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# Guidelines for Planning, Development and Management of Integrated Agro-Food Parks (IAFPs)



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# Guidelines for Planning, Development and Management of Integrated Agro-Food Parks (IAFPs)

## Edited by

Dejene Tezera and Eneyew Abera Gebremefas

## Authors

UNIDO

Dejene Tezera • Eneyew Abera Gebremefas • Jie Zhao • Stefan Kratzsch • Yvonne Lokko • Christian Susan

African Development Bank  
Chukwuma Ikechukwu Ezedinma

African Union Development Agency  
Martin Bwalya • Mustafa Sakr

Export-Import Bank of China  
Lili Yang • Pengyu Chu

African Export-Import Bank  
Oluranti Doherty • Babajide Sodipo

Mahindra Consulting Engineers Limited  
Narayanan Chandrachoodan Surya

International consultants  
Jean-Paul Gauthier • Stephanie Haile • Kulani McCartan-Demie

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## PREFACE



The United Nations Industrial Development Organization (UNIDO) is a specialized agency of the United Nations with the mandate to promote inclusive and sustainable industrial development as a means to eradicate poverty. In recent years, many low and middle-income countries have prioritized the development of their agro-industrial sectors as a means to capitalize on large agricultural production basins and expand their manufacturing potential and industrial output to meet growing demand for food within countries and globally. Catalysing agro-industrial growth is a challenging undertaking, however, requiring multidisciplinary approaches that link shared infrastructure with strategic policy, legal and regulatory frameworks and targeted action to connect and strengthen multiple stakeholders within geographically dispersed supply chains.

Agro-industrialization has a pivotal role to play in the growth of developing countries and economies in transition by fostering the broader industrialization required to meet the Sustainable Development Goals, in particular Goal 1 on no poverty, Goal 2 on zero hunger,

Goal 3 on good health and well-being, Goal 8 on decent work and economic growth, Goal 9 on industry, innovation and infrastructure, Goal 12 on responsible consumption and production, Goal 13 on climate action, and Goal 17 on partnerships for the Goals. Agro-industry has the potential to generate wide-reaching benefits such as creating demand-driven opportunities for on-farm and off-farm employment, bridging rural and urban markets, providing higher quality food and greater overall food security, expanding consumption, and generating knowledge spillovers that can be applied to other manufacturing activities. Furthermore, eco-design principles can safeguard the environment through smart and closed-loop infrastructure design and operations, as well as through the promotion of good agricultural practices throughout the supply chain.

To assist countries with this challenge, UNIDO has leveraged over four decades of institutional knowledge in industrial parks to create the concept of integrated agro-food parks (IAFPs). The concept is defined as “an agribusiness development corridor integrating value chain actors with high-quality infrastructure,

utilities, logistics and specialized facilities and services to create economies of scale for sustainable market-driven agribusiness development and rural transformation.” Accordingly, IAFP function as spatial industrial development policy instruments that connect a concentration of producers, agribusinesses and institutions in the same and complementary agro-industrial subsectors through centrally managed physical industrial platforms offering high-quality infrastructure, logistics, and specialized facilities and services to a community of tenants. IAFP offer a unique and inclusive solution to agro-industrial growth through the provision of shared industrial and connective infrastructure and intentional strengthening of supply chains, generating economic opportunities for micro, small and medium-sized enterprises (MSMEs), women and youth throughout agro-industrial value chains.

UNIDO, in collaboration with partner institutions including the African Development Bank (AfDB), Export-Import Bank of China, African Union Development Agency (AUDA), African Export-Import Bank, and Mahindra Consulting Engineers, has developed this publication, compiling lessons learned from IAFP pilot projects, together with international best practices in industrial park and agro-industrial development, to offer practical guidelines for the planning, development and operations of IAFP, intended for use by a wide array of stakeholders including park regulators, developers, operators and tenants, and also other stakeholders and partners such as multilateral development agencies and development finance institutions. This collaboration attests to the great potential of IAFP to keep pace with economic growth and pursue poverty reduction objectives.

The guidelines are not prescriptive, but rather provide considerations to be adapted to local conditions and agricultural value chain dynamics. Practitioners may consider this to be a useful resource, alongside other resources, such as *International guidelines for industrial parks* (UNIDO, 2019), *An international framework for eco-industrial parks* (UNIDO, WBG and GIZ, 2021), *Leveraging a new generation of industrial parks and zones for inclusive and sustainable development: strategic framework* (UNIDO, 2018a) and *Territorial tools for agro-industry development: a source book* (FAO, 2017).

UNIDO will continue to be a strong and reliable partner in support of its Member States to plan and implement inclusive and sustainable industrial parks, including IAFP, in developing countries and middle-income economies. In this context, UNIDO will regularly review and update the guidelines to take account of new developments and evolving trends in the global development and agro-industrial landscape, as well as inputs from our Member States and partners. UNIDO also offers its services in assisting decision makers to make the best use of the guidelines by organizing international and regional forums, conferences and technical workshops, creating knowledge-exchange platforms and providing training.

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The publication represents a collaborative effort, made possible by inputs from UNIDO experts and partner institutions. The drafting authors included:

- **UNIDO:** Dejene Tezera, Eneyew Abera Gebremenfas, Jie Zhao, Stefan Kratzsch, Yvonne Lokko and Christian Susan
- **African Development Bank:** Chukwuma Ikechukwu Ezedinma
- **African Union Development Agency:** Martin Bwalya and Mustafa Sakr
- **Export-Import Bank of China:** Lili Yang and Pengyu Chu
- **African Export-Import Bank:** Oluranti Doherty and Babajide Sodipo
- **Mahindra Consulting Engineers Limited:** Narayanan Chandrachoodan Surya
- **International consultants:** Jean-Paul Gauthier, Stephanie Haile and Kulani McCartan-Demie.

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## ABBREVIATIONS

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<b>AfDB</b>	African Development Bank
<b>APC</b>	Agroprocessing centre
<b>APC-APH</b>	Agroprