterprise (MSME) financing mechanisms, such as the Gabon Strategic Investment Fund, the Okoume-Capital Fund, COFINA and the National Social Assistance Fund. A furniture cluster and partner school is also operating to support local artisan skills development, supported by France's *École Nationale Supérieure des Arts Décoratifs* (Olam, 2016). The GSEZ has had commercial success, with 67% of the industrial zone sold and full commercialization achieved prior to 2020, and has experienced a strong financial performance, with cumulative profits of US\$ 16m since 2011. GSEZ output now contributes 14% of Gabon's annual export earnings.

Sources: ARISE IIP, 2019; AfDB, 2020; AfDB, 2021





















The performance of more long-standing African SEZ programmes shares commonalities with that of recently emerging AIPs. Generally, African SEZs and AIPs have made limited progress when assessed against "dynamic" measures of success, such as facilitating industrial upgrading, local economy integration or catalysing wider reforms and integration (Farole, 2011; AfDB, 2021). In Nigeria, Senegal, Malawi, Namibia and Mali, SEZs appear to be struggling due to poor location, lack of effective strategic planning and management and problems of national policy instability and weak governance (AfDB, 2021). At worst, AIPs become chronically stuck in the design and development phases, sit empty for many years, operate mainly as political patronage vehicles or see any positive impacts offset by negative impacts (such as erosion of the tax base due to excessive tax incentives offered to AIP tenants; pollution; displacement of local communities; or reduced pressure for more broad-based business environment reform) (FAO, 2017: 153; Saleman and Jordan, 2014). While static measures of success (eg investment and export values) may be easier to assess, measuring dynamic performance – namely whether AIPs are doing enough to catalyse wider structural change – requires a more patient outcome and impact expectations and is more difficult to measure accurately or to attribute to specific activities (Farole, 2011; AfDB, 2021). For many recently established AIPs, it is still too early to do so conclusively.

¹² Almost half of China's mixed manufacturing parks established since the 1980s host food, beverages or agricultural machinery firms (FAO, 2017).

4. AIP success factors

The wide variation in AIP performance across and within countries raises the questions: **what drives AIP success or failure? How can host governments maximize the chances that AIPs, where utilized, are successful? How can donors support this cause?** The growth of recent literature that helps answer these questions is encouraging. In line with our core research questions, this section identifies and discusses the greatest success factors of AIPs in two subsections. The first deals with cross-cutting success factors from design to operation, covering political, institutional and managerial factors; the second covers success factors in attracting the right agro-industrial firms and ensuring they contribute to the AIP's development objectives. Donor, MDB and DFI efforts at supporting AIPs to leverage success factors and avoid pitfalls are mentioned throughout this section and summarized in Section 5. The greatest success factors for AIPs are summarized in Table 1.

Table 1: Overview of the most important AIP success factors

Cross-cutting success factors from AIP design to operation		Attracting firms and achieving development objectives	
	Sustained high-level political leadership and effective coordination and delivery mechanisms		Balancing the business environment inside and outside the AIP
	Policy continuity, consistency, transparency and predictability		Targeting the right tenant firms
	Embedding AIPs in broader development strategies		Shifting the focus from fiscal to non-fiscal incentives
	Preliminary research		Lifting target firms' binding constraints
	Mobilizing long-term capital		Getting the balance of incentives and regulations right
	Getting institutional arrangements right		Getting park location right
	Applying a phased approach to park sizing and the number of parks developed		Securing land
	Flexibility and responsiveness		Providing quality infrastructure in and around the park
			Ensuring efficient trade facilitation and other bureaucratic processes
			Fostering backward linkages
			Integrating SMEs into the AIP ecosystem
			Balancing access to skills, labour competitiveness, workforce development and decent employment creation

Cross-cutting AIP success factors: leadership, institutions and management

AIPs are long-term and highly complex undertakings. Successful AIPs tend to be priority projects championed by the highest levels of government over a period of a decade or more. Strong oversight, coordination and delivery mechanisms are crucial to drive the AIP project from inception through to management and monitoring. Policy stability is important for maintaining investor confidence and alignment between the various public and private partners involved. Parks also need to be embedded in broader development strategies and plans so they do not become enclaves with no linkages to the broader economy and region.

During the implementation phase, many AIPs falter due to weak institutional arrangements. The successful AIPs are those that manage to build both a well-functioning AIP and a broader well-functioning ecosystem of firms that includes (i) the park tenants, (ii) agricultural suppliers including smallholder farmers and (iii) “supporting functions” delivered to agro-producers and processors by (mostly) domestic SMEs, training and research institutes, and specialized service providers. Finally, the most successful AIPs are able to apply a high degree of flexibility, responding to changing market and contextual realities.

Sustained high-level political leadership and effective coordination and delivery mechanisms

Ensuring AIP initiatives are embedded in the highest level of government, well-coordinated and backed by “domestic champions” is crucial to rapid implementation and project continuity of AIP initiatives (AfDB, 2021; Ughele, 2019; Aziz and el Hammady, 2017; Farole, 2011). AIPs are complex projects that require alignment between – and contributions from – many different government bodies, for example:

- various **government bodies**, eg ministries of trade, industry, finance, agriculture, land and transport; investment promotion agencies; and municipalities and district/province governments
- **financiers**, eg DFIs, MDBs, national development banks and private investors
- **private sector actors**, eg tenant firms, developers and operators
- **civil society**, eg research institutions, labour unions and industry associations
- **external supporters**, eg donor agencies, foundations, non-governmental organizations (NGOs), multilaterals the United Nations Industrial Development Organization (UNIDO), FAO and the World Bank

Many AIPs get stuck at the conceptual and feasibility stages and never get off the ground (or run several years behind schedule) due to a lack of implementation drive from senior leadership, as well as bureaucratic coordination challenges (Norman, 2020; UNIDO, 2016; Farole and Moberg, 2017; FAO, 2017). Aggarwal (2019: 43) attributes the failure of many SEZs to “clear manifestations of bureaucratic failures and the lack of technical, socio-political and economic management skills and motivations”. For example, bureaucratic miscoordination has delayed the launch and operation of Morocco's agro-poles by up to a decade (AfDB, 2015; Picard, Coulibaly and Smaller, 2017). Another example is the temporary withdrawal of the private investor in India's Western Agri-Food Park from the MFP project until government procedures causing “huge bureaucratic delays” were fixed (Aggarwal, 2015: 210).

Coordination failures between numerous government agencies are also responsible for many AIP shortcomings during implementation, including park management, delivery of infrastructure and services, streamlining of red tape and enforcement of incentives

and regulations (AfDB, 2021; Inter-réseaux, 2016; Picard, Coulibaliy, and Smaller, 2017). For instance, coordination among the multiple ministries, departments and agencies involved in delivering park-related services and infrastructure was the principal challenge for South Africa's Dube TradePort SEZ in its first five years of operation, and overcoming this has been key to its success to date (KII, Agro-Economist).

Coordination is, first and foremost, a political problem (UNIDO, 2019; Farole and Moberg 2017; AfDB, 2021). Technical coordination of multiple government bodies involved in AIPs often fails due to deeper misaligned incentives between policy-makers and bureaucrats, for example between groups promoting exports and investment and groups responsible for fiscal matters (Norman, 2020) or between AIPs and local governments (Farole and Moberg, 2017). In Ghana's Tema zone, development plans assumed that the local municipality would provide water. However, because they received neither revenue shares from, or political recognition for, the zone, they had no incentive to prioritize water provision to the zone and instead prioritized their local constituent (non-zone) residents and firms. Zone firms with water-intensive operations, such as cocoa processing, were forced to bring water in by truck at huge costs (Farole and Moberg, 2017). For South Africa's Dube TradePort, building strong relations with the host municipality – the city of Durban – was key to overcoming coordination problems. Strong coordination enables quick turnaround times, which creates an important competitive advantage. The one-stop shop service is described as the sum of good relations with a range of government entities, which also requires quick turnaround times and approvals (KII, Agro-Economist). In Malaysia, public bodies play clearly demarcated roles in the development of Prima Halal Food Park: the Office of the Prime Minister sets protocols for halal food preparation; the Ministry of Agriculture facilitates export approvals; the Ministry of International Trade and Industry provides soft loans, export incentives and manufacturing licences; and the Ministry of Science advises on environmental impacts and waste reduction (FAO, 2017).

Three elements stand out as core to the coordination efforts of successful AIPs: PIUs, political champions and high-level oversight committees.

- A **PIU** dedicated to the management of the AIP project, well embedded in relevant ministries and closely integrated with the Head of State's office is vital (AfDB, 2021; UNIDO, 2019; AfDB, 2018c; AfDB, 2019; KII, SEZ/AIP Expert; UNIDO, forthcoming; Kim, 2015). Coordinating diverse government bodies requires both technical competence and access to the highest political authority to solve coordination blockages and incentive mismatches (Kohli, 2004; Ansu et al., 2006). PIUs typically rely on significant expatriate and consultant input in the early stages of development; the most effective ones are managed by local, well-connected and highly competent leaders and gradually phase out external input through domestic staff training and learning-by-doing. In Senegal's South Agro-Industrial Processing Zone Project, a PIU attached to the Ministry of Industry (Executing Agency) is responsible for coordinating investments in the agricultural hub and implementing public sub-projects. The project performance is reported directly to the Presidency (AfDB, 2019)
- A high-level **political champion** is required who is fully invested, engaged and present throughout the AIP project cycle (from the outset and well into development and implementation); who is well embedded in industrial associations and the AIP's host city; and who has links with the park operator/manager. Such champions are best placed to craft and maintain symbiotic relationships with the diverse stakeholders involved in AIPs, while signalling to the rest of government as well as to potential investors that the AIP is a top priority (Sakr et al., 2011; Farole, 2011). Farole (2011) documents the central role of champions – typically a senior politician (often the Head of State), businessperson or both – in the success of SEZ schemes across Asia and Africa, such as entrepreneur José Poncini and Foreign Minister Gaëtan Duval in Mauritius; President Jerry Rawlings in Ghana; politician and First Son Karim Wade in Senegal; and Prime Minister Pham Van Dong in Vietnam. AIP projects often do not take off until a champion is in place, as for example with Ethiopia's IAIPs and their principal champion, Arkebe Oqubay (FAO, 2017)

(see case study). Conversely, a change in regime often results in the removal of domestic “champions” and the subsequent abandonment of the AIP policies and programmes they championed (AfDB, 2021; FAO, 2017).

- A high-level **working group or committee**, typically convened or chaired by the champion, involving the most important public and private stakeholders to set the overarching agenda and secure support for the AIP project is necessary (Dube, Matsika, and Chiwunze, 2020: 4; KII, SEZ/AIP Expert; KII, Agro-Economist); UNIDO, 2019; AfDB, 2018c; AfDB, 2019; UNIDO, forthcoming). Farole (2011: 15) recommends the “establishment of an inter-ministerial committee to oversee program development – before launching any [zone] program”. In Ethiopia, the IAIP programme is driven by a Steering Committee, convened and supervised by the Prime Minister’s Office and composed of senior officials from the Ministry of Industry, the Ministry of Agriculture, the Ministry of Finance and Economic Cooperation, the Bureaus of Industry from each region, the Agricultural Transformation Agency (ATA) and private sector representatives (UNIDO, 2020a). It meets every three months, to deliberate solely on the IAIPs under close supervision of the Prime Minister’s Office (UNIDO, 2020a)

Beyond coordination challenges, many AIP projects falter due to technical and managerial capacity shortages. Many lack the advanced human resources needed for designing and planning AIPs; managing large infrastructure development projects; delivering the services and facilities promised to prospective tenants; managing relationships with international and domestic investors (and sometimes smallholders); promoting the AIP to potential developers, operators and tenants; and enforcing AIP regulations (Norman, 2020; Zeng, 2019; Ughele, 2019; Farole, 2011; Olam, 2016). This includes generalist large-scale project execution capabilities, as well as technical specialist skills such as feasibility analyses, industrial site planning, engineering, investment promotion and aftercare, investment deal structuring and monitoring of standards compliance. One factor that undermines implementation capacity is that many park or zone developers are firms specializing exclusively in construction, which struggle to mobilize zone management and operations expertise (Zeng, 2019). Inadequate operating budgets often do not help: in Tanzania, for instance, the newly set up zone authority “was forced to operate with a skeletal staff during its first two to three years because of limited resources” (Farole, 2011: 187).

Policy continuity, consistency, transparency and predictability

A lack of policy continuity, and wavering government commitment to the initiative, is a major pitfall for industrial parks and zones in general. Zeng (2019) notes that “zones face uncertainty and difficulty when they must deal with a new government that either does not fully recognize the potential of the economic zone or does not fully acknowledge commitments made by previous governments” (Zeng, 2019). UNIDO (2019b) presents similar evidence with regard to industrial parks, adding that instability can affect investment returns and investor trust in the host country.

Consistency, transparency and predictability are critical for investor confidence, widespread political support and alignment around clear priorities (Dube, Matsika and Chiwunze, 2020; FAO, 2017; Farole, 2011). The AfDB (2021: 38) identifies the strong need for a robust and predictable legal framework regarding enforcing contracts and for the purpose of attracting and protecting investments and resolving disputes. Dinh et al. (2012) note that the development of AIPs in Africa has often been undermined by unstable policies that have resulted in year-to-year changes in the fundamental “rules of the game”. In Tanzania, for example, EPZs hit roadblocks because of “contradictions between the EPZ/SEZ incentives and TRA [Tanzania Revenue Authority] tax regulations” (Domician, 2009: 21), while the Ghanaian government made various promises around factory shells (provision of water, power and training subsidies, among others) only for those promises never to materialize, prompting a US–Korean agri-firm involved in the project to remark that they would never have invested had they known such promises would not be upheld (KII, SEZ/AIP Expert). Conversely,

China's stable political regime is frequently highlighted as a critical element in the success of its industrial parks (FAO, 2017).

Embedding AIPs in broader development strategies

First, the AIP strategy should be embedded in national economic development strategies. Dube, Matsika and Chiwunze (2020) attribute the success of Mauritius's SEZs and Malaysia's Penang Free Industrial Zone in part to the fact that, from the design stage onwards, both initiatives were closely linked with national objectives targeting investment and economic diversification (away from sugar in Mauritius's case). Farole (2011: 155) finds that "the problem with many of the African zone programs has been the failure to maintain consistent policy links between the programs and wider strategies of trade and industrialization", however noting Kenya's EPZs and Ghana's Free Zones as key exceptions.

Second, in order to be drivers of economic transformation, AIPs need to be linked to urban centres as well as to key infrastructure like ports, railways and highways (Zeng, 2019; Ughele, 2019; KII, Agro-Economist). Failing to do this has been a common pitfall, especially among EPZs (Zeng, 2019) and in low-income countries, where too often "quality infrastructure stops at the zone gates" (Farole, 2011: 12). AIPs' competitiveness will be undermined unless they can ensure that imported inputs and exported outputs can be efficiently transported via good road, rail, water and sometimes air freight connectivity (Farole, 2011). The most cost-effective way of integrating parks and zones with transport gateways is to co-locate them (Farole, 2011): this has been central to the success of South Africa's Dube TradePort agri-zone (part of Durban's "Aerotropolis") (KII, SEZ/AIP Operator), Morocco's Meknès agro-pole (close to Fes airport and Rabat–Fes highway) (FAO, 2011; AfDB, 2021) and India's Kakkanchery Food Park (good access to a national highway, Kozhikode airport, Kochi port and railways) (FAO, 2017).

Third, to have an impact on smallholder farmers, AIPs must be embedded in a broader agricultural development strategy. AIP impact on smallholders is not a given. Zeng (2019: 22) finds that "in many countries, especially in Africa, zones are often criticized for being 'enclaves' without much linkage with the local economy" (see also Aggarwal, 2019). Fostering backward linkages requires analysis of local agricultural production, including crop seasonality, constraints on productivity and post-harvest challenges, to name a few, as well as proactive strategies to tackle these constraints (KII, SEZ/AIP Expert; Zeng, 2019). Clearly this goes beyond the mandate of AIPs and lies instead in the domain of a broader agricultural development strategy (Farole, 2011). AIPs should, for example, focus on the same value chains as those that are the priority of government policy in a given region.

Preliminary research

The quality of preliminary research has deep consequences for AIP performance. Pre-feasibility and feasibility studies first inform a yes–no decision regarding AIP development, and should later guide design elements such as site selection, institutional arrangements, value chain targeting, infrastructure and service provision (FAO, 2017). One of the most important elements of an AIP feasibility study is a demand analysis to establish the specific market opportunity that the AIP(s) will be responding to, in terms of goods produced by tenant firms and services and infrastructure required by tenant firms (UNIDO, 2019b; Norman, 2020; Olam, 2016; AfDB, 2021). Without a clear idea of where the AIP's potential competitive advantages lie, it will be difficult to attract private investment (KII, SEZ/AIP Expert; UNIDO, 2019b; Norman, 2020; Olam, 2016; AfDB, 2021). A second key element is the analysis of raw material supply. Many AIPs do not establish a contingency plan for ensuring the steady supply of primary inputs from producers, considering crop seasonality and yield fluctuations (KII, SEZ/AIP Expert). Therefore, "careful analysis and planning are required so that the park design fits with the spatial interplay of the different agri-food chains, allowing for the attainment of substantial cross-chain manufacturing, logistics and ecological improvements" (FAO, 2017: 134).

Two examples highlighting the importance of high-quality preliminary research come from Cambodia and India. A private AIP in Cambodia focusing on rice and silk processing struggled to become profitable because of inconsistent raw material supplies from outgrower farmers who had volatile year-on-year yields. Stronger preliminary research might have shown that the prevalent yield volatility would make the targeted processing activities financially unviable (KII, Former AIP Operator). India's Scheme for Integrated Textile Parks (SITP) struggled because "the [textile and cotton] value chains are highly fragmented and thus it is difficult to consolidate these in a cluster format" (Kabir, Singh and Ferrantino, 2019). In response, Kabir, Singh and Ferrantino (2019: 32) propose "mapping the whole domestic T&C value chain on the basis of comparative cost advantage of states and identifying selective activities which can be clustered in one particular state."

At least as important as the quality of preliminary research is the extent to which it is actually taken into account in AIP planning and development. As illustrated by the choice of park location, host governments are more often swayed more by political considerations than by technical recommendations set out in preliminary research (Norman, 2020; Farole and Moberg, 2017; Farole, 2011). According to Ugehele (2019), African SEZs often fail because they are approved without a strong business case. There is a particularly strong trend to establish one park or zone in each region, district, province or state – a decision that is based on political rather than economic considerations (Farole, 2011; KII, SEZ/AIP Expert; Farole and Moberg, 2017). This has been observed in South Africa (with 13 planned zones, at least one per province); Lesotho (which invested in remote zones even as industrial estates in and around the capital were financially constrained); Mali (where the government considered establishing 12–19 agro-poles across different agro-ecological zones, despite some being conflict-ridden areas that will attract little private investment); and Ethiopia (one IAIP placed in each major regional state – Amhara, Oromia, Tigray and Southern Nations, Nationalities and Peoples (SNNP) – contrary to the sites recommended by FAO value chain analyses on the basis of competitive potential) (Farole and Moberg, 2017; FAO, 2017; Dube, Matsika and Chiwunze, 2020; KII, Agro-Economist). But AIPs in the most peripheral regions almost always fail to attract investment: few countries can properly address the infrastructure connectivity, labour skills and supply access these regions lack (Farole, 2011; Farole and Moberg, 2017).

Box 2: Political over economic considerations in EPZ placement in Bangladesh

Farole (2011: 210) describes an example of political considerations trumping economic ones in EPZ placement in Bangladesh:

"While the first two EPZs – in the main cities of Dhaka and Chittagong – and the recently established zones along the Dhaka-Chittagong corridor have been successful in attracting investment, BEPZA [the Bangladesh Export Processing Zones Authority] also has three zones in the northern (Uttara EPZ) and western (Ishwardi and Mongla EPZs) parts of the country that are almost empty, despite significant additional incentives offered to investors, including a 50 percent subsidy on the already below-market land lease and factory rental rates and a 30 percent cash incentive for investing in agricultural-based industries. These three zones are all located more than 600 kilometres from the international port and hundreds of kilometres from Dhaka; the poor transport infrastructure makes it difficult to get goods in and out. In addition, availability of reliable electric and gas supplies is a major problem, and these remote locations lack manufacturing clusters, making access to supplies problematic."

This highlights a broader tension between distributional and developmental considerations that has been discussed at length by the literature on the political economy of industrial policy (eg Amsden, 2001; Whitfield et al., 2020). Distributing economic benefits to different groups in society is often genuinely critical for maintaining political stability (a prerequisite for investment attraction), but may also be a manifestation of opportunistic rent-seeking (Amsden, 2001; Whitfield et al., 2020). Given the inevitability of political factors affecting AIP planning decisions, the best outcome is thus a dynamic "negotiation" between technical and political considerations. For instance, government

bureaucrats, consultants and development partners can: (i) present compelling evidence to the political decision-makers to highlight the cost of ignoring technical and economic feasibility in park location decisions; and (ii) present “incentive-compatible” recommendations that take certain political conditionalities as given (eg “each major region must get at least one park”) and advise on the technically best solution within those bounds. This requires a high level of trust and openness between the key politicians and their technical advisors.

Applying a phased approach to park size and AIP scheme size

Many AIPs get park sizing wrong, with detrimental consequences; they should start modestly and plan for expansion with demand (FAO, 2017). Parks that are too small may not reach the economies of scale required or have the desired impact on the local economy, while also potentially facing congestion and waste disposal problems, and tensions between existing and potential tenants for space (FAO, 2017; Aggarwal, 2005; World Bank, 2017). Parks that are too big, on the other hand, may not fill up and can create conflicts with surrounding communities (Aggarwal, 2005; FAO, 2017), such as those between the Kigali government and local communities (KII, SEZ/AIP Expert). Examples of oversized AIPs include Senegal’s Dakar Industrial Free Zone (69 of 600 ha developed) and Nigeria’s Calabar Free Zone (50 of 200 ha filled with active firms) (Farole, 2011). Some of India’s SEZs have been deemed too small and some Chinese industrial parks too sprawling (Kabir, Singh and Ferrantino, 2019; FAO, 2017). The most commonly proposed best practice is a phased or “multistage implementation process in successive phases to allow for the expansion of current and new tenants, or to dedicate (more) space to already existing/new uses (introduce R&D space, residential areas, etc)” (FAO, 2017: 157; Norman, 2020; UNIDO, 2019). Crucially, a phased approach requires that land is secured for eventual expansion ahead of time (FAO, 2017).

The same goes for the AIP scheme as a whole: a common recommendation is to start with one or two pilot parks to prove the concept and to build momentum before proceeding in incremental stages to expand the scheme (FAO, 2017; Zeng, 2019; CDE, 2012). Zeng (2019: 20) notes that “many low-income countries start with 10 or even 20 zones all at once; this is a recipe for failure”. In Tanzania, 25–30 zones were planned across the country and locational designations were made even before feasibility studies were carried out and before the first zone was populated (Farole and Moberg, 2017). Kweka (2018: 18) recommends that the Government of Tanzania “select low-hanging fruit zones as quick wins to accelerate progress, thus creating momentum for developing other zones and providing a demonstration effect.” Successful cases include South Africa, which invested in two zones initially to build momentum (CDE, 2012), and China, which “started with only four zones at very strategic locations, and only rolled out programs in the broader economy after these initial zones (especially the Shenzhen zone) were successful” (Zeng, 2019: 20).

Mobilizing long-term financing

AIPs require long-term patient capital, which is often not available. Experience shows that it takes over 10 years to design, develop and fill an AIP under normal circumstances (Norman, 2020; FAO, 2017). In the first phase of AIP development, state and DFI financing is typically needed to set up common infrastructure and to offer an attractive package to pioneer investors (Olam, 2016). Once an AIP is starting to become a profitable venture (typically after five years) and has a functioning ecosystem, a new wave of investors willing to pay will arrive (Olam, 2016). However, many AIP projects are delayed or derailed due to these financing constraints, as seen in Ethiopia (where it took longer than expected to mobilize the “significant resources” needed) (UNIDO, 2020a) and in India (where many agro-park developers surveyed complained about the high cost of borrowing and high collateral requirements) (ICRIER, 2015).

The most popular option for overcoming this financing constraint is to combine public with private capital through a PPP (Monga, 2011; FAO, 2017; Tyson, 2018). PPPs can take the form of build–operate–transfer models, performance-based management contracts or turnkey (modified design–build) contracts (Datamation, 2018; Tyson, 2018). India’s MFP

scheme moved away from a public owned model to a PPP that focused on private investment attraction and foreign knowledge sharing, with the government retaining only a 26% stake (FAO, 2017).

Another approach is private–private co-financing, whereby the private AIP operator and the tenant companies pool their resources once the technical and production infrastructure is in place (FAO, 2017). Short of a full PPP arrangement, public (and donor) funds could be used to guarantee or de-risk private investment in AIP infrastructure and facilities (Ravensbergen et al., 2013). The advantages of purely private financing include “freedom of action, ability to make agile decisions and capacity to tap additional financial resources of the private investor *vis-à-vis* the public sector” (FAO, 2017: 162). Disadvantages, however, include “lengthy investment competition processes and bureaucratic obstacles related to codecision procedures (ie involving the private investor and administration units or state)” and political as well as commercial risks that may discourage private investors (FAO, 2017: 162).

Getting the institutional arrangements right

There is a growing consensus that government-managed and operated AIPs tend to fail or underperform most often (UNIDO, forthcoming; KII, Agro-Economist; Farole and Moberg, 2017; AfDB, 2021; Norman, 2020; CDE, 2012). Monga (2011) cautions that parks developed, regulated and operated by public entities may face a lack of expertise and inadequate institutional arrangements that lead to conflicts of interest and political capture (see also FAO, 2017). Advantages of private developers/operators include: (i) some distance from political factors, for example in park location choice; (ii) stronger commercial incentives to deliver genuinely valuable services to tenant firms; (iii) a general preference for smaller, more manageable parks or zones, flexibility and gradual growth approaches; and, most importantly, (iv) stronger capacity in industrial park management than most low-income country governments can mobilize internally (Farole, 2011). A review of eco-industrial parks found that those managed by PPPs and the private sector show a higher average performance than parks managed solely by the public sector (van Beers et al., 2020). Dumayas (2018) found that, between 1995 and 2015, investment flows into private SEZs in the **Philippines** grew by 150% versus 70% for public SEZs.

However, **private sector operation is no guarantee of success**. Ghana’s zone programme, for example, pioneered the PPP approach to industrial park development in Africa, but “paid a heavy price for selecting the wrong private partner to lead its flagship free zone project at Tema ... neither the private developer nor the Ghana Free Zones Board delivered on what the other party expected, and this quickly resulted in finger-pointing” (Farole, 2011: 194). Indeed, the World Bank’s (2017b) regression analysis of 250 SEZs in 23 countries found no statistically significant correlation between management structure (public/private/PPP) and SEZ performance.

This suggests that outcomes are determined not so much by *who* owns and runs an AIP as *how* they manage it: their objectives, incentives and capacity (World Bank, 2017; Farole, 2011). Whether the agency that operates the park is public or private, striking the right balance between autonomy and accountability is important. On the one hand, operators can be responsive to on-the-ground realities (Zeng, 2019) and distance themselves from political interference (Farole and Moberg, 2017) when they have a level of operational autonomy from the political overseers. On the other hand, “while zones may enjoy a certain level of flexibility, they also need to be held accountable for the intended results, measured rigorously against the pre-set targets, and benchmarked across different zones” (Zeng, 2019: 20). Nevertheless, it can be counterproductive to make these performance requirements – such as investment and job creation targets – too stringent: as long as the preliminary research is rigorously taken into account, some argue that operators should be given a long grace period to reach performance targets due to the raft of external factors – from COVID-19 to locust invasions – that affect outcomes (KII, SEZ/AIP Expert).

Flexibility and responsiveness

AIP performance depends on the capacity of host governments, operators and tenant firms to monitor performance effectively and to respond dynamically to changing economic realities (Aggarwal, 2019; Saleman and Jordan, 2014). When constant feedback mechanisms are in place during the implementation phase, public sector actors can be more agile in their response to changing realities on the ground and private sector feedback; a flexible legal regime is therefore important to facilitate this (Saleman and Jordan, 2014; Farole and Moberg, 2017). While the broader policy environment in which a park or zone is situated should be predictable, “pragmatism and flexibility are the most commonly cited features in countries where zone programs have been successful” (Farole, 2011: 156). Aggarwal (2019) agrees that SEZs should be imbued with “strategic dynamism”, which includes M&E procedures to facilitate learning-by-doing. Effective M&E is integral (1) to enforce regulations effectively to tackle negative externalities (eg environmental, labour disputes and revenue mobilization constraints); (2) to determine whether programmes have been successful; and (3) to make informed decisions about future investment and to respond to the changing needs of investors and of the government (FAO, 2017). Vietnam's zone programme, for instance, was implemented on a pilot basis, maintaining regulatory flexibility and testing alternative models, approaches and policies in different zones, often with different foreign partners (Farole, 2011).

Attracting firms and achieving AIP developmental objectives

Investment attraction into AIPs must be understood in conjunction with broader AIP performance against developmental objectives: investment in AIPs is a means to an end (eg job creation, export growth and smallholder incomes), not an end in itself. This section identifies and discusses the most important factors for attracting (the right kind of) investment into AIPs and ensuring that investment contributes to the AIP's developmental objectives.

In many cases, the factors that attract firms are the same that help AIPs achieve their broader developmental goals. Attracting firms is about giving park tenant firms what they want: access to raw materials, a low cost of doing business, access to markets and stability. Ensuring AIPs achieve their developmental goals is about making the AIP ecosystem work: productive farmers, competitive agro-processors and supporting functions, conditions supporting decent work and quality of life as well as environmental sustainability, and strong links between the ecosystem actors.

Thus, when attracting firms, AIPs should prioritize areas where the interests of tenant firms and the AIP's development objectives overlap. This includes offering firms a secure, low-cost piece of land in a park located strategically close to raw material and labour supply centres, trade and transport routes and key demand centres; high-quality and competitively priced internal and external infrastructure and services; efficient trade facilitation and other bureaucratic processes; access to skilled labour; and, crucially, a chance to operate within a well-functioning cluster of potential clients, suppliers, service providers and partners. The evidence suggests that solving firms' binding constraints is more effective – and more attractive to firms – than handing out blanket tax exemptions that deny the government critical revenues.

In some cases, there is a tension between what tenant firms want and what is good for the AIP ecosystem. Excessive exploitation of farmers and factory labour may save costs, but is not a desirable development outcome; environmental protection is not a priority for short-sighted firms; and long-term learning-by-doing to develop new value-added capabilities is at odds with short-term value extraction. The first step in tackling these tensions should be to attract investment from those firms whose objectives are already closely aligned with those of the AIP: firms that want to invest in the host country long-

term, source local agricultural output, hire and train local staff, reinvest to upgrade local operations and break into export markets, and so on. Second, AIPs should hold their tenant firms accountable: this can best be achieved by negotiating mutually acceptable targets (eg site development, production, local sourcing and local hire targets), adjusting these in light of unforeseen circumstances and ensuring that firms are under credible pressure to perform against these targets, for instance by demonstrating a credible threat of the withdrawal of AIP privileges. Critically, this performance pressure is most credible when the AIP itself is effectively delivering what it has promised.

Balancing the business environment outside and inside AIPs

Some factors must be in place at the national level to attract investors, but the business environment inside AIPs must set them aside from the rest of the economy in order to be attractive and, indeed, necessary. Some base level in the national business environment is required to attract investors into the country and to ensure value-added activities are sufficiently profitable for firms to survive, grow and compete internationally. Zones and parks perform better in countries with large domestic and regional markets for value-added agro-products and in countries with good core infrastructure, a secure national investment climate, macroeconomic stability, general competitiveness and pre-existing industrial experience (Farole, 2011; World Bank, 2017b; KII, SEZ/AIP Expert). However, if the business environment inside an AIP is the same as the business environment outside it, firms are unlikely to see much advantage in relocating there (Norman, 2020), and if the business environment can be improved across the entire economy or even entire sectors, parks and zones become largely unnecessary (Zeng, 2019).

AIPs should be seen as islands of effectiveness and competitiveness. Resource-poor governments in developing countries cannot address all business environment constraints in the entire national territory. Hence, they must prioritize which constraints to tackle and where. The fundamental task of an AIP, then, is to address the most important business constraints for firms in target sectors within the park and in its immediate surroundings (Farole, Baissac and Gauthier, 2013). If they achieve this, they simultaneously make a dent in the generally weak business environment, enabling at least some firms in some locations to enter new value-adding activities and to become internationally competitive, while also attracting firms into a common location and stimulating agglomeration effects, which further enhance the local business environment for those firms as well as the surrounding communities and farmers.

The World Bank (2011) documents how several countries have addressed the most important aspects of their generally weak business environments within AIPs, thus differentiating AIPs from the rest of the country. For example, Nigeria's Free Trade Zone programme "offers a much more attractive operating environment for firms than outside the zone", significantly "reducing the percentage of sales lost due to the bad investment climate in Nigeria"; and in Ethiopia, the issues created by the country's generally poor Doing Business indicators (including the difficulty of acquiring land and of exporting) "are significantly reduced in a 'professional SEZ environment'" (World Bank, 2011: 43–58).

Targeting the right tenant firms

There are specific types of firms that successful AIPs tend to target and whose presence in turn attracts other firms into the park: anchor firms, firms providing supporting functions and domestic firms.

- **Anchor firms:** The presence of one or a few larger-scale "anchor" firms in an AIP often attracts other firms seeking to build strong input supplier, buyer or service provider relationships with them (Palladium, 2019; FAO, 2017). Anchor firms can offer a channel for technology transfer, knowledge diffusion and supply chain finance for smaller firms (UNIDO, 2019b). The lead anchor firm should be a globally recognized

investor that can drive other investors to the AIP (KII, SEZ/AIP Expert). In Gabon, Olam is the developer of GSEZ Nkok and also a major agribusiness player with 280,000 ha under development, covering palm and rubber plantations and a grain programme (Olam, 2016). The anchor firm approach has been successful in industrial parks more broadly, as is well documented with respect to Vietnam's efforts attracting Canon, Samsung, Panasonic and Intel; the Philippines' success in attracting Texas Instruments into Baguio City SEZ; and Costa Rica's ecosystem built around the core presence of Intel, to name a few (CDE, 2012; Farole, 2011; Stucki et al., 2019)

- **Agro-allied firms:** Also important for making an AIP attractive is the presence of so-called "agro-allied" firms (or "supporting functions" in market systems terminology) providing key ancillary inputs and services to agro-processors. Several authoritative reviews and guideline documents for AIPs propose a balanced mix of tenant firms, including agro-processors but also firms providing professional, scientific and technology-related services, machinery spare parts and repair, component parts, material inputs, transport, marketing, agronomy services and others (FAO, 2017). One well-documented example is that equipment spare parts and repair services have been key constraints for the functioning of AIPs and their tenant firms, for instance in Cambodia (KII, Former AIP Operator) and Vietnam (Stucki et al., 2019): this has had knock-on effects when dealing with the maintenance of production lines, especially with perishable food processed in agro-food parks (KII, Former AIP Operator). Clustering of agro-processors in AIPs can make these services and goods viable thanks to a large demand centre in one location. The presence of agro-allied firms, in turn, enables the viability and competitiveness of agro-processing firms and is thus a key factor in attracting prospective tenant firms (see Box 3). However, some state-supported or donor-supported stimulation is typically required to unlock this virtuous cycle. One strategy touted by UNIDO (2019b) is the facilitation of specially catered financial solutions for agro-allied companies via onsite financial institutions
- **Domestic firms:** Domestic SMEs are often either excluded intentionally or pushed away unintentionally via the type of screening process used by AIPs, such as the use of capital or profit benchmarks (KII, SEZ/AIP Expert). An AIP dominated by foreign firms is at greater risk of becoming an enclave with little impact on the local economy (Picard, Coulibaly and Smaller, 2017; FAO, 2017; Monga, 2011). Further, privileging international firms over domestic firms "might generate a negative perception of the park, which could be seen as a privileged enclave for influential multinational agribusinesses that have good connections with local politicians" (FAO, 2017: 158). Indeed, the World Bank's (2017b: 60) regression analysis of SEZs found a "negative correlation between the foreign ownership requirement and SEZ performance." The removal of foreign ownership requirements is thus seen as a best practice (OECD, 2009). The shift from foreign to domestic firms can be gradual. Farole (2011) observes that the tenant firm populations of zones have shifted from largely FDI to largely local investors over the medium term in Malaysia, Korea, Mauritius and China and that a similar process is underway in Bangladesh and Vietnam, but not yet evident in most of Africa. The FAO (2017: 158) suggests introducing "a system of checks and balances to avoid discriminating against domestic (or, by the same token, against foreign) firms"

A careful balance must be struck between inviting the right firms and filling the AIP quickly. AIPs are sometimes advised to fill a significant portion of the park units quickly to catalyse further investment via a "domino effect", as well as by building the critical mass needed to begin harnessing agglomeration effects (Norman, 2020; KII, DFI Personnel). To do this, AIPs are advised to be open to various agro-processing and other light manufacturing activities instead of insisting on a narrow set of subsectors (Norman, 2020; KII, SEZ/AIP Expert). However, carefully screening potential investments (eg for basic commercial viability; intention to source local inputs; complementarity with other tenant firms; knowledge spillover potential; local reinvestment ambitions; projected environmental impact; etc) reduces the risk of failure and ensures investors are aligned with the park's developmental benefits. How to

balance “broad” (across-sector) versus “narrow” (within-sector) agglomeration effects is highly dependent on context. Knowledge spillovers are often “fungible” or non-sector-specific: for instance, a factory floor supervisor or an outgrower scheme manager can move from a mango juice factory to a cooking oil producer with relatively low adjustment costs. More broadly, generalist industrial “project execution capabilities” can be transferable from agro-processing to other light manufacturing or vice versa (Amsden, 2001). However, some agglomeration effects – such as opportunities for shared facilities or the use of one factory’s by-products as inputs by another plant – are clearly lost when clusters are not sector-specific (CDA, 2021). Many investments in AIPs fail for reasons that could have been identified prior to the commencement of operations (Picard, Coulibaly and Smaller, 2017; Tyler and Dixie, 2012; UNCTAD and World Bank, 2014). Farole (2011: 205) finds that the “misplaced desire to fill up the space in the zone as quickly as possible” leads to quality foregone for quantity, with negative implications including: (i) investors failing to operationalize their development plans; (ii) the zone filling up with investors who are not aligned with the zone’s developmental objectives; (iii) limited clustering, economies of scale, knowledge spillovers and supplier linkages due to a disparate set of firms locating in the zone (see also FAO, 2017); and (iv) low-quality tenant firms repelling high-quality would-be investors.

Shifting the focus from fiscal to non-fiscal incentives

AIPs have utilized a wide range of fiscal and non-fiscal incentives to attract agro-industrial firms to establish production facilities in the parks (UNIDO, 2019b; AfDB, 2021; FAO, 2017). The most commonly used fiscal incentives are exemptions or reductions on income and value-added tax and exemptions on import duties, typically for imported inputs used for the manufacture of exported products. Non-fiscal incentives include preferential treatment in customs clearance, reduced bureaucratic complexity and delays through one-stop shops, free profit repatriation, special foreign exchange regulations and access to free or subsidized land, among others. They also include access to a wide range of dedicated infrastructure and services, including utilities, waste management, emergency services, factory shells, shared machinery and warehousing, training institutes and R&D labs, and so on.

There is mounting evidence suggesting fiscal incentives, especially income tax breaks, may attract some investors in the short term but are an ineffective tool for making AIPs and SEZs work in the long term. Some authors stress the role of fiscal incentives in attracting investors (Rolfe et al., 2004; Aggarwal, 2005), but this view is no longer widely supported. Fiscal incentives alone have been shown to have no statistically significant impact on zone performance (either in terms of attracting investment or in terms of achieving developmental objectives such as job creation) (World Bank, 2017b). Similarly, Farole (2011) finds no significant correlation between fiscal incentives and SEZ performance. Instead, “the data show a strong correlation between infrastructure quality and the levels of investment, exports, and employment in zones” (Farole, 2011: 4). Trade facilitation (logistics, transport, trade-related infrastructure and regulatory and commercial procedures) shows a similar positive correlation with outcomes.

Many authors and policy advisors now call on parks and zones to move away from relying on tax breaks and to focus instead on providing valuable services and infrastructure to tenant firms (Olam, 2016; Norman, 2020; Farole, 2011; World Bank, 2017b; COMCEC, 2017; Zeng, 2019; Domician, 2009; World Bank, 2008; KII, SEZ/AIP Expert). First, blanket tax holidays and exemptions do not compensate for an uncompetitive business environment. Farole (2011: 173) notes, for example, how Senegal’s first SEZ programme “relied on the idea of creating a tax-free paradise for foreign investors, but it failed to deliver on the factors that allow companies to operate competitively. If they are not competitive, they will not be profitable; and without profits, there is little benefit in a corporate tax waiver.” Second, fiscal incentives are “sticky” in that they are difficult to reverse and reliance on them leads to distorted investor behaviour and expectations (Farole, 2011). This in turn often leads to a “race to the bottom” in which different industrial parks and zones, or

different countries' park and zone schemes, compete to attract investors purely based on tax breaks (AfDB, 2021; Farole, 2011, Farole, Baissac and Gauthier, 2013; Norman, 2020). Third, reliance on tax breaks can be a drain on government coffers as they represent large foregone tax revenues (COMCEC, 2017; Farole, 2011; AfDB, 2021). Governments thus risk depriving themselves of the very resources they sorely need to provide the infrastructure and services that would help make value-added activities genuinely competitive (KII, SEZ/AIP Expert; KII, SEZ/AIP Expert; Farole, Baissac and Gauthier, 2013). In **Tanzania**, for instance, two studies found that the foregone tax revenue associated with EPZs had a net-negative effect on national welfare, with only foreign investors gaining (Rolfe et al., 2004; Matambalya, 2007), and EPZ tax exemptions cost the country an estimated 10% of projected annual domestic revenue (Domician, 2009).

Lifting the binding constraints on firms

Successful AIPs focus on lifting the binding constraints on target firms rather than on applying a “cut-and-paste” approach to incentives. AIPs are most successful when they are responsive to the target firms' needs, constraints and investment drivers. Unless the AIP lifts one or more of an agribusiness's binding constraints via tailored solutions (CDA, 2012), it is unlikely to be attracted into the park (FAO, 2017; Farole, Baissac and Gauthier, 2013). So, in designing the incentive scheme, it is crucial to understand the binding constraints and investment drivers of target firms (Ughele, 2019). Farole (2011: 159) shows that SEZ planning should be approached “from the standpoint of the investor” and with “direct input from existing and potential investors, through surveys, focus groups, interviews, and so on”, a process that will help policy-makers understand investors' decision-making processes and reveal sector-specific investor needs (Farole, 2011). Indeed, a lack of government understanding of private sector drivers and decision factors is a commonly cited pitfall for AIPs, including Nigeria's Tinapa AIP (sometimes called a “white elephant”) (Norman, 2020). Similarly, Aggarwal (2005) criticizes Indian state governments for treating MFPs as they would any other industry and not taking into consideration the unique requirements of each industry, from cold storage facilities to specialized technical services.

Being responsive to the specific needs and constraints of existing and prospective AIP tenant firms requires a strong private sector participation strategy (UNIDO, 2019b; Norman, 2020; Olam, 2016). The success of Gabon's Nkok SEZ has been in part attributed to the presence of a customer-centric team to attract investors as well as to provide aftercare services, constantly understanding the needs of tenant firms. The Indian SITP's relative success is in part ascribed to the early and continued involvement of tenant firms in the parks' management (Aggarwal, 2015; Saleman and Jordan, 2014). In Africa, Lesotho is cited as a relative success case in this regard, due to its success in ensuring private sector representation in the Lesotho National Development Corporation (LNDC), which oversees parks and zones. The fact that the private sector constitutes the majority of LNDC's Board of Directors, combined with the presence of a well-established and functioning Lesotho Textile Exporters Association, has enabled effective public–private dialogue and led to practical and responsive government action to lift the sector's binding constraints (Farole, 2011). In Bihar, India, AIP investor confidence was boosted by a successful dialogue initiative in which investors were invited to a workshop and a private sector led working group through which the most important policy blockages were expressed and then addressed by the government (KII, SEZ/AIP Expert).

AIPs alone cannot be expected to address all of the binding constraints on agribusiness. Morocco's success in attracting over US\$ 10bn in agribusiness investment between 2008 and 2018 has been attributed to its efforts under the “Green Plan” to identify binding constraints to agro-industries and to deliver targeted reform programmes to tackle these constraints. In response to the first constraint, access to finance, it established the Agricultural Development Agency (ADA) to promote private investment in the sector. In response to the second, the lack of export-ready produce, it created a National Authority for Food Security and Safety to regulate phytosanitary products and traceability. In response to

the third constraint, farm productivity, it launched the National Agricultural Extension Agency responsible for delivering training and advisory services to producers (ADA, 2018).

Incentives and performance requirements: getting the balance right

One success factor related to how AIP incentive schemes are designed lies in the combination of incentives and performance requirements. It is well established in the industrial policy literature that a mix of incentives and performance requirements is needed to both support and induce firms and investors to invest in the continuous learning-by-doing needed for firms to develop internationally competitive productive capabilities and upgrade into higher value-added activities (see eg Amsden, 2001; Studwell, 2013). These regulatory “reciprocal control mechanisms” typically distinguish countries that have succeeded with state-led development strategies from those that have offered similar incentive packages but have failed to sustain the momentum of structural change (Amsden, 2001).

In the context of AIPs, a park may provide generous (and costly) fiscal and non-fiscal incentives to attract multinationals, but these investments may have little impact towards the country’s economic transformation unless investors are under some credible pressure to target gradually greater value addition and domestic linkages.¹³ In order to ensure that AIP incentives serve the park’s developmental objectives and that investors do not “undercut the country’s development goals”, they need to be tied to productive performance (AfDB, 2021; KII, Agro-Economist). The most basic requirement on investors is a “use it or lose it” requirement whereby land and tenancy is withdrawn if an investor fails to develop their allotted land after a certain period, as is very common in AIPs (KII, SEZ/AIP Expert). During operation, performance requirements or targets agreed with AIP tenants can include basic ESG standards but often go beyond this into production, high-quality export, decent employment or technology learning and upgrading targets, as well as local sourcing, local ownership and local staff training requirements (AfDB, 2021; FAO, 2017; World Bank, 2017b). Kladaki and Cai (2020) point out that, due to the lack of regulation and performance requirements related to Cargill’s US\$ 113m investment to expand cocoa processing sites in in the Yopougon (Côte D’Ivoire) and Tema (Ghana) agro-zones, the firm is unlikely to expand into full packaging and other higher value addition activities. Another example of “carrots without sticks” also comes from Côte d’Ivoire, whose pioneer agro-zone was fully allocated but, because land was heavily subsidized, tenant companies had leased more land than they needed, so much of the land remained idle. The Minister of Investment eventually responded by tripling zone rents. He could also have enforced a “use it or lose it” rule and potentially other performance targets to push the existing tenants to either develop or relinquish their excess land (KII, SEZ/AIP Expert).

Stringent targets – particularly export requirements – are increasingly criticized (Ughele, 2019). First, export targets are sometimes inconsistent with WTO and other international trade rules and agreements (KII, SEZ/AIP Expert; Farole, 2011). Second, stringent export requirements often fail to have the economic transformation impact they intend to have (Zeng, 2019). This is because they effectively preclude forward linkages into the domestic economy, limit the market potential of agribusinesses that may be more competitive on the domestic market, and thus do not foster gradual learning-by-doing to enter and upgrade within global and regional value chains (Norman, 2020; Farole, Baissac and Gauthier, 2013; CDA, 2020; KII, SEZ/AIP Expert). The World Bank (2017b: 112) regression analysis found that “Export Promotion (or Free Trade) Zones experienced limited spillovers” and shows that “imposing an export requirement is negatively correlated with growth in the surrounding area throughout.” Third, while parks and zones focusing on exports have worked for some countries (eg Mauritius, Bangladesh and Vietnam), this is only the case for a very small set of sectors including textiles and flowers, but less well-suited for food processing (Zeng, 2019; KII, SEZ/AIP Expert). Firms in Uganda’s and Tanzania’s free zones are required to export at least 80% of their output *outside the EAC*, meaning they cannot take advantage

¹³ Te Velde (2001) makes this argument about FDI in general.

of the domestic and regional (their most important) market opportunities for agro-processed goods (CDA, 2020; Kweka, 2018). Policy proposals have been put forward to either reduce the requirement to 50% or to take a more case-by-case approach to negotiating gradually increasing targets with firms (CDA, 2020). By focusing more on domestic markets, AIPs can foster a virtuous cycle between the labour employed in the park, the rural catchment zones and the market towns and cities attached to parks by boosting domestic production of key wage goods, domestic wages and domestic demand for those wage goods (eg value-added food products) (Cramer, Sender and Oqubay, 2020; AfDB, 2021).

South Africa’s Dube TradePort SEZ takes a flexible approach to reciprocal control mechanisms. Zone licences are issued based on approved business plans, which then form the basis of a continuous process of joint target-setting between the firm and the zone operator (a state-owned corporation) (KII, AIP Operator). When circumstances change – COVID-19 is the most striking example – targets are jointly adjusted. The firm is thus constantly accountable to the zone authority to focus on strengthening its competitiveness, growth and local linkages, but targets remain attainable and conducive. Importantly, a strong reciprocal control mechanism also requires that the park or zone authority should be dedicated to lifting the binding constraints that hinder tenant firms from achieving agreed targets.

Box 3: Beyond tax breaks, what do agro-processors want?

- **Strategic location:** Depending on their core activity, firms prefer being close to (i) agricultural production zones (farmers), (ii) trade corridors (roads, railways, airports, ports), (iii) labour hubs (eg peripheral zones where wages are low) and/or (v) markets (towns and cities where demand is concentrated)
- **Secure land:** Avoiding potential land conflict is a major investment draw in many countries with complicated and insecure land tenure systems
- **Quality infrastructure in and around the park:** Firms want access to affordable and reliable power, water, waste management, factory shells, truck depots, transport connections, etc
- **Efficient trade facilitation and other bureaucratic processes:** Easy, quick and predictable investment licensing, business registration, customs clearance, compliance certification and tax processing are game-changers, especially in environments where these processes usually involve bribery, reliance on personal contacts, long waiting times and unclear requirements
- **Access to inputs:** Agro-processors need access to competitively priced, quality agricultural output at sufficient and predictable quantities for their business model to be viable – when sourcing from smallholders, this often requires a range of interventions from agro-inputs and agronomic advice to efficient aggregation and contract enforcement
- **Access to supporting functions:** From agro-dealers that supply quality seeds and fertilizers to machinery repair services and testing laboratories, agro-processors are drawn to locations where their service needs can be met quickly, competently and affordably
- **Access to labour:** Agro-processors need a mix of cheap and trainable manual labourers and competent and trustworthy managers (and sometimes agricultural extension workers); the closer and happier they are, the better

Getting the park location right

Location is one of the most crucial decisions in the positioning strategy of an AIP. Several studies have found that AIP or SEZ performance is strongly linked to location (Aggarwal, 2005; Zeng, 2019; World Bank, 2017) and others have pointed out the strategic role of site location (World Bank, 2008; AfDB 2015; FAO, 2017). There are delicate balances to strike when it comes to AIP location. Successful zones tend to be located in poorer, more peripheral areas with access to cheaper land and labour and close to raw materials, but with good access to the primary city and other demand centres, as well as being close to airports, ports and other logistics hubs (World Bank, 2017b; Gálvez-Nogales, 2011; AfDB, 2021; FAO, 2017; World Bank, 2009; Kim, 2015; Aggarwal, 2005; Locus Economica, 2020).

The locational competitiveness factors of agro-processing firms differ based on the cost structures of different processing activities (Aggarwal, 2015). For manufacturers of

fragile and perishable food items (eg bakeries and milk processors), proximity to urban demand centres and good external infrastructure and logistical services are crucial competitiveness factors because distribution is the major cost driver. For manufacturers of non-fragile and non-perishable food items (eg flour milling and fruit canning), proximity to raw material supplies is crucial to lower procurement costs. Finally, Aggarwal (2015) identifies “footloose firms” that do not have a cost structure based primarily either on input or on distribution costs (eg spices, breakfast cereals, biscuits), and which prefer to be close to a pool of trained potential employees, business services and good transportation links.

The central role of location choice in determining industrial park and zone outcomes is well documented. For example, the Bataan EPZ in the Philippines was so remote that it had attracted almost no investors even 16 years after its founding, despite almost US\$ 200m having been invested in upgrading the port, roads and other infrastructure (Moran, 2011). The Bataan case shows that, while poor infrastructure is a commonly cited reason for SEZ failure, more infrastructure investment is not a solution if the SEZ is poorly located (Farole and Moberg, 2017). Similarly, Nigeria’s first two EPZs – Calabar and Kano – had fewer than 20 active tenant firms together after more than a decade because both were located “far from the main commercial areas where foreign investors are likely to locate and far from operating ports” (Farole, 2011: 212). The lesson has been learned: most of Nigeria’s new zones are near Lagos or Port Harcourt (Farole, 2011). India’s Kakkanchery Food Park is close both to farmlands and to the cities of Calicut and Kozhikode, and thus strategically located close to raw inputs, labour and consumer pools. It also has good access to road, air, water and rail infrastructure and to higher/further education hubs, as well as to existing clusters around rice, flour, spices, coconut oil and soda water (FAO, 2017).

Securing land

Land security issues have been cited as among the most important constraints affecting AIP development, for instance in India (FAO, 2017; Aggarwal, 2015; KII, SEZ/AIP Expert) and Togo (GCF, 2018). Land acquisition for AIP development is often thwarted by opposition from local communities, including land-grabbing accusations and “misalignment” between the public AIP sponsors and local authorities who manage the land (FAO, 2017). Many proposed MFPs in India (especially in Uttar Pradesh and Punjab) have been delayed or cancelled outright because of a failure to procure land and clear project sites, often due to resistance from local communities (Aggarwal, 2015).

Providing quality infrastructure in and around the park

Effective external and internal infrastructure are among the most important factors in attracting firms and enabling competitiveness: failure to do so is the most commonly cited pitfall of AIPs. *External infrastructure*, such as roads, railways, airports, seaports, telecommunication infrastructure, subsidized utilities energy (electricity) and water (including conveyance infrastructure and competitive water rates), are key provisions that need to be put in place by the government. External infrastructure access is paramount: “if those things are not there no one is coming” (KII, Agro-Economist). *Internal infrastructure* inside the AIP may include dedicated power transformers, water sewage disposal systems, warehouses and cold storage units. Water shortages, electricity outages and poor transport connectivity are often cited as the greatest binding constraints on park or zone performance, both in terms of attracting firms and in achieving agro-industrial development objectives (Dinh et al., 2012; FAO, 2017; Kinyonyo, Newman and Tarp, 2016; Farole, 2011; World Bank, 2017). In SEZs more generally, Farole (2011) finds that, while many African SEZs have significantly reduced power outage time for their tenant firms, most have still not reached internationally competitive levels of power reliability, even inside the SEZs.

In-park infrastructure and facilities can be provided directly or indirectly. There is no rule of thumb as to whether infrastructure has to be built by the promoter(s) or by the tenants, and this will depend on the country, on the local economic context and on the attractiveness of the initiative to the private sector (FAO, 2017: 149). A flexible plug-and-play model reduces

start-up costs and risks for tenants and SMEs, allowing them to grow (FAO, 2017; UNIDO, forthcoming). Within Sri Lankan parks, instead of directly building it, the zone administration regulates, governs and facilitates the provision of infrastructure, water, telecommunications, warehousing and water (Aggarwal, 2005). In Ethiopia's Yirgalem IAIP, a "site and service" model was implemented with internal infrastructure, administration and training buildings provided by the Regional Industrial Parks Development Corporations (RIPDCs). Plots were then demarcated for companies to build their factories on with their own funding (KII, Agro-Economist). In the Indus MFP (Madhya Pradesh, India), basic infrastructure included roads, effluent treatment facilities, electrical substations (including back-ups) and water (FAO, 2017). In Bulbula, Ethiopia, the entire park was built with public financing (the most funding received out of all four IAIPs); companies rent units and start processing with their own machinery (KII, Agro-Economist).

Ensuring efficient trade facilitation and other bureaucratic processes

Inefficient trade facilitation and other bureaucratic processes are major obstacles to AIP investment and performance. Cumbersome customs and investment approval procedures are often identified as a key pitfall for zone models including AIPs (Norman, 2020) and administrative and regulatory processes are often disjointed and lack coherency (UNIDO, forthcoming). For example, while Bangladesh's BEPZA facilitates easier administrative dealings for tenants (including approval of building plans, import/export permits and work permits), in India prospective tenants needed to pass through multiple (up to 15) different authorities as part of the investment screening process (Aggarwal, 2005: 24). Cumbersome bureaucratic procedures add significantly to the cost structure of firms and reduce their competitiveness, especially with delayed clearance of imported and exported goods (Kinyonyo, Newman and Tarp, 2016).

The role of the "one-stop shop" is to embed the offices of federal and regional government agencies – including customs, taxation, finance, commodity inspection, visas, police and judiciary – into the AIP site (UNIDO, forthcoming). China's Yangtze River mixed industrial park and Ethiopia's IAIPs both feature onsite one-stop shops where assistance is made available to firms looking to expedite business and worker licences and permits. However, the effectiveness of one-stop services vary: the performance of an AIP is driven by the quality, not the mere presence, of a one-stop shop (World Bank, 2017b). These services can become ineffective due to the lack of coordination among many different ministries and agencies involved. The challenge is ensuring that dedicated legislation is established and that an efficient interface with government oversight agencies is developed (UNIDO, forthcoming). Farole, Baissac and Gauthier (2013) recommend a "single window" rather than a "one-stop shop" where one facilitator works across these government ministries and agencies to provide true cohesion, with the eventual aim to establish a regime where licensing requirements are actually "reduced rather than simply facilitated" (Farole, Baissac and Gauthier, 2013: 15). In Senegal, for instance, a law stipulates that SEZ licences will be automatically authorized if the applying firm does not receive a reply from the relevant authority within 30 days (Farole, Baissac and Gauthier, 2013).

Fostering backward linkages

Facilitating backward linkages (to farmers), forward linkages (to retailers and exporters) and horizontal linkages (among firms at a similar stage in the value chain) within and beyond an AIP is crucial for the success of occupant industries, as well as for the integration of rural production networks (UNIDO, 2019b; AfDB, 2021). We focus here on backward linkages, particularly to smallholder farmers – the highest-impact but also the most difficult kind of AIP linkage to build. Integrating smallholders takes conscious effort: funding and technical resources need to be built in from the very beginning (KII, SEZ/AIP Expert).

One key reason why many AIPs fail to create backward linkages is that the local supply of agricultural output is simply insufficient in terms of quantity, quality, regularity, price

competitiveness or price stability (FAO, 2006; Gálvez-Nogales, 2011; Domician, 2011; KII, SEZ/AIP Expert). When access to raw material is the major binding constraint for agro-processing firm growth (in Uganda, for example, many agro-processing facilities operate well below capacity because of raw material constraints (Fowler and Rauschendorfer, 2019)), then an AIP that offers factory shells and tax relief will have little impact. Access to inputs can indeed make or break an AIP: “without secured and competitive access to inputs, an agro-pole is like a car without fuel” (Olam, 2016: 34). In many cases, agro-processing firms end up importing most of their raw materials because the local supply does not meet requirements, as is the case with textile firms in Ethiopia, which import most of their cotton instead of buying it from Ethiopian farms (Staritz and Whitfield, 2017).

This presents a vicious cycle: agro-processing firms need productive farmers as suppliers, while farmers (often) need agro-processing firms help them achieve productivity gains. Agro-processing firms can spur the production and productivity of local agricultural produce by providing regular demand (often through contract farming arrangements), as well as through supplier development services such as extension and pre-financing of agro-inputs. However, agro-processing firms are only viable when there is a sufficiently strong supply of agricultural produce to process, which in turn requires production and productivity. The question is what role AIPs can play in breaking this vicious cycle. Various AIPs have tackled the issue via integrating farming concessions, facilitating contract farming, brokering linkages, offering aggregation infrastructure and services, integrating extension services, brokering supplier linkages, providing market information, enacting targeted policies and regulations, and other tools.

Perhaps the most direct way to solve the agro-supplies constraint is to integrate farming concessions into the package offered to AIP investors. For example, Gabon’s GSEZ Nkok offered dedicated forest concessions to large wood processing firms setting up in the zone. Backed by an export ban on unprocessed logs, this spurred strong investment in wood value addition (AfDB, 2021). However, this approach neither has strong impacts on smallholders, nor is it viable in the land-constrained environments prevalent in most lower-income countries.

Some AIPs, with donor support, have been able successfully to facilitate outgrower relationships between AIP tenant firms and smallholder farmers. This was the case with the International Fund for Agricultural Development (IFAD)-brokered deal between Olam and their outgrower network in Nigeria (KII, SEZ/AIP Expert). However, agro-processing firms have no intrinsic desire to engage with local smallholders: the commercial (or sometimes the community relations) case for sourcing from smallholders must be clear (KII, SEZ/AIP Expert). Some countries (such as Tanzania) require their AIP investors to work with local smallholders, often with assistance from donor funds (as has been implemented in Morocco – see ADA, 2018), but these have seen mixed success because they do not guarantee the viability of the agro-processing business model (KII, SEZ/AIP Expert). Outgrower models with small-scale farmers are costly (high transaction costs due to low output per farmer and high training, sensitization and contract enforcement costs), risky (principally due to the risk of side-selling) and usually undergo several seasons of experimentation and farmer relationship building before functioning well. As a result, some AIP experts argue that sourcing from smallholders tends to work best when an anchor supplier exists, meaning AIP processors can source a reliable volume of quality produce from a single large commercial farm (often owned by the same firm). With a viable core business model at hand, many processors then consider expanding via outgrower farmers (KII, SEZ/AIP Expert). For example, the most successful Cambodian AIPs have one large anchor firm which source from their own plantation as well as outgrowers (KII, Former AIP Operator). While expanding into smallholder sourcing is sometimes done primarily to improve community relations, it is often done for clear commercial purposes and at a profit, and indeed many agro-processors source exclusively from smallholders or smallholder-owned cooperatives.

“Hub-and-spoke” AIP models tackle backward integration head-on by establishing collection and processing centres (spokes) that aggregate, store and sometimes carry out initial basic processing activities to farm outputs before they are transported to the main processing park (hub) (AfDB, 2018d). One constraint this aims to overcome is that of post-harvest losses (which can be as high as 40% for fresh produce in Ethiopia) (GCF, 2018). Post-harvest losses are a major root cause of insufficient supply volumes, as well as of high and volatile prices (Rao, 2006). These “spokes” can be publicly run or managed by private agro-processors themselves, as is the case with a breweries cooperative in Ethiopia (KII, Agro-Economist). However, this interventionist approach is difficult to get right and does not always achieve the desired results (Datamation, 2018).

AIPs and their spokes can act as critical infrastructure for the functioning of public or private agricultural extension services. They can make use of the AIP’s space and facilities (and their proximity to production zones) for the establishment of demonstration plots, vehicle and equipment storage and training facilities, among others. In Ethiopia’s Bure IAIP, which focuses on staple crops, the processor relies on government extension workers; in Yirgalem, an avocado processor uses their own privately hired specialist extension workers (KII, Agro-Economist; KII, Donor).

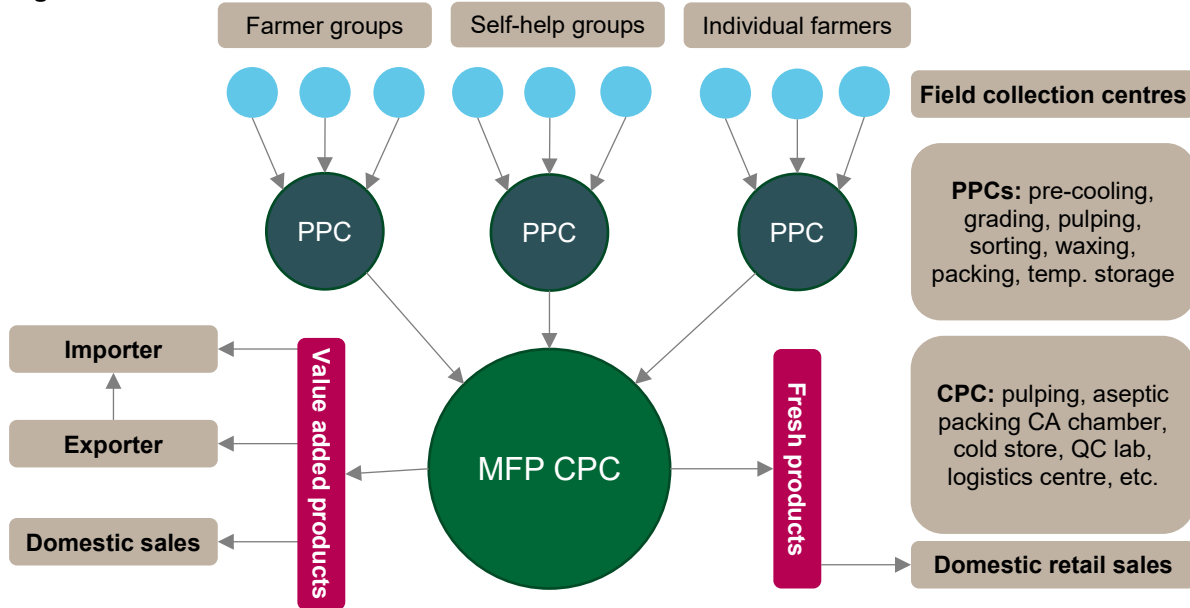
AIPs can facilitate access to agro-inputs and service distribution. Many small farmers are able to purchase seeds, fertilizers, pesticides and hermetic bags for on-farm crop storage, as well as services such as tractor ploughing and soil testing. However, their availability and affordability are often hampered by the remoteness of providers. AIPs and their spokes can act as local hubs for agro-dealers, tractor services and the like, leveraging the advantages of proximity to farmers as well as improved park infrastructure and services (KII, AIP Expert).

One of the most commonly cited constraints to effective backward integration is a lack of information linking off-takers (agro-processors) with sellers (farmers) (Rao, 2006; FAO, 2011; Domician, 2011; KII, SEZ/AIP Expert). AIPs can host market information services that provide updated crop production, price and other information. One specific application of market information is in tackling the problem of crop seasonality. The seasonal supply of agricultural raw products means that there is no processing of a given crop for a large portion of the year. This in turn means that processing firms focusing on a single crop might lie idle for long periods, while fixed costs like rent and payroll still need to be paid (KII, SEZ/AIP Expert). One solution is to identify and integrate secondary agricultural outputs that can be processed during the primary product’s off-season. AIP tenant firms can be supported in this endeavour by technical assistance and market information.

Box 4: The “hub-and-spoke” AIP model in India and Ethiopia

“Hub-and-spoke” models have been touted as a way of strengthening backward integration linkages that create greater agglomeration economies in ways that support smallholder farmers and provide stable inputs to AIPs (AfDB, 2018b). Under **India’s MFP scheme** the “hub”, also referred to as the “central processing centre” (CPC), or the AIP itself, is aligned with the “spokes” – PPCs and collection centres (Figure 2). Farmer groups and individual farmers supply PPCs, which host basic processing activities such as pre-cooling, grading, sorting, waxing, packing and temporary storage, before products make their way to the CPC. The scheme encourages Farmer Producer Organizations (FPOs) to organize harvest aggregation and facilitates collective negotiation of prices. Direct connections between AIP processors and farmers help stabilize perishable food prices, remove middlemen and achieve better prices for produce (Sengar, Sharma and Agrawal, 2017). In 2019–2020, the Government of India (GoI) budgeted for 10,000 new FPOs to be formed over five years in addition to the current 5000 FPOs (Satyasai and Singh, 2021). Patanjali Food and Herbal Park, for example, is served by five PPCs with their corresponding collection centres linked to eight to 10 cultivator associations, which in turn consist of 10–25 farmers each. In the Indian Farmers Fertiliser Cooperative Limited (IFFCO) Kisan agro-park, PPCs offer services such as agriculture extension, warehousing and banking to farmers.

Figure 2: Illustration of India's MFP scheme



Source: GoI Ministry of Food Processing Industries (MoFPI), 2020

The **Ethiopian IAIP scheme** utilizes a similar model – its four IAIPs (Baeker, Tigray; Bure, Amhara; Bulbula, Oromia; and Yirgalem, SNNP) are connected to 28 Regional Transformation Centres (RTCs) that sit within 17 larger Agro-Industry Growth Corridors (AIGCs). RTCs are designed to serve as raw material aggregation points to catchment areas within a 100 km radius of the AIP (UNIDO, 2019a). While RTCs were initially publicly owned and managed (Ghione, 2021), leveraging the additive role of the private sector has recently been identified as a key ingredient in IAIP operations and management (UNIDO forthcoming; AfDB, 2021; KII, Agro-Economist). The construction of 22 new RTCs will be open to an ownership and management model made up of cooperatives and private investors in PPPs (Ghione, 2021). One RTC linked to Bulbula IAIP is managed by a breweries cooperative (KII, Multilateral). RTCs provide agro-extension services to farmers' groups under different arrangements: Bure IAIP, which focuses on maize and wheat, relies on government extension workers, while in Yirgalem IAIP, the avocado processing firm Sunvado has privately hired 24 extension workers to serve over 25,000 supplier farmers (KII, Agro-Economist).

Integrating SMEs into the AIP ecosystem

Another key challenge for AIPs is to find a way of meaningfully integrating domestic SMEs into the AIP's ecosystem to spur industrial, employment and knowledge spillovers beyond the larger and mostly international firms that often constitute the core park tenants. The most commonly discussed approaches are direct integration, financial services, business development services and business linkage facilitation.

Direct integration: SMEs can be integrated directly via lowering minimum investment thresholds, as in Cameroon's agro-pole (Ughele, 2019; Picard, Coulibaly and Smaller, 2017; Farole, 2011), or specific zones – adjacent to or inside existing AIPs – dedicated to SMEs, as in Ghana's 70 ha Tema Multipurpose Industrial Park, where companies do not have access to special fiscal and customs exemptions but do enjoy critical common infrastructure and cluster-based business support services and facilities (eg packaging, labelling, kiln drying and warehousing) (Farole, 2011). However, Farole (2011: 6) argues "most SEZs are designed to attract larger businesses, with world-class infrastructure, incentives geared toward exporters, and high lease costs relative to what is available in the local market. Thus, attracting local SMEs into SEZs on a large scale may not be a realistic objective. Instead, the emphasis should be on developing effective links between local SMEs and the globally competitive firms anchored in the zones. This might be achieved through cluster-based policies."

Financial services: For many SMEs, access to affordable and appropriate finance is a binding constraint, and an AIP will not move the needle for these firms unless it incorporates access to finance interventions. There is a recent trend for development bank and central bank schemes to provide concessional loans and grants to agri-SMEs, such as Ethiopia's recently approved sustainable credit scheme under the US\$ 113m Productivity Enhancement Support to the IAIPs and Youth Employment (PESAPYE) programme and Nigeria's US\$ 2bn Bank of Industry fund to support SMEs in its seven SAPZs (KII, Agro-Economist). In India, a commercial bank provided specialized banking services to SMEs linked to the IFFCO Kisan AIP; in Ethiopia's Yirgalem and Bulbula IAIPs, micro-credit financing has been piloted to support the entry of SMEs. Domician (2009) proposes an expansion of SME and export guarantee schemes operating through the central bank in Tanzania. In Gabon, authorities set up a number of SME financing mechanisms (such as the Gabon Strategic Investment Fund, the Okoume-Capital Fund, COFINA and the National Social Assistance Fund), yet Gabonese SMEs still remain uncompetitive and face challenges in accessing financing because of limitations in terms of training, mastery of quality standards, managerial capacity and access to technology and markets (AfDB, 2018b). This points to the need for business development services to enable SMEs to become more productive, as well as investible: the quality of business records, practices and teams are often the key constraint to accessing finance, rather than the availability of finance.

Business development services: Incubators – often linked to a research or higher education institute – are commonly used to help agri-SMEs upgrade and become exporters. Kenya's EPZ Business Incubator Programme at the Athi River EPZ, run by the EPZ Authority, Kenya Industrial Estates Ltd and Kenya Export Promotion Council, helps local SMEs grow into exporting enterprises by providing “purpose-built infrastructure and support services at subsidized rates”, offering “standard EPZ tax benefits and a special dispensation for incubator firms to sell a higher percentage of their output to the local market than is normally allowed during the first four years of operation” and facilitating “direct exporting and subcontracting relationships with larger firms” inside and outside the EPZ (Farole, 2011). Another example is the incubation centre in Vietnam's Agricultural High-Tech Park.

Linkage facilitation: AIPs can employ a number of methods to strengthen business links between SMEs and larger firms inside and outside the parks. Business-to-business (B2B) platforms and agro-industrial cluster associations can facilitate business linkages, capacity building and innovation sharing (AfDB, 2021). In Morocco's Meknès agro-pole, a partner firm not only coordinates B2B meetings for its members located in the agro-pole, but also coordinates partnerships between agro-industrial companies, professional associations, research training institutions and public authorities (AfDB, 2015; AfDB, 2021). Regulatory reform can also help encourage linkages, as in Ghana, where goods sold by domestic firms into an SEZ are categorized as indirect exports, making the supplier eligible for export incentives (AfDB, 2021). Further, local content requirements can force large AIP tenants to source not only agricultural produce but also other goods (such as material inputs) and services from domestic suppliers. However, “forcing local linkages through procurement legislation will not be effective if there is no local capacity or no supportive framework for local industry upgrading” (te Velde, 2019: 19). Instead, local content requirements should be combined with linkage and capacity building programmes, for example through “Local Content Units”, to improve the capacity of local SMEs to meet the demand of lead firms and for lead firms to foster effective local supplier relationships (te Velde, 2019; Spray 2017).

Balancing access to skills, labour competitiveness, workforce development and decent employment creation

Accessing labour with the necessary skills for firm productivity can be a major constraint for AIP tenants. Investors struggle to find relevant skilled or semi-skilled workers locally and often import foreign technicians and engineers. Ethiopia's IAIPs are projected to account for 85% of total agro-industrial jobs by 2025, but that workforce is required to be sufficiently skilled in shifting market demands and significant progress is still required to close

quality skills shortages, especially in terms of competences in production processes, the use of modern machineries and local onsite maintenance (AfDB, 2021: 47). *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ)'s Sustainable Training and Education Programme is working to this end as part of Ethiopia's multi-donor support package, funding vocational agro-industrial colleges in IAIP rural catchment zones to cater to a curriculum covering agro-industrial niche specializations (GIZ, 2019).

Successful AIPs tend to find a balance between making it easy to import staff in the short term and inducing and supporting a transition to local hiring in the medium-to-long term (Zeng, 2019). The conflict between easing expatriate labour restrictions and creating local high-skill jobs can be seen as a false choice. In the short term, AIPs can make it easier for firms to import skills, as the Philippine Economic Zone Authority (PEZA) zone has done via assistance in processing visas and allotting special non-immigrant multiple entry visas to PEZA tenant firms (COMCEC, 2017). In the medium-to-long term, the transition to local hiring can be induced through training, local hire targets or incentives and foreign placements in the case of joint ventures (Zeng, 2019; CDA, 2020; KII, Multilateral).

Supporting domestic staff skills upgrading requires concerted efforts at developing the domestic workforce, either through training colleges or through on-the-job training. Firms tend to be unwilling to invest in training given that workers tend to move to competitor firms before the discovery firm has made a return on the training investment. This is especially so where labour turnover is high, as is the case in many newly established AIPs, such as those in Ethiopia (Cramer, Sender and Oqubay, 2020). Employers therefore face recurring training costs and lack of know-how memory among shifting workforces (Cramer, Sender and Oqubay, 2020). Trained workers moving across firms is not a negative outcome at the system level. For instance, one observed trend is that industrial park factory workers find opportunities in the growing local service sector (eg in retail or machine repair) that are better remunerated or have better working conditions – this is a form of labour upgrading (Cramer, Sender and Oqubay, 2020). Training is thus a positive externality because it strengthens the pool of skilled labour available not to just one firm, but to the whole AIP or sector. The typical industrial policy response is to compensate the discovery firm for creating this positive externality through training grants, tax rebates and other mechanisms (Amsden, 2001). A more direct approach is for the government and zone authorities to partner with the private sector to identify skills development needs, creating programmes to address them and finding sustainable funding sources (Farole, 2011). Crucially, training must be constantly reviewed to keep ahead of changing business needs, market realities and industrialization patterns. This is particularly relevant in the light of the increasing role of digitalization in agriculture, manufacturing and allied services, as well as the need to incorporate higher-function skills into training curricula (AfDB, 2021: 27). One success story is the Penang Skills Development Centre in Malaysia, a PPP that caters to firms located in industrial zones and parks in Penang and that has trained more than 150,000 workers through more than 7000 courses and helped formulate national policies for human capital development (Farole, 2011).

A related strategy for domestic labour supply development is improving the quality of life in and around AIPs so as to attract skilled (and unskilled) labour from other parts of the country (AfDB, 2018d; KII, Agro-Economist; KII, SEZ/AIP Expert; Farole and Akinci, 2011). Social amenities that enable a relatively good quality of life in and around AIPs have been shown to help attract, not only skilled workers, but also investors and tenant firms in the long term, while also improving gender and labour relations (KII, Agro-Economist; Oya and Shaefer, 2021; Zeng, 2019; Yusuf and Nabeshima, 2006). However, some observers stress that social amenities only add value when they are highly sensitive to context and culture. For example, day care centres found in a Bangladeshi SEZ were found to be surplus to requirement since many had grandmothers or other family members to take care of children, while onsite grocery stores were hardly used despite stocking vastly less expensive produce since many workers preferred to leave the park outside working hours rather than spend more time in the zone than necessary (KII, SEZ/AIP Expert).

There is a growing body of examples of AIPs and zones with integrated social amenities. In a 2005 study on the zone administrations of Bangladesh, India and Sri Lanka, only Bangladesh had sports complexes, only India had hospitals and only Bangladesh and Sri Lanka had fire stations (Aggarwal, 2005). As AIPs (and zones more broadly) have evolved, more are taking into account the physical wellbeing of tenants and investors alike, acknowledging that the cost and quality of housing, incidences of crime and health services are concerns common to all workers, not just the technically qualified among them (Yusuf and Nabeshima, 2006). Bure IAIP in Amhara region, Ethiopia, planned for non-processing areas to contain residential units, a school, a place of worship and other commercial units, as well as green and open spaces (AfDB, 2018d), while Sri Lankan zone administrators have improved their social infrastructure, providing shuttle bus services in Katunayake Zone and hostels for women workers in Biyagama Zone. The masterplan for India's Sikaria Mega Food Park included banking offices, police and fire stations, medical centres and parking facilities (FAO, 2017), while South Africa's Dube TradePort's close proximity to King Shaka International Airport provides an added layer of police presence and security, which acts as another incentive to use the zone (KII, AIP Operator). Finally, in Ethiopia and Morocco, residential complexes, hospitals and recreational facilities surrounding AIPs are making secondary cities attractive hotspots and generating new demands for services (allied-agro services and social services), particularly among seasonal labour migrants who otherwise might have been drawn to primate cities where job scarcity and precarity are already high (OECD, 2020b; AfDB, 2021; Cramer, Sender and Oqubay, 2020; UNIDO, forthcoming).

Finally, there is tension between the quantity and quality of job creation by AIPs. Social safeguards of workers are often traded for labour market flexibility and the reduction of labour protection, yet several authors claim that more flexible labour regulations have contributed to the success of SEZ and industrial policies (Watson 2001; Aggarwal 2005; World Bank, 2017b). The relaxing of some labour laws is one of the major factors impacting the feminization of the labour market and precarious worker conditions in zones (Cierra, 2014: 346). SEZs more generally have been shown to create low-end, low-skilled labour opportunities (Farole, 2011); there is a dearth of employment performance evaluation literature for AIPs, mainly due to their recency. Most schemes are still failing to deliver both scalable, quality employment and a living wage due to firm-level dynamics and workforce patterns ranging from the increasing capital intensity of certain agro-industrial activities to the detrimental effect of flexible labour laws (promoted as part of investor attraction packages) on working conditions (Cramer, Sender and Oqubay, 2020; Oya and Shaefer, 2021).

5. Roles of donors, multilaterals and DFIs

This section discusses where and how donors, MDBs, multilateral organizations and DFIs can support AIPs. We highlight the most important (i) principles, (ii) modalities and (iii) areas of successful AIP support.

Principles

A long-term perspective: Donors should take a long-term and flexible approach to AIP support and results expectations. As has been explored in previous sections, AIPs are long-term projects that typically take over 10 years from inception to strong occupancy and first concrete developmental results. By nature of this long-term timeframe, they are also almost guaranteed to face unforeseen circumstances along the journey, from changes in government to pandemics. This uncertainty, combined with the complex multi-stakeholder coordination necessary to make AIPs work, means that serious delays are the norm, not the exception. Taking these considerations on board, donors are well-advised to take a long-term and flexible approach to AIP support and results expectations. In one example, the World Bank's Kenya Export Development project (1992) supporting the development of the Athi River EPZ was evaluated as having missed many of its targets due to construction delays and a low occupancy rate by project closure: as a result, there were no exports from the zone during the project period. However, a recent review of SEZ projects (World Bank, 2017b) notes that the zone "did prove its utility many years later" when it became a garment export epicentre. This can be interpreted as a case of overly ambitious targets in terms of the time taken to achieve the desired impact. The lesson is being learned: the AfDB (2019; 2021), for example, appears to be attuned to the long-term outlook of AIPs, setting investor uptake targets by the end of 10 years in SAPZs.

A systemic approach: If AIPs are to yield their intended positive impact on economic transformation, they must stimulate the growth and functioning of an entire ecosystem of actors. That ecosystem includes agro-processing firms, farmers supplying agro-produce, "agro-allied" firms and the various government agencies involved in park governance, regulation, infrastructure and service delivery. The relationships between these various actors are crucial determinants of AIP outcomes both inside and beyond park confines. The actors and their capabilities, incentives and roles are best understood – and improved – through a market systems lens (the "core exchange" of the value chains in question, the "supporting functions" and the "rules"). Several informants (KII, Multilateral; KII, Agro-Economist; KII, Agribusiness Expert) interviewed for this study pointed out that AIP developers and operators cannot be expected to make entire market systems function; this is where donor support can come in, leveraging both the strengths and locations of the specific AIPs they are supporting and the existing experience many donors have in strengthening agricultural market systems through non-AIP programmes.

Preventing donor dependence: Donors should target technical assistance that stimulates self-action by industries towards agreed objectives, such as ESG compliance without heavy dependence on external financial and technical support. When AIPs and their tenants become dependent on a single source of finance, that source may dry up and jeopardize the sustainability of the entire project (KII, SEZ/AIP Expert). Sakr, El-Haggag and Huisinigh (2011: 1164) note that, in Egypt's eco-industrial parks, donor funds were intended to serve as seed money for pollution prevention activities and broader environmental protection, but the park authority and tenant industries became almost entirely reliant on gradually shrinking foreign aid for environmental action, delaying the inevitable need for local sustainable financing mechanisms. Similar concerns have been raised with reference to Ethiopia's IAIPs, which are highly dependent on donor funding: the private sector will need to buy into the second tranche of investment to keep the parks operating beyond the expiry of donor programmes (KII, SEZ/AIP Expert).

Coordination between donors and governments: Because AIPs are large, complex initiatives, they typically involve multiple donors that need to coordinate with multiple government counterparts in the host country. This deepens the coordination challenges discussed earlier, necessitating strong centralized coordination mechanisms interfacing between and among donors and government agencies. For instance, inefficient reporting mechanisms and weak feedback loop mechanisms between UNIDO's Programme for Country Partnership (PCP) for Ethiopia and the Government of Ethiopia (GoE)'s different ministerial departments and RIPDCs was identified as a major obstacle to effective M&E (UNIDO, 2020a). Gabon set up a Joint Government-Technical and Financial Partners Committee with donors, which meets regularly to discuss finance coordination. This includes the AfDB, the World Bank, the French Development Agency, the EU, the United Nations Agencies, France and China. This has led to improved donor coordination (AfDB, 2018b).¹⁴

Delivery modalities

Financial support: AIP financing can take the form of grants, debt or equity, as well as combinations of these in the form of blended finance, mezzanine finance or de-risking through guarantees. Public sources of investment capital for AIP development include: (i) MDBs such as the World Bank, IFC, AfDB and IFAD, and regional development banks; (ii) DFIs (Monga, 2011; Tyson, 2018; FAO, 2017); and (iii) Chinese-led partnerships that typically set up special purpose vehicles (SPVs) financed by state-owned banks and Chinese SEZ tenant firms (Tyson, 2018). The Africa Exim Bank has played a key coordination role in co-financed arrangements in agro-based SEZs with major agribusiness private sector players such as Singapore's Olam International in Africa. DFI involvement in AIPs appears to have been rather limited to date, although some investments in major AIP tenant firms have been made or are being explored (KII, DFI Personnel).

Public–public technical assistance: This can take the form of (i) policy and regulatory advice to host governments, park authorities, developers and operators or (ii) direct provision of knowledge products from feasibility studies to draft regulations and guidelines (see eg te Velde, 2019). Technical assistance is a common feature of donor and multilateral support to AIPs by UNIDO, GIZ, World Bank, the AfDB, the United Nations Development Programme (UNDP) and others (see eg FAO, 2017).

Direct firm support: Donors and DFIs can provide direct support – financial and technical – to specific lead firms (deals) in clusters, as well as to local SMEs in the AIP ecosystem, to strengthen linkages and integration (te Velde, 2019). This can occur through impact investment deals, grants, free or subsidized business development services or trade and investment linkage provision (eg linking AIP tenants with donor country firms looking to invest in the host country or brokering joint ventures linked to AIP development or tenancy).

Multi-pillar AIP support: A new generation of AIP support projects embrace a multi-pillar approach, exemplified for instance by the World Bank's US\$ 304m Madagascar Integrated Growth Poles project, the US\$ 100m Export Development Project in Kenya and the Ghana Gateway project (World Bank, 2017b). The bank's financing in these projects has a number of objectives, including establishing a minimum infrastructure platform, providing world-class infrastructure services for investors, establishing efficient public–private interfaces, easing the cost of doing business, easing access to industrial land and strengthening firm-level industrial capabilities (World Bank, 2017b).

¹⁴ Interventions have been organized around three themes: "Improve the investment climate", "Support economic diversification" and "Support the business environment". Coordination between the World Bank and the AfDB is a good example: while the World Bank developed an investment promotion strategy, the AfDB oversaw the park's operationalization strategy. When it came to supporting the reform process in Gabon, the World Bank helped prepare the new PPP law and related decrees, whereas the AfDB supported capacity building in reforms in the forest-timber sector and set up the Technical Assistance Fund for upgrading Gabonese SMEs.

Influence: Donors, DFIs and MDBs can use the leverage that comes with financial and technical support to increase the likelihood that certain standards and best practices are applied in AIP design, development and management. Examples include:

- **environmental safeguards**, which are increasingly written into AIP assistance programmes (UNIDO, 2019b; forthcoming; AfDB, 2021)
- **transparency and inclusive governance** throughout the AIP project lifecycle, the value of which for the restructuring of South Africa’s SEZ programme has been documented by Farole and Moberg (2017)
- effective **project delivery and coordination mechanisms** – the AfDB (2018b), for instance, required evidence of the establishment and performance of a PIU as the primary “project executing agency” and of a Project Steering Committee as preconditions for the first disbursement of funds to Gabon’s Nkok SEZ (AfDB, 2018b; 2019)
- **employment related conditionalities**, including both the creation of “quality jobs” and the deregulation of labour markets (EU, 2018 Ghione, 2021; UNIDO, 2019a; AfDB, 2021): the evidence discussed previously suggests that donors need to pay closer attention to the tension between flexible labour markets and the quality of jobs created by AIPs

Coordinating and supporting peer learning: Finally, donors can strengthen the evidence on AIPs¹⁵ and facilitate peer learning through knowledge dissemination, sharing experiences, field visits and peer-to-peer exchanges between AIPs and the relevant authorities of different countries and regions (van Beers et al., 2020).

The evidence reviewed here suggests that, given the long-term, complex and high-uncertainty nature of AIP projects, external support should be structured as highly coordinated and flexible partnerships based on joint long-term objectives and strategies between donors, DFIs, MDBs and host governments. Such an approach would allow support to be tailored to the capabilities, contexts and constraints of the park scheme in question, and unforeseen challenges to be tackled quickly by mobilizing flexible support. The most effective way to support AIPs would appear to be to walk the entire (long) journey with the partner government, bringing on board fully invested MDB or DFI patient, long-term concessional capital alongside tailored donor-financed technical assistance.

Support areas

Preliminary research and other knowledge products: One of the most common areas on which donors focus technical support is preliminary research. This corresponds to one of the major pitfalls of AIPs and should thus remain a priority. For example, the AfDB’s (2018b) PADGEP project included various forms of preliminary research for Gabon’s SEZ Nkok, such as an in-depth study of the timber value chain, the identification of products that can be sourced and processed locally and diagnostic studies on craft sector skills needs and forest product export potential. Other examples include:

- feasibility studies, including value chain assessments, pre-investment surveys, organizational structure design, site selection, market analysis, economic and financial analysis (eg FAO and UNIDO for Ethiopia’s IAIPs – FAO, 2017; 2019; Brasesco et al., 2019; UNDP and UNIDO in Ethiopia and Southeast Asia – UNIDO, 2019b; FAO and AfDB for Staple Crop Processing Zones (SCPZs) and ATCs for predetermined commodity chains in Zambia, Côte d’Ivoire and Tanzania – FAO and AfDB, 2019; World Bank for Philippines – FAO, 2017)
- regional competitiveness studies for agro-industrial sector identification (eg AfDB for Senegal’s agro-poles – AfDB, 2016; UNIDO for multiple Indian Food Parks – FAO, 2017)
- business plans (eg UNIDO for multiple Indian Food Parks – Rao, 2006; FAO, 2017)

¹⁵ This is discussed in more detail below under “Strength of evidence”.

- hazard analyses (eg UNIDO for multiple Indian Food Parks – Rao, 2006; FAO, 2017)
- specific studies, for example on incentives, private financing, PPPs, etc (eg AfDB for Senegal’s agro-poles – AfDB, 2019)

Integrated infrastructure development: Farole (2011: 265) recommends that donors “support the provision of high-quality hard and soft infrastructure encompassing zones, key urban centers, and trade gateways”, pointing to the Ghana Gateway project¹⁶ and its multipurpose industrial park as one possible model to emulate. Donor and MDB funding is commonly used for last-mile infrastructure in and around AIPs (KII, SEZ/AIP Expert), such as the Japan International Cooperation Agency’s US\$ 132m policy-based Official Development Aid loan¹⁷ to Morocco’s agro-poles delivered through the AfDB’s Accelerated Co-Financing Facility for Africa (AfDB, 2015); the US\$ 270m EU-led Promotion of Sustainable Ethiopian Agro-Industrial Development (PROSEAD) financing package behind Ethiopia’s IAIPs; and the US\$ 2bn financing agreement between GoE and China for the electrification of the IAIPs, delivered through the AfDB’s financing facility (AfDB, 2018a).

Investment and trade attraction, promotion and facilitation: External support to AIPs has included help identifying operators, tenants, SMEs, producer organizations, financial institutions and agro-allied service providers, often leveraging existing local and regional networks of donors, DFIs and MDBs that have been established through other projects (FAO, 2017). For instance, UNIDO was involved in publicizing India’s Malappuram Food Park throughout Southeast Asia, helping identify suitable investors and partners for establishing cold stores, warehouses and a quality control laboratory as part of a study tour to other industrial parks in the region (Rao, 2006; FAO, 2017).

SME support: Significant donor support has focused on strengthening SMEs and SME–AIP linkages, especially helping SMEs develop the capacity, knowledge or technology to gainfully join supply chains via win–win relationships (World Bank, 2018a). Examples include:

- the AfDB action plan for craft sector capacity building and technical assistance to domestic SMEs (particularly in wood processing) linked to Gabon’s Nkok SEZ in the areas of management training, market research, business plans, investor-readiness and export readiness, among others (AfDB, 2018c)
- World Bank programmes (eg in Chad, Ethiopia and Guinea) supporting bottom-up initiatives to improve SME-lead firm linkages in AIPs (World Bank, 2018a)
- the AfDB micro-credit financing to help SMEs join Ethiopia’s Yirgalem and Bulbula IAIPs (KII, Agro-Economist)
- the EU, GIZ and Italian Cooperation support for capacity building and agro-industrial skills training programmes and apprenticeships tailored to the business needs of AIP tenants in Ethiopia (EU, 2018)

M&E: Donor, MDB and DFI support to AIPs almost always features some level of M&E, the design and execution of which is typically both required of the partner government and technically supported by the development partners. Well-documented examples of AIP M&E systems, with performance indicators from the output to the impact levels, include the AfDB’s project support to Gabon’s Nkok SEZ (AfDB, 2018b; 2021) and to Senegal’s SAPZ (AfDB, 2019).

¹⁶ The Ghana Gateway project met its target regarding the number of firms investing in the multipurpose park, exceeded its target for export-oriented firms and achieved its trade facilitation objective through improvements arising from its support of customs, immigration, ports and aviation (World Bank, 2017).

¹⁷ The agreement was accompanied by Memoranda of Understanding between Japanese universities and Morocco’s agricultural polytechnics for research and capacity building (AfDB, 2015).

Two interrelated areas of support that appear to be somewhat neglected but would tackle some of the most pernicious challenges facing AIPs are streamlined bureaucracy and services for park tenants and government coordination.

Efficient park services and bureaucratic processes: Some technical assistance, such as under the AfDB's project in Gabon, has been provided to support the streamlining of one-stop shop services. However, examples of this kind of support are sparse. We have seen that bureaucratic streamlining, particularly with regard to trade and investment facilitation processes, is one of the most important selling points of AIPs to would-be investors. Nevertheless, getting this right requires politically sensitive shifts in the ways in which public services are delivered, regulations are enforced and government departments collaborate. Meaningful support, then, requires close, politically smart collaboration with high levels of government. This speaks to the next point.

Strengthening government delivery and coordination capabilities: Farole (2011: 265) concludes that donors should "take into greater consideration the capacity of governments to deliver on SEZ programs, particularly given their integrated and long-term nature." This requires a greater focus on institutional strengthening and a politically smart approach. One promising approach that does not appear to have been utilized for AIP projects to a large extent yet is long-term embedded technical support, as delivered for instance by the Tony Blair Institute's centre-of-government governance advisors in numerous African countries or the through the Overseas Development Institute's fellowship scheme to Ministries of Finance and other public bodies around the world. Long-term advisors could be embedded in AIP PIUs or responsible ministries to provide cross-cutting project delivery support and to help mobilize and oversee specialist inputs from PPP and investment deal structuring to feasibility studies, investment promotion and one-stop shop management. They can simultaneously be mandated and incentivized to build the capacity of civil servants and other local staff and consultants, eventually rendering external support obsolete.

6. Recommendations for donors

External support can prove instrumental to the success of a new generation of ambitious AIP schemes across Africa and Asia if donors, MDBs and DFIs (i) apply the principles outlined, (ii) leverage the right delivery modalities and (iii) focus on the most impactful support areas. Donors able to embrace these principles and to mobilize the necessary long-term outlook, large-scale grant funding, significant concessional capital, technical expertise, networks and political influence, should do the following.

- Donors should deliver AIP support through **comprehensive, long-term (10+ years) partnerships with the highest levels of host governments** and other public and private partners involved, crafting a joint vision and strategy and then taking a flexible approach towards tackling both *foreseen and unforeseen challenges* in the long and complex lifecycle of an AIP. It should be noted that a 10+-year partnership may not necessarily require the commitment of funds for such a long period from the outset; the long-term partnership could, for instance, take the form of a Memorandum of Understanding with a credible commitment by the donor agency to mobilize additional funds if/when agreed milestones are achieved
- Where feasible, donors should leverage the joint strategy to hold host governments and operators accountable, **providing technical and financial inputs against a jointly agreed schedule of milestones** only if and when recipient organizations fulfil their milestones (this requires flexible annual spend targets on the part of donor agencies)
- Donors should support the **design of PIUs**, including incentive and oversight mechanisms, and should support PIUs in mobilizing the **short-term expatriate expertise** required (eg through embedded advisors and a demand-driven short-term technical assistance facility) and in phasing this support out by **building domestic capacity** (eg through scholarships, on-the-job training programmes, best practice guides and exposure placements in well-functioning AIPs abroad, for example in partnership with a private AIP operator also active in other countries)
- Donors should identify and support a **high-level political champion** of the AIP project, while working with them to **build a broader coalition of support** for the AIP (Waddington, 2006; Herzberg and Wright, 2006; DCED, 2011). While we have seen that individual champions often provide the political driving force behind AIPs, they alone cannot ensure long-term political commitment to AIP projects (de Gramont, 2014). Coalitions of multiple champions and pressure groups diffuse risk by avoiding overreliance on one high-level political champion to deliver on desired AIP outcomes (Waddington, 2006). Coalitions with influential AIP stakeholders, such as industry associations, anchor investors and municipal authorities, can help galvanize continued commitment from the centre of government (DCED, 2011). This should be backed by in-depth political economy and stakeholder analysis, drawing best practices from “politically smart programming” (see eg Menocal et al., 2018; Carothers and de Gramont, 2013; Herzberg and Wright, 2006). In-depth stakeholder analysis can help donors identify which potential champions are “dynamic” and “public-spirited” from the outset, helping “leverage” and “mobilize” various AIP stakeholders in support of high-level political champions and helping identify the best ways to strengthen those champions, for instance through technical assistance, networking or diplomatic engagement, so as to build wider political support for the various components of the AIP project (Herzberg and Wright, 2006: 66; DCED, 2011)
- **Donors should be a long-term champion** of the AIP project by helping promote awareness, imbuing a sense of security via international backing and supporting the institutionalization of other longer-term champions (Herzberg and Wright, 2006; Carothers and de Gramont, 2013)

- Donors should support the entire lifecycle of AIPs from pre-feasibility onwards, doing what they can to ensure **preliminary research** is of high quality and is taken into account in AIP design and development
- Donors should collaborate with host country governments to set up the right **institutional arrangements for effective park oversight and management**, with a leaning towards PPPs but a recognition that the devil is in the detail: PPPs work when the incentives and capabilities of the players involved align well with the AIP developmental objectives
- Donors should support PIUs in mobilizing **long-term, patient, concessional capital** – including from DFIs and MDBs – to ensure that the AIP has the resources to secure land, deliver internationally competitive infrastructure and services and mobilize world-class park management expertise
- Donors should embed within AIPs (or AIP schemes) **market systems development programmes** aimed at fostering the **integration of farmers and “agro-allied” firms** providing ancillary inputs and services to farmers and agro-processors (especially domestic SMEs) into a well-functioning agro-industrial ecosystem in and around the AIP
- Donors should provide technical assistance to help AIP operators and PIUs adopt a client-oriented approach, continuously monitoring and tackling current and prospective tenant **firms’ binding constraints**, including via effective **private sector participation mechanisms** (whether through inclusion in AIP governance mechanisms and/or dialogue platforms)
- Donors should actively support efforts to **attract private AIP developers, operators and anchor firms**¹⁸ into the AIPs through embedded advisors, investment attraction and facilitation training and direct investment facilitation using donor, MDB and DFI networks (including via donor country trade and investment missions working with industry associations and departments of trade)
- Donors should financially and technically support AIP operators and PIUs to deliver **high-quality infrastructure and services in and around the AIP** as a top priority (over fiscal incentives) for attracting tenant firms and ensuring they deliver against developmental objectives
- Throughout the engagement, donors should use the leverage that comes with financial and technical support to **ensure – as far as possible – that ESG standards are met**, for instance in (i) compensating displaced communities, (ii) monitoring and upholding decent work and gender-sensitivity standards inside the park and (iii) putting in place robust environmental safeguards and monitoring

The ideal scenario laid out above is not always feasible. Donor agencies or offices working with smaller-ticket, shorter-term inputs with less high-level political engagement should, where possible, provide these inputs as part of a larger programme under the umbrella of a larger, longer-term partnership led by a large donor or multilateral. The design of such short-term inputs should emanate from a longer-term joint strategy with the host government and PIU and should address the most pressing needs of the AIP and the firms and farms within its broader ecosystem. Less capital-intensive areas of support that do not rely on a long-term time horizon might include:

- co-financing (with a longer-term partner) a technical assistance facility relevant to the current stage of the AIP (whether preliminary research, infrastructure development, operations or evaluation)
- linking a 5+-year (renewable) systems development programme to one or more AIPs

¹⁸ “Anchor firms” refers to large companies whose investment and presence in an AIP spur confidence among other prospective tenants; create significant demand for inputs, services and component parts; and provide a minimum threshold of operating volume and revenue to make an AIP viable.

- financing a series of knowledge products, eg a feasibility study, masterplan, best practice guide, design of a private sector participation framework, etc (it should be stressed again that these should be part of a longer-term partnership and strategy, even if the donor of these inputs is not committed long-term)
- supporting a time-limited investment promotion push through a series of promotion, facilitation and linkage activities

Finally, the best practices outlined above should guide donors in deciding when **not** to support AIPs. For instance, donors should proceed with caution or refrain from providing support where (i) AIP design, investor targeting and other decisions are highly politicized; (ii) no effective oversight, coordination and delivery mechanism is in place; or (iii) the feasibility of the AIP project is questionable due to insurmountable national business environment challenges (eg conflict and instability) or market dynamics (eg insufficient raw materials supply or access to markets).

Annex 1: Case studies

Ethiopia's IAIPs

GoE has been working (2009–present) to establish four IAIPs in Baeker (Tigray), Bure (Amhara), Bulbula (Oromia) and Yirgalem (SNNP) (Figure 3). The IAIP scheme in Ethiopia is *integrative* by way of site construction, state-of-the-art infrastructure, preferential access to utilities and streamlined public services for tenants and service provision (grading, storage, quality control, access to finance and inputs and training) to farmers. The four IAIPs situated in rural areas are connected with 28 RTCs and positioned within 17 larger AIGCs; they have also been designed to facilitate productive linkages between the agriculture sector and industry. The objectives are to attract foreign and domestic firms who will source inputs locally to spur agricultural development along strategic value chains and stimulate rural employment and value-added exports, while also meeting domestic consumer demands for food through import-substituting activities.

At present, all four IAIPs have been inaugurated, with some sites further advanced in investment attraction and operations than others: Baeker (no investors); Bure (one investor covering maize and soya bean); Bulbula (no investors); and Yirgalem (four investors covering avocado oil, coffee, milk and honey).¹⁹ Various development partners, donors and DFIs have been involved in the IAIP scheme since its inception.²⁰ The technical cooperation and co-financing package worth approximately US\$ 1.2bn is made up of GoE, the AfDB, the EU, UNIDO, Korean Exim Bank, GIZ and the Italian Development Cooperation, and focuses on (i) infrastructure development; (ii) supply chain development; (iii) access to finance; and (iv) institutional and technical capacity building (AfDB, 2021: 43).

Planning, design and development: success factors and pitfalls

The design phase of the IAIP scheme commenced in 2014, jointly coordinated by the Ministries of Industry and Agriculture with support from UNIDO, the FAO and UNDP. The extensive feasibility planning, inter-ministerial coordination and spatial strategy behind the four parks offer combined lessons on success factors and pitfalls to avoid.

During the initial design stages of the IAIP scheme, 17 AIGCs were identified in Ethiopia by a team of experts from the ATA, the FAO, UNIDO, the Ministry of Industry and regional authorities (ATA, 2014; Ministry of Industry, 2014 in Ghione, 2021). While recommendations were provided on the basis of technical criteria (agricultural production potential; inter-industry linkages and triggering effect; infrastructure facilities; market potential; access to commercial and support services; and concentration of enterprises and attractiveness for investors), equity considerations among the four most prominent regions forming the political coalition of the ruling political party²¹ took priority in the IAIP site selection (Ghione, 2021: 119). The FAO (2017) also undertook several value chain analyses for four planned pilot parks, but the government decided to prioritize regional representation regardless of economic viability and access to strategic transport networks and corridors. The weight of such political considerations are further evidenced by the Strategic Environmental and Social Assessment jointly undertaken between GoE and the AfDB that highlighted the risks associated with land acquisition and involuntary resettlement as a result of implementing sub-projects to be carried off-site from the IAIPs and RTCs. These included “physical displacement to the households and properties found inside the right of way which will have a long term irreversible negative impact” (AfDB, 2018c: 10). For Oromia’s IAIP site analysis, expropriation was a sensitive topic against the backdrop of frequent political and social turmoil; therefore, the political and social cost of expropriating land turned out to be the key location

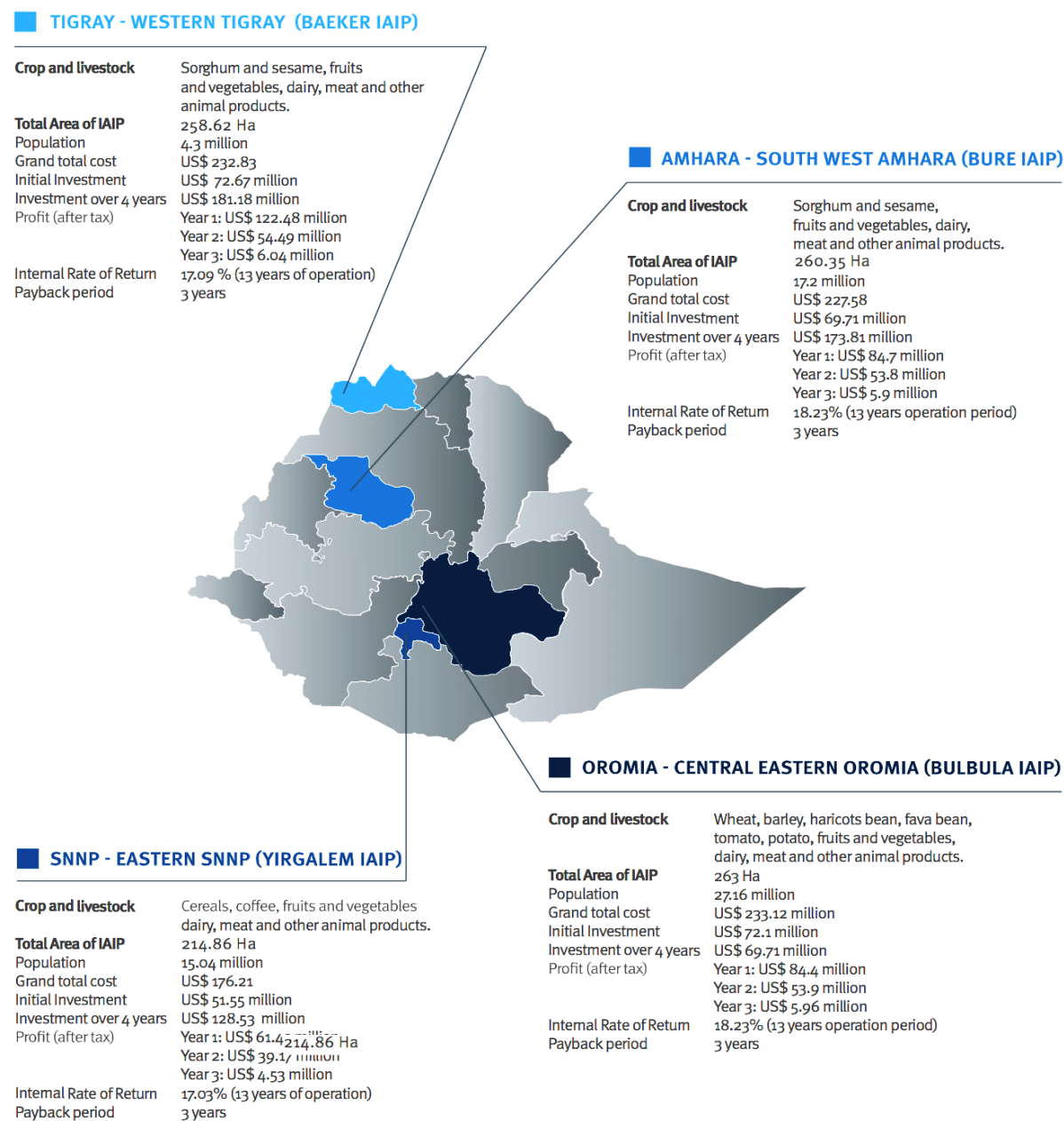
¹⁹ The AIP in Yirgalem (Southern Nations, Nationalities and People’s Region, Ethiopia) is reportedly the most advanced park, with infrastructure in the AIP in Yirgalem and the RTC in Dilla available for up to 150 firms (UNIDO, 2020: 36).

²⁰ Among the *donors*: Italian Development Cooperation, IFAD, Germany, the Netherlands, Denmark and South Korea; *development banks*: AfDB, EIB and the Korean EXIM Bank; and *international organizations*: UNIDO, FAO, UNDP and ILO.

²¹ Until 2019, the ruling coalition party of Ethiopia was the Ethiopian People’s Revolutionary Democratic Front.

criteria for regional authorities, although described by some as generating a “suboptimal decision to locate the park in the water stressed zone of Bulbula” (Ghione, 2021: 120).

Figure 3: Location of IAIPs in Ethiopia’s four main regions



Source: (UNIDO, 2018)

The one-size-fits-all and top-down approach of the feasibility plans have delayed the construction of the four parks and six pilot RTCs. Site selection and feasibility plans overlooked the competitive advantage of current market systems on the ground, for example in Oromia, where donors such as the Italian Development Cooperation Agency have been working for decades on farmer cooperatives and value chain integration. The IAIP and RTCs site selection did not capitalize on this pre-existing and thriving agro-industrial context. Feasibility studies conducted by Mahindra Consulting Engineering were overly technocratic and mechanical in analysis and lacked consideration for the capacities and needs of real actors in the field (Ghione, 2021: 122). Two major issues identified were that (1) the IAIP feasibility studies have not involved potential tenants, domestic and foreign investors; and (2) the design, ownership and management of the RTCs in these studies exclude farmer cooperatives in the rural catchment zone. The feasibility studies contained inaccurate

information due to the urgency of completing the design and of starting the construction of the IAIPs; the withdrawal of the ATA from the policy process; and the dwindling involvement of both the Ministry of Agriculture and the Ethiopian Investment Commission (EIC) (Ghione, 2021: 123). There were also duplicated efforts between the RTCs and pre-existing aggregation and marketing activities of local cooperatives. However this has led to new opportunities for cooperatives to relocate and make use of RTC facilities. For example, the cooperatives of the Bale plateau, which are already selling wheat to several pasta and biscuit factories, plan to invest in the RTC located in Robe, which would become an aggregation platform for storing their members' crops (Ghione, 2021).

Weak intra-government coordination and inter-agency rivalry are identified as major pitfalls for Ethiopia's IAIPs (Norman, 2020). The division of labour between state agencies such as the EIC, the Industrial Parks Development Corporation (IPDC) and RIPDCs based in the four IAIP zones has been complementary in some respects, helping drive policy momentum and implementation, but it has also been a source of institutional misalignment. For example, the IAIP programme Steering Committee shows how coordination mechanisms can be in place, yet implementation remains stalled due to shifting mandates (AfDB, 2021; UNIDO, 2020a). The Ministry of Industry decided not to include the EIC and IPDC as members of the IAIP Steering Committee, depriving the policy process of the valuable expertise of two highly specialized agencies (Ghione, 2021: 117). Further conflict was evidenced by the ATA withdrawing from this structure in 2014 due to conflicting views on the role and governance of RTCs, only to re-join later during the implementation phase (Ghione, 2021). By contrast, there have been individual and institutional political “champions” of IAIPs. Arkebe Oqubay, special advisor to the Prime Minister, “bought into” the SCPZ model being deployed in Nigeria by UNIDO and sought to emulate it in Ethiopia (KII, Agro-Economist). Moreover, by overseeing the high-level taskforce, the Prime Minister's Office has been an efficient anchor point and integral to regular three-monthly meetings to solely deliberate on the IAIPs under the close supervision of the embedded Advisor for Macroeconomic Affairs (UNIDO, 2020a). However, institutional memory was impacted when key industrial policy architects left office – “a new [Ethiopian] Government was formed in 2018 and it took some time to assure the continued support for the agro-industrial parks” – along with the time needed to strengthen the capacities of the RIPDCs that manage the parks (UNIDO, 2020a: 37).

Inefficient, multiple reporting structures and layers dominate national institutional settings and the donors involved in the IAIPs. UNIDO's (2020a) evaluation of its PCP with Ethiopia features a core component on technical assistance to the IAIPs. Inefficient reporting mechanisms and weak feedback loop mechanisms between UNIDO's donor support via the PCP for Ethiopia and GoE's different ministerial departments and RIPDCs have been identified as major obstacles to M&E (UNIDO, 2020a). The PROSEAD multi-donor initiative led by the EU recognized weak inter-agency and donor coordination as a risk and integrated PROSEAD into the pre-existing government–donor AIP coordination framework reporting to the inter-ministerial committee on the government side and to the AIP donors' group as part of the EU+ Joint Agro-Industrial Framework (EU, 2018: 22).

Donor funding has targeted more specialized infrastructure. This includes waste management infrastructure (UNIDO), electrification (Chinese government grants *vis-à-vis* the AfDB), capacity building of Ethiopian authorities (Tony Blair Institute), establishing a decentralized food safety and quality system, improving access to finance for investors and smallholders, improving agricultural productivity and strengthening of agro-industrial value chains, strengthening universities and technical and vocational training, attracting FDI, gender mainstreaming and promotion of decent jobs in IAIP catchment zones (eg GIZ's Special Initiative Jobs Programme) (KII; AfDB, 2021; UNIDO, 2020a; FAO, 2017, Ghione, 2021). An “anchor donor” mobilized a multi-donor buy-in for the IAIP scheme: the Italian Development Cooperation Agency, the Italian Embassy and the Italian Trade Institute, working through UNIDO as “discovery donors”, promoted the concept of IAIPs among other development

partners, and this helped attract DFIs such as the AfDB, the European Investment Bank (EIB) and the EU.

Management and operations: pitfalls and success factors

Management arrangements overseeing the development of the IAIPs are composed of the RIPDC, the RIPDC Board, branch offices, regional level steering committees and SPVs. Since 2016, the IAIPs have been managed by RIPDCs – regional public corporations that operate under the supervision of the Ministry of Industry. One key development partner involved considers the AIP management approach “inefficient” because it absorbs too many resources (UNIDO, 2020a: 38). The RIPDC creates a parallel structure to the other industrial parks managed by the IPDC, and the regional governments in charge of the management of the agro-parks do not yet have sufficient capacity to manage the AIPs (UNIDO, 2020a). However, the comparative advantage of RIPDCs compared to the federal IPDC has also been recognized as being better attuned to local realities and, while accountable to regional authorities, these park managers enjoy greater leeway with respect to operational choices, such as the selection of investors and the negotiation of PPP agreements (Ghione, 2021).

Each park is served by a network of RTCs established by GoE to provide linkages to producers and to serve as raw material aggregation points in wider catchment areas (100 km radius) (UNIDO, 2019a). The private sector was not deemed strong enough to operate them, with the RIPDC seen as the “best fit” (KII, Multilateral). At the design stages, the ownership, governance and possibility of using PPP arrangements of the RTCs was unclear and there was no provision for involving local cooperatives, while the state Minister of Industry halted consultations due to political instability (Ghione, 2021: 123). The key constraint today is inter-institutional coordination and the ability to tackle governance issues affecting agro-industrial development with effective private sector participation (EU, 2018). More recently, leveraging the additive role of the private sector has been identified as a key ingredient in IAIP operations and management (UNIDO forthcoming; AfDB, 2021; KII, Agro-Economist) and GoE’s approach has shifted in line with the 2018 reshuffle in political office with the “Home-Grown Economic Reform Programme”, which prioritizes reinvigorated engagement with the private sector (Ghione, 2021). The risks of public management of RTCs have also been identified by donors, and future scope for private operator or mixed PPP models have been deemed more desirable (KII, Multilateral). The construction of 22 new RTCs will be open to an ownership and management model made up of cooperatives and private investors, also in PPP with the RIPDCs (Ghione, 2021: 130). This has been the case in Bulbula IAIP, for example, where the parallel RTC in Shashemene is managed by a brewery cooperative that reached out to the RIPDC to use the opportunity to transfer its cooperative members to rent units (KII, Multilateral).

Firm incentives and performance requirements: pitfalls and success factors

To date, 203 investors have been registered by the four RIPDCs, 52 of which are considered as potential investors (according to criteria such as capital availability and experience in the proposed business), and 12 of which have signed an agreement (eight domestic, two FDIs from China and Saudi Arabia and two joint ventures between domestic and foreign firms coming from China and the Netherlands) to operate in the parks (UNIDO, 2020a). Of these 12, four have built their sheds and are operational (Ghione, 2021: 132). In the early stages of implementation, the incentives available to investors in traditional industrial parks in the textile and garment sector were “copied and pasted” to the IAIPs. However, donor technical support from UNIDO to the EIC fine-tuned the incentive package to be more applicable to agro-processing and distinguishable from what is offered outside the parks (Ghione, 2021; UNIDO, 2020a).

Fiscal incentives made available to developers and firms include customs duty exemptions; investors are allowed to import capital goods duty free indefinitely if the investment is in the manufacturing and agricultural sectors (UNIDO, 2018). However, a number of strategic inputs are excluded from the duty-free list, such as new seed varieties,

and a major challenge is the lack of policy coherence at customs (KII, SEZ/AIP Expert). An “investment and supply chain” technical committee made up of the Ministry of Agriculture, the ATA, the Federal Cooperative Agency (FCA) and the EIC was set up to refocus the effective attraction of investors and the availability of sufficient inputs for these investors.

Non-fiscal incentives have remained rather limited, especially in terms of R&D innovation (KII, SEZ/AIP Expert). While Hawassa University is one of the key research institutions involved in the IAIPs, there is still a considerable way to go before incubators or “centres of excellence” are established in tandem with universities to help with product development, especially for MSMEs that may not have established R&D arms or that are not well integrated into industry-university linkages (KII, Multilateral).

Extension workers are facilitating backward linkages with producers for a steady stream of inputs for processing. In Bure IAIP, there is a strong focus on maize and wheat staple crops, and the investor (Richland) is relying heavily on government extension workers with prior knowledge of this commodity and value chain. In contrast, in Yirgalem IAIP, the avocado processing firm Sunvado has privately hired 24 extension workers for a private avocado oil value chain to work with over 25,000 farmers beyond the SNNP region (KII, Agro-Economist). In this specific case, co-financing from donors (EU, GIZ and Italian Cooperation) supported capacity building and agro-industrial skills training programmes tailored to the business needs and binding constraints of IAIP tenants; the avocado production at Yirgalem IAIP is accompanied by a GIZ technical assistance project, which is supporting avocado farmers (UNIDO, 2020a: 37; KII, Donor).

In terms of the diversity of firms that are being attracted, investor numbers are currently low and the overall picture is that large firms dominate occupied units. For example, in the now operational Bure IAIP, three large firms have taken almost 80% of the estate and MSMEs are largely excluded at the firm/tenant level (KII, Multilateral). However, there is scope for MSMEs to be engaged at different intermediary points by the anchor firms in the IAIPs (KII, SEZ/AIP Expert). In 2021, GoE signed off on the PESAPYE project, which includes a component that will institutionalize a sustainable credit scheme in partnership with the Development Bank of Ethiopia dedicated to SME and agripreneurship development in the IAIP network. The AfDB has also developed micro-credit financing to help SMEs join the Yirgalem and Bulbula IAIPs in a bid to ringfence incentives used to attract this particular group of actors to the IAIPs (KII, Agro-Economist). While there are many challenges, especially for domestic MSMEs, a range of incentives are in place – fiscal, machinery imports and workshops with more established firms for learning. Some donors have recommended business incubator competitions to help smaller firms become “solid enterprises” with robust sourcing structures (KII, Donor).

India’s MFPs

In 2005, Gol released its “Vision 2015” document, which outlined the ambition of placing India as a world leader in food processing and value addition by 2015. To bring this vision to life, India’s MFP scheme was launched in 2008 under MoFPI, with the aim of linking agricultural production to better integrated domestic and international value chains, reducing perishable food wastage and creating enabling infrastructure to facilitate a cluster approach to food processing. Fifty-four MFPs have been approved by the ministry, with 22 MFPs currently in operation (Satyasai and Singh, 2021; Priyadarshini and Abhilash, 2021). The scheme works on a 50–50–50 model, meaning MoFPI gives a grant of up to Rs. 50 crore (approximately US\$ 500m) to build an MFP with a minimum land area of 50 acres and a 50% contribution to the project cost from the MFP developer (ICRIER, 2015). More recently, Gol announced that the challenges to higher growth in the agricultural sector are to be addressed under the umbrella programme the Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA), of which MFPs are a component. Other additions to SAMPADA include the creation and expansion of food processing and preservation capacities, as well as integrated cold chain and value addition infrastructure (Satyasai and

Singh, 2021). Under this scheme, MoFPI also created a subsidy and food processing fund of US\$ 300m through the National Bank for Agriculture and Rural Development (NABARD), which extends credit to food parks and individual food processing firms within them (Singla, 2016; Satyasai and Singh, 2021).

The overall structure of the MFP scheme is based on a hub-and-spoke model, helping create agglomeration sites that reduce transportations costs and facilitate greater efficiency via CPCs (hubs) aligned to PPCs and collection centres (spokes) (Figure 2). A number of key stakeholders are also involved in the planning, implementation and monitoring of MFPs, which include an inter-ministerial approval committee, a technical committee, a project management agency (PMA), project management consultants (PMC) and an SPV.²² State governments also play a key role in the formation and management of MFPs, particularly in the acquisition of suitable land, provision and maintenance of external infrastructure and bureaucratic clearances required for the project. This is often facilitated through a state nodal agency, such as the Kerala Industrial Infrastructure Development Corporation (KINFRA). It has been estimated that the MFPs (and cold chain infrastructure) have benefited more than 500,000 farmers and created more than 650,000 jobs (Satyasai and Singh, 2021).

The scheme has previously been criticized for not being linked to other regulatory schemes that could prove beneficial to the food park scheme, such as port-based SEZs or the work of the Food & Processed Food Products Export Development Authority (APEDA) (ICRIER, 2015; Grant Thornton, 2017; Sengar, Sharma and Agrawal, 2017). However, the inclusion of MFPs in SAMPADA reflects the non-static nature of this demarcation and the desire of GoI to integrate the food value chain further, encouraging natural agglomerations. Such agglomerations have been encouraged through FPOs, which address issues such as market linkages, small land holdings and better farmer access to quality machinery, as well as greater value addition. Once legally registered as a formal entity, the cooperative of farmers under the FPO becomes a Farmer Producer Company (FPC), promoting smallholders in a way that facilitates have improved competitiveness and increased bargaining power when trading their primary inputs with other entities in the value chain. Under the 2019–2020 Union Budget, 10,000 new FPOs are expected to be formed over the next five years, in addition to the existing 5000 FPOs (Satyasai and Singh, 2021).

FPOs are particularly helpful in ensuring greater farmer empowerment when negotiating prices. Given that many Indian farmers are impacted by volatile price shocks and uneven yields, this market uncertainty can weaken competitiveness, while the FPOs enable access to more state benefits by being part of a larger registered entity. They can provide an apt package of solutions, such as employee protection (including more stable incomes and formalized labour practices), and can offer lobbying power to farmers looking to ensure investment in rural infrastructure (such as soil testing laboratories, packing houses and cold storage facilities) (Satyasai and Singh, 2021; World Bank, 2015). Backward linkages are fairly strong in the MFP scheme, with many taking into account seasonality, raw material availability in the surrounding area and the presence of farmer groups, such as FPOs and cultivator associations. Patanjali Food and Herbal Park, for example, is served by five PPCs with their corresponding collection centres linked to eight to 10 cultivator associations, which in turn consist of 10–25 farmers. In the IFFCO Kisan agro-park, farmers are linked to the main processing site via a network of RTCs with services that included agriculture extension services, warehousing and banking. Despite delays caused by land-related litigation, IFFCO announced the arrival of Coca-Cola to the park, leading to the direct employment of 250–300 people (FAO, 2017). Direct connection to farmers helps stabilize perishable food prices, remove middlemen and achieve better prices for produce (Sengar, Sharma and Agrawal,

²² The responsibilities of each are as follows. The Inter-Ministerial Approval Committee, headed by the Minister of MoFPI, selects projects and approves grants and monitors the implementation process. The Technical Committee scrutinizes proposals and project reports, giving recommendations to the Inter-Ministerial Approval Committee. The PMA are external consultants recruited by MoFPI to assist in park implementation. They organize workshops, marketing campaigns and project evaluations and assist in releasing state grants to SPVs, while PMCs are recruited by the SPV (who are fully responsible for the overall management and executions on the MFP) to assist in specific implementation issues and prepare project reports (ICRIER, 2015).

2017). However, while collection centres have helped forge some linkages, “spokes” have not always been properly developed, with too much emphasis on developing central processing hubs instead (Aggawal, 2015).

While backward linkages have been strengthened, the same emphasis has not been placed on the design of forward linkages, leading some MFPs to create their own forward linking value chains. For example, Patanjali Food and Herbal Park have promoted forward linkages through a complete distribution channel that includes storage facilities, transportation hubs and retailers, in the end supplying more than 10,000 Patanjali stores and more than 300,000 retail stores (Sengar, Sharma and Agrawal, 2017). Sriniv Food Park has also created such linkages with large retailers such as Walmart and Reliance Fresh. This linkage imbalance risks a “supply glut” leading to production losses and ultimately to producers losing out. MoFPI might be best placed to help close this gap, for example by helping SPVs to market products coming out of the MFPs.

One of the largest issues facing the Indian MFP scheme has been related to land acquisition. Many approved mega park proposals have never taken off at the local level specifically because of this (FAO, 2017). In Bihar state, the biggest issue facing the development of MFPs was land availability, which was mostly in government hands. According to one key informant, this reflected many political economy issues after having witnessed land either handed out to investors based on political favourability or the highest bidder (KII, SEZ/AIP Expert). SPVs in India Food Park, Bengal MFP, International MFP, Jharkhand MFP and Satara MFP have all faced issues relating to acquisition, sub-leasing and environment clearances of land in their dealings with respective state governments (Rais, Kaul and Jain, 2019). Furthermore, units inside MFPs are not able to own land and thus cannot use it as collateral when looking to take out bank loans. Based on a survey of 16 MFPs, this was found to be a disincentive for prospective unit holders (ICRIER, 2015).

Some donor assistance has been seen in promoting the development of MFPs, but donor involvement has been extremely scarce in the scheme as a whole. UNIDO assistance was present in the Malappuram Food Park around pre-investment business plan preparation, hazard analysis, investment promotion and critical control point training and technical assistance to KINFRA Food Park in Kakkanchery (Rao, 2006). However, short-term financing in particular has been dealt with directly via state nodal agencies, MoFPI, NABARD and commercial banks. Many Indian agro-park developers have complained about the high cost of borrowing and high collateral requirements, as well as the requirement to develop MFPs to a rigid 30-month deadline compared to other more developed industries, such as the Mega Leather Cluster, having five years to operationalize (ICRIER, 2015). It appears unfeasible to create forward and backward linkages within such a timeframe. According to Satyasai and Singh (2021: 14), poor access to subsidies, loans, marketing and skill development can be addressed via a two-fold strategy that entails integration of production and processing activities and the adoption of “aggregation as a philosophy”. The former proposes that anchor firm processors act as a guarantee to their network of suppliers so they may leverage bank loans, resulting in lower transaction and risk costs all round, while the latter points to the agglomeration benefits from innovations such as FPOs and FPCs by allowing a single point of procurement and greater bargaining power for a large number of farmers. Given that the initial costs of MFPs range from US\$ 10m to US\$ 20m (with an average of US\$ 15.7m), a large funding gap exists that requires patient, long-term financing that can be made available to larger and smaller firms to ensure better integration in the overall value chain (Locus Economica, 2020).

Most MFPs operate on a PPP basis, but there are strong examples of public sector management. This can be seen in the Kakkanchery Food Park managed by KINFRA, which comprises of a policy-making board chaired by the Chief Secretary of the Government of Kerala, a managing director that leads on park organization, a general manager to oversee projects and activities within the park and an officer that looks after daily activities (FAO, 2017). While this may seem like much public sector involvement in one state, other public measures

(such as PMCs having their incentives tied to both park entrepreneurs and accountability mechanisms from the central ministry) have helped create distance between government and individual tenant grants, lessening risks of corruption in the ongoing management of the park (Saleman and Jordan, 2014; FAO, 2017). Nevertheless, the overall state of M&E systems have been poor in the MFP scheme. India has seen great public and private interest in its food parks despite there being little to no comprehensive assessment of existing food parks and schemes. Despite this, the government still plans on setting up more food parks, affecting its ability to provide effective and solid institutional support mechanisms despite the likelihood of being better equipped to make such decisions if existing problems and successes are fully evaluated first (Aggarwal, 2015). Further efforts for transparency in the area of evaluation should be made, which will also imbue confidence in the earlier bidding stages. For example, appraisal reports could be made available online, along with meeting minutes from the inter-ministerial approval committee (ICRIER, 2015).

In terms of incentives, the scheme has been criticized for having a “one-size-fits-all” approach that can be a put-off to investors with differing requirements. The 50–50–50 format in particular has been seen by some as being fairly restrictive. Multinational food processors have cited a grant-based scheme as a hindrance to investing since they cannot readily take grants from developing countries. Food processors from Japan, Korea, the US, the EU and Australia have pointed out that countries such as **China, Thailand and Vietnam** allow food park development through a joint ventures scheme, which they prefer (ICRIER, 2015; Singh and Siha, 2018). Furthermore, multinationals such as PepsiCo India and McCain Foods have noted that they would not want MoFPI or a PMA to essentially design their business model, which brings into question the role of remits and the use of PMCs and PMAs in the first place (ICRIER, 2015).

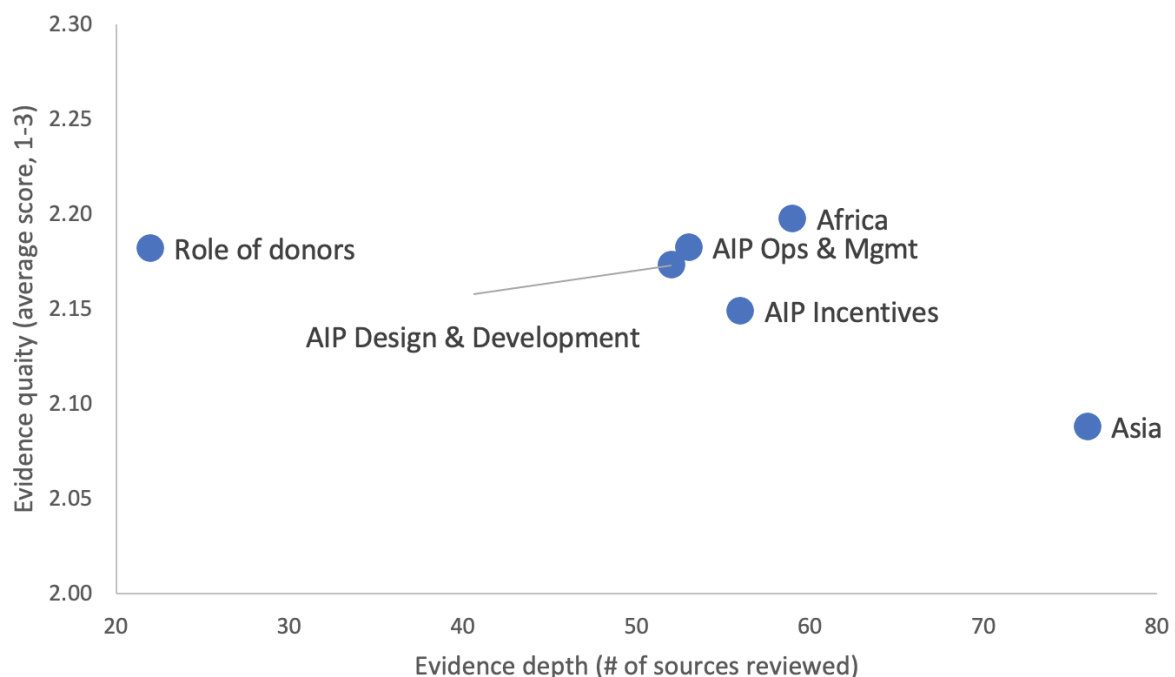
Other issues consistently brought up by firms include the frequency of delays in receiving grants and promised incentives that are compounded by complex exemption rules (Aggarwal, 2005). This points to the importance of “soft incentives” that facilitate ease of doing business and that are seen as more important than fiscal incentives (KII, AIP/SEZ Expert; KII, Multilateral; KII, Agro-Economist). For example, a commercial bank provided specialized banking services to SMEs and rural farmers connected to IFFCO Kisan, while a strong basic infrastructure – such as roads, effluent treatment facilities, electrical substations (including backups) and stable water supplies – was seen as a good example of what was soundly attractive to firms and investors at Indus MFP (FAO, 2017). According to one key informant, a private sector “champion” helped put together a working group to address perceived policy blockages for investment in one Indian state, which were eventually addressed by the government and helped grow confidence among investors substantially (KII, SEZ/AIP Expert).

Other incentives surround the use of upgrading, learning and innovation via R&D incubation. Following recommendations from the Defence R&D Organization, the KINFRA Kakkanchery Park modified research and incubation facilities within the park. This led to a proposed irradiation centre being replaced by a pouch packaging facility for ready-to-eat foodstuffs as well as other innovations, such as hilly and undesirable areas of the park being marketed at discounted rates so long as development costs were taken on by the incoming firm (FAO, 2017). A number of key informants have spoken about the importance of the encouragement of R&D within AIPs, yet hardly any Indian MFPs have such facilities onsite (KII, Multilateral; KII, Agro-Economist). This points to an area of potential improvement for the scheme that will help facilitate better forward linkages and value addition. It also links to the need for better knowledge spillovers, which have been inadequate in Indian MFPs, leading to an overreliance on particular export products such as onions, okra and mangoes (ICRIER, 2015). Some innovative incentives to attract firms to the MFPs can also include small grants for green technology or machinery purchasing and promotion and marketing hubs to support smaller businesses that might not have dedicated or largely funded teams for this (ICRIER, 2015).

Annex 2: Strength of evidence and areas for further research

Figure 4 highlights how the quantitative scoring exercise has not revealed any major variation in evidence quality across the six research areas: the average scores are very similar, ranging from 2.08 to 2.20 on a scale from 1.00 to 3.00. In terms of depth of evidence, more articles were synthesized relating to Asia (76) than to Africa (59), but again the difference is not overwhelming. In terms of the three areas in which AIP pitfalls and success factors were situated, the evidence base looks very similar in terms of both depth and quality. The only clear relative evidence gap to highlight, then, is the role of donors, for which only 22 papers were deemed sufficiently relevant to review and include in the synthesis. However, this is partly due to the fact that many donor project evaluations and other documents are not in the public domain, and partly due to a selection bias: the review team prioritized searching for academic articles over donor documents.

Figure 4: Depth and quality scoring of reviewed literature



A qualitative evaluation of the gaps and weaknesses in evidence against our research questions is perhaps more revealing and instructive. A number of key informants noted the lack of in-depth evaluations of AIPs, which is confirmed by the relatively low number of reviewed papers in this area. Several key informants called for a deeper review of the success factors and pitfalls of well-established AIPs, including onsite visits by independent evaluators. India’s numerous MFPs would be the obvious target of such an in-depth analysis due to the fact that they are among the first AIPs to have been established. Most KIIs noted that many African AIPs, including Ethiopia’s IAIPs, are perhaps too young in their establishment to be reviewed at this time, however, a handful of African AIPs, such as Gabon’s GSEZ Nkok and Morocco’s agro-poles, may qualify alongside India’s scheme.

Major recent publications on AIPs have been more directed at designing guidelines and sharing best practices than on rigorously assessing AIP challenge areas and success drivers. This means that, beyond peer-reviewed studies and flagship publications, we have had to dig into more specific “grey” literature, such as appraisals and technical donor evaluations, many of which still do not sufficiently give an in-depth understanding of the main success factors and pitfalls of AIPs. One evaluation study of India’s MFP scheme (ICRIER, 2015) stands out as one of the few papers to delve into this area, but with new MFPs coming

into operation and being approved every year, an updated and more in-depth assessment is required in this area. While interviews with experts and organizations working on AIPs have been used to complement the literature – as noted in the main report – the lack of in-depth evaluations has been repeatedly noted by the key informants interviewed.

There appears to be relatively little rigorous econometric evidence regarding the drivers of AIP success or failure, with some important exceptions, such as Farole (2011) and World Bank (2017b). While the insights of these particular papers have been helpful in forming various conclusions in the main paper, there is yet unpublished econometric research into industrial parks that the research team is aware of. Use of such studies, alongside the aforementioned in-depth onsite assessments that are required, would provide a greater level of nuance to the analysis of existing and proposed AIP projects and lessen the reliance on lessons learned from SEZs and industrial parks more generally.

In terms of backward linkages and the benefits to smallholder farmers, we have found little evidence on strategies for better synergies between individual government developmental goals and investor incentives. The literature has presented sound evidence of donor involvement in facilitating better backward linkages, particularly in the areas of agglomeration and value chain development. However, one key informant noted emphatically that the political economy of smallholders can easily become a politicized focal point in danger of alienating some donors and particularly investors who are most concerned about risk. A broader analysis is thus required into how these linkages can be incorporated into investment incentives and considerations.

The evidence on AIPs was more diverse for Africa than for Asia. While we found significant relevant literature from Asia, this was (somewhat unsurprisingly) skewed towards **India** and **China**, with India in particular making up the bulk of AIP-specific literature. The African context presented fewer established examples but more variation, with the integrated industrial park structure from Ethiopia, agro-pole examples from Morocco, timber-focused efforts in Gabon and up-and-coming examples from Senegal, Tanzania and South Africa. The research team found that in some Asian countries where AIPs have a presence – such as Cambodia, Malaysia and Thailand – the available literature did not delve sufficiently deep to draw particularly standout conclusions and points to an area for further research.

Annex 3: Detailed methodology

This section lays out our methodology for the full study.

Analytical framework

Figure 5: Illustrative overview of AIP domains

Adapted from UNIDO (2019b), AfDB (2021) and FAO (2017)

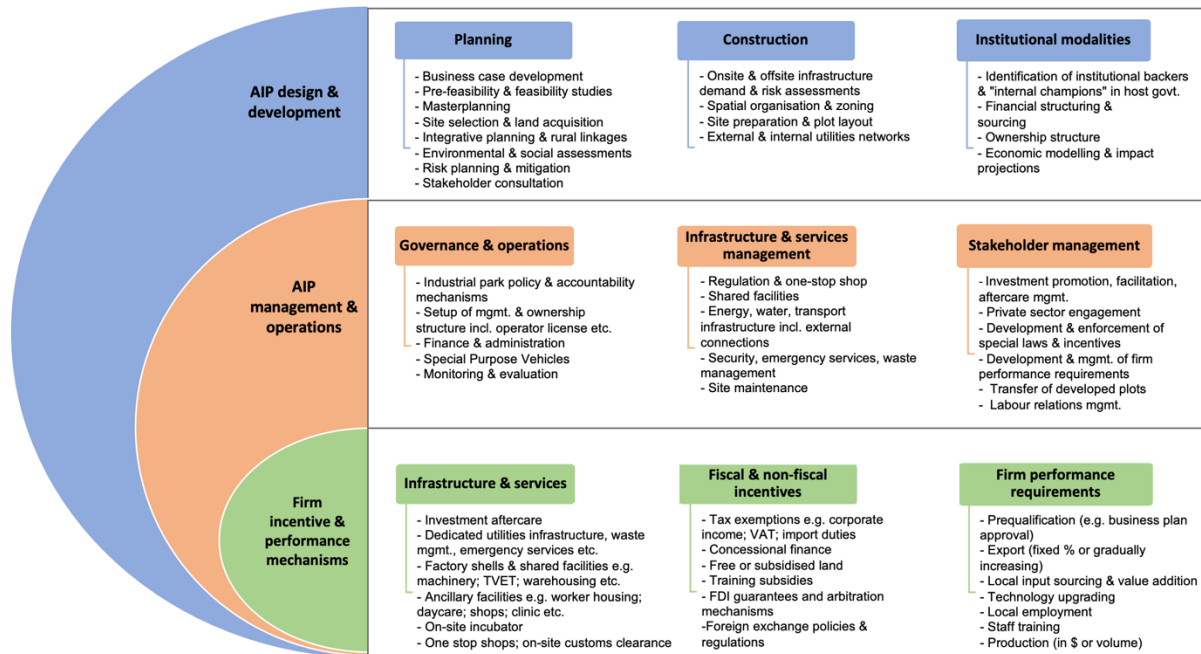


Figure 5 illustrates the analytical framework used, which situates AIP pitfalls and success factors across three domains.²³

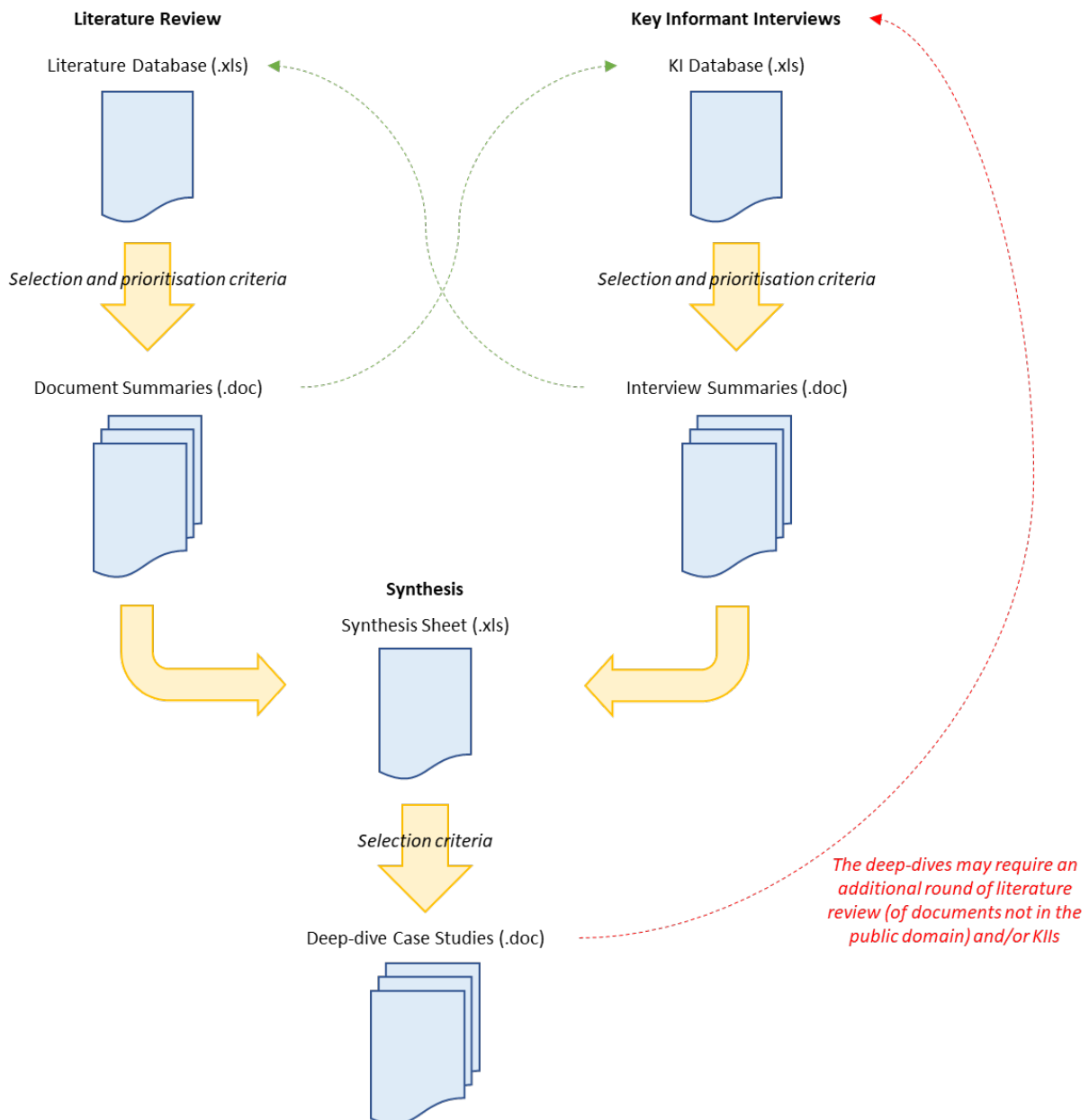
To answer the core research questions, the research team employed a qualitative method consisting of two interrelated strands: a **literature review** and **KIIs**. Table 3 details the steps taken to identify and collect the relevant literature, which was read and assessed along the lines of the four research questions. The literature covered not only AIPs specifically, but also SEZs, agro-clusters, agro-poles, agro-processing zones and other related terminology detailed in Table 3. The majority of the literature reviewed consisted of published journal articles, grey literature, multilateral and donor reports, government reports and material and select evaluation studies. All literature predating the year 2000 was omitted, while a specific country focus was placed on low- and lower-middle income African and Asian countries.

After being read, all documents were given a one-to-two-sentence summary in a large Excel database and coded according to continent focus, as well as according to each piece's focus *vis-à-vis* the core research questions. Simple grading criteria assessing methodological quality, relevance of methodology to the core research questions and relevance of the document's overall focus were also employed (Table 4; Figure 6). All literature was systematically analysed through a large synthesis database and grouped according to AIP-specific and non-AIP-specific examples (ie SEZ, SCPZ, etc type focus). Specific country examples were highlighted throughout, with the most prominent and recurring examples used to comprise a shortlist of potential deep-dive cases, of which two were chosen.

²³ There have also been some efforts to identify the major pitfalls that cut across different phases of AIP project cycles. For instance, Norman (2020) focuses on common pitfalls of industrial zones and parks, categorizing them under five areas: (1) inadequate institutional structure, (2) lack of an integrated development approach, (3) uncompetitive policies, (4) limited focus on providing a better investment climate and (5) public sector developed and managed SEZs.

Key informants were identified according to expertise and involvement in AIP projects across Africa and Asia. Names were generally extracted from the literature, collated in an Excel database and then subsequently contacted via email with an invitation to interview. In other instances, the working networks of the research team were utilized to contact key informants and invite to interview. KIIs were not voice-recorded and consisted of two or more members of the research team following a semi-structured interview format, with detailed notes captured in a separate database. These notes were then synthesized alongside the selected literature, and links were made to particular points within the database that have informed various chapters of this study. The insights further deepened the analysis of each case study, providing salient information otherwise not contained within the available literature.

Figure 6: Research methodology schematic



Each of these steps is described in more detail below. In practice, there has been a degree of iteration and interaction between the different steps. For example, an initial synthesis of the literature and KIIs was made before embarking on the deep-dive case studies, which subsequently entailed a further round of document reviews and KIIs.

Table 2: Overview of research deliverables and summary methodology

Research deliverables	Summary methodology
Up-to-date typology of AIPs in developing countries, particularly those sourcing from smallholders	-> The typology reflects the major dimensions along which AIPs vary; are mutually exclusive and collectively exhaustive as far as possible; is intuitive and user-friendly -> Typology based on insights from comprehensive literature review, KII and populated with examples (which may not fit neatly into categories or may raise a previously overlooked dimension of AIP variation)
(A) Main challenges around (i) developing and (ii) operating different kinds of AIPs and (B) how these challenges have been and can be overcome	-> Literature review: academic papers; think tanks, donor and government reports; evaluations of AIPs -> Supplemented by review of similar literature for broader categories: industrial parks and SEZs to collect lessons relevant for AIPs; drew from broader industrial policy/productive development policy/agro-industrialization/investment promotion and facilitation literature -> KIIs with (i) leading researchers, donor and practitioners on AIPs validated/tested our general analysis, (ii) targeted key informants to filled evidence gaps identified in literature review, (iii) different stakeholders of selected AIPs (policy-makers, operators, consultants, researchers, donors)
(A) Incentives used by the public sector to encourage private firms to move into AIPs and (B) performance requirements used to ensure private investment in AIPs advanced the park's stated strategic objectives	-> As above, with different search terms and interview questions
Where and how donors can most effectively provide practical support to AIPs	-> As above, with different search terms and interview questions; at least one case study has significant donor involvement
Quality of evidence and gaps	-> Scoring of evidence document-by-document and topic-by-topic -> Criteria for strength of evidence (detailed below)

Literature review

The collection of relevant literature

Table 3 describes the steps followed in collecting relevant literature to review.

Table 3: Literature collection methodology

Search steps	Description
General document searches	Use of: Google, Google Scholar (and possibly other selected academic search engines: NBER, CORE). Search terms recorded and developed iteratively. Because of the ambiguity in definitions of territorial industrial development approaches (eg "zone", "pole", "park" and "cluster" are often used interchangeably) a wide range of search terms were used, scanning the results to find literature relevant to AIPs as defined here. Examples of search terms include "agro-industrial park"; "agro-pole"; "agro-processing zone"; "eco-industrial park"; "industrial park"; "special economic zone"; "agro-cluster". These were used on their own, as well as combined with eg "development"; "operation"; "incentives"; "literature review"; "Asia"; "Africa"; [country]; "evaluation"; "performance"; "success factors"; "success drivers"; "challenges"; "evidence"; etc

Key informant and team recommendations	Team and key informant recommendations of documents, AIPs and AIP-related projects were recorded for further investigation
Targeted search for documents, databases and other lists of documents	To identify additional documents and AIPs, the websites of selected donors; multilaterals, foundations and philanthropies; DFIs; investors; NGOs and development contractors; and relevant networks and member organizations were reviewed for documents or lists/archives of documents. Significant lists of documents were recorded
Selection of documents for review of references	To identify further documents, the research team reviewed the reference lists of the most comprehensive documents identified. These were not recorded
Project-based searches	Searches were made for documents against each of the recommended AIPs and projects

In the steps above, there was subjectivity in deciding which documents to open or look at from lists of documents, usually based on their title, abstract or executive summary. There was also subjectivity in deciding whether to include the documents that were opened in the literature database. The exact process for deciding this was finalized based on experience in the literature searches, and followed an assessment of the prospects of the document being able to answer the overarching research questions.

Inclusion and exclusion criteria

The following criteria were used to decide which of the identified documents to include or exclude in the review. These were revised after an initial search and were dependent on the total number of documents found.

Table 4: Inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
Language	English; French	All other languages
Publication year	After 2000	Before 2000
Publication type	Journal articles or chapters; working papers; AIP/project appraisals, plans, evaluations; institutional reports; policies; strategies, institutional databases, presentations	Blogs, news articles, AIP/project reports clearly intended for marketing purposes, student papers
Country focus	Documents that help answer the research questions; documents providing relevant insights on or lessons relevant for AIPs and related projects in lower and lower-middle income countries in Africa and Asia	Documents that do not help answer the research questions; documents that do not provide relevant insights on or lessons relevant for AIPs and related projects in lower and lower-middle income countries in Africa and Asia

Document coding

Once a document was selected for inclusion in the literature database, basic document information was entered and the document stored in an archive. Document information included:

- citation
- publication year
- region(s) covered (Africa; Asia)
- countries covered
- document type (eg academic paper; non-academic paper; project/donor/DFI report; AIP appraisal/planning/strategy document; AIP/project evaluation)

- summary (one to two sentences) describing how the document responds to the research questions
- strength of evidence scores (against criteria described below)

Document analysis

For each document selected for further analysis, relevant information was extracted into a large synthesis sheet. Information was then mapped against each step in the analytical framework. The review team also assessed the strength of evidence against the criteria described below.

KIIs

The literature review was complemented by a series of KIIs, which aimed to obtain insights on specific research questions and recommendations for additional documents, AIPs and AIP-related projects to review, as well as for other key informants to consult.

An initial set of key informants was identified using the team's existing networks and preliminary research. The number of interviews conducted was determined alongside the literature review and the planning for deep dives. Key informants were interviewed only once. However, in the process of drafting the synthesis report, any necessary follow-up questions were made via email. These follow-ups consisted of further material or other key informants to consult rather than follow up information pertaining to the core research questions themselves.

Interviews were semi-structured and conducted using an interview guide. This guide roughly followed the core research questions, with specific interview questions tailored to each interviewee as required.

For each interview, detailed notes were taken and relevant information inputted to the KII summary word template. A list of all interviewees, profiles, contact information and dates of interview was maintained in a key informant database and has been available to the Commercial Agriculture for Smallholders and Agribusiness (CASA) Programme via this annex.

Finally, all interviews followed appropriate ethical guidelines to ensure that respondents were safeguarded, and that social and cultural considerations respected. This includes:

- *voluntary participation*: participation was voluntary and free from external pressure; information was not withheld from prospective participants that might have affected their willingness to provide data; all interviewees' right to withdraw and withdraw any information already provided at any point was respected
- *informed consent*: the research team provided a clear statement of intent to inform participants of how information and data obtained would be used, processed, shared and disposed of, prior to obtaining consent
- *treatment of participants*: we were aware of differences in culture, local customs, religious beliefs and practices, personal interaction and gender roles, disability, age and ethnicity, and were subsequently mindful of the potential implications of these differences when conducting interviews
- *confidentiality*: we respected people's right to provide information in confidence, ensuring that sensitive information cannot be traced to its source, and informed participants about the scope and limits of confidentiality
- *data security*: we guard (and continue to guard) any confidential material and personal information securely and have stated how data have been stored, backed up, shared and archived

Case studies

Following the literature review, and informed by interviews, two AIP schemes were selected for in-depth analysis. Purposive sampling was used to ensure a good range of examples that maximize relevance and learning. During the Inception Phase, we identified four to five potential AIP and project case studies based on their relevance, information richness and diversity, as well as on our team and network's likely ability to glean reliable insights from specific key informants and unpublished documents. These were then whittled down to two deep-dive studies, informed by both the literature and KIIs.

Quality of evidence assessment

The quality of evidence was assessed at two levels: (i) the number of sources reviewed (evidence depth) and (ii) evidence quality (average). We used a simplified scoring system adapted from the UK Government's [guidelines](#) for Rapid Evidence Assessments. The scores are naturally subjective, as they have been decided by the reviewer(s) of each document.

Each document reviewed was assessed against the following criteria, with each criterion scored on a simple 1–3 scale (where 3 is best and 1 is worst), yielding a score between 1 and 3 for each document:

- methodological quality
- relevance of methodology for answering our core research questions
- relevance of a document's focus for answering the core research questions

The overall strength and depth of the evidence was then subjectively scored by the research team for each cell in the following table, that is, for each core research question and for its coverage of AIPs in (low- and lower-middle income countries in) Africa and Asia.

Table 5: Strength of evidence matrix

Core research question	Africa	Asia
#1		
#2		
#3		
#4		

Synthesis of findings

During the synthesis stage, the research team considered the information from the literature review, KIIs and case studies to consolidate according to the core research questions. This was an iterative process, allowing for a sharpening and expansion of synthesis questions. As with previous studies the team has worked on, we used a synthesis matrix to collaboratively record and map key findings from each paper and KII against the research questions (recorded in the rows of the matrix), noting any variation in findings across regions, types of AIP and other contextual factors (recorded in the columns of the matrix). Headline findings were then developed for each research question and written up to answer each of the core research questions directly, before being integrated into the final report.

Research limitations and risks

There were several limitations to the research and risks to the team's ability to provide the desired outputs. The following standout points were observed.

- For the Asian context, much of the agro-processing discourse was found to focus on countries that are more established in this field (such as India); less was found on other countries that may have a smaller footprint in this area

- Despite less AIP-specific literature being available, the KII component of our research approach helped fill any gaps, while also giving added context to AIP-specific literature already reviewed
- Evaluation studies of existing AIPs were perhaps most challenging to come across. This point was echoed in several KIIs as a limitation to AIPs, particularly as it pertains to all core research questions, the sound answers to which can invariably inform better AIP design, management, policy and donor involvement from which other countries can learn. This further speaks to the somewhat novel nature of AIPs in general and the need for even more research in this area
- While experts with deep relevant knowledge were sought, there was inevitably a reliance on a small number of people's potentially narrow perspectives, with potential biases, knowledge gaps and motivations on the part of some key informants to present a certain narrative for personal or institutional reasons. To mitigate this, trusted connections or referrals were sought for interviews wherever possible, where gaps in knowledge were more transparently communicated and motivations understood. Where this was not possible, the research team sought to quickly build a trusting relationship with respondents based on shared connections and interests, but remained conscious of the various possible motivations and limited knowledge of respondents. Building trust with interviewees is more difficult through virtual calls than in person, but not impossible
- A risk relates to the availability of key informants for interviews. Some issues, such as summer holiday seasons for many multilaterals and donors, hampered the availability of some interviewees, while AIP/SEZ tenant firms and operators were much less responsive to our invitations to interview, leading to potentially fewer reliable sources than desired to answer the research questions. To help mitigate this, the research team were flexible in terms of platforms, times and dates in connecting with people so that network and availability issues posed the smallest risk possible
- One limitation concerns the timeframe available for the research, which limited the number of case studies and KIIs that could be carried out. This presented some risk for both internal and external validity. Selection of cases and key informants sought to represent a range of contexts, but were slightly narrower than desired
- Finally, gaps and weaknesses in the body of evidence on AIPs in the geographies of interest present a risk for the robustness of the study's findings. While we could not directly mitigate this risk, we have communicated the situation transparently to CASA; maintained clear standards for evidence that are used consistently in the analysis; and used the time available for the research responsibly in seeking the best available evidence

Annex 4: References

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Annex 5: List of stakeholders consulted

Table 6: List of key informants interviewed

Position	Organization	Informant type
Managing Partner	Koios Associates LLC	<i>Expert</i>
Principal Agro-Economist; Technical Lead on SAPZ Operations, AfDB	AfDB	<i>Multilateral</i>
Former AIP Operator	Lum Foundation	<i>Expert</i>
Head of Strategic Alliance, Building an Avocado and Sesame Value Chain in Ethiopia	GIZ	<i>Donor</i>
Managing Director and Consultant	Locus Economica	<i>Expert</i>
CEO and Lead Consultant	Talanta International	<i>Expert</i>
COO	Dube TradePort SEZ	<i>AIP operator</i>
SEZ, Agro-Park Private Sector Specialist	World Bank	<i>Multilateral</i>
Consultant and Co-Owner	J.E. Austin Associates	<i>Expert</i>
Strategy Director, Agribusiness and Food	CDC	<i>DFI</i>
Consultant and Co-Founder	Development and Growth Analytics	<i>Expert</i>
Industrial Development Officer – Biotechnology; Manager of UNIDO IAIP Operations, Ethiopia	UNIDO	<i>Expert</i>



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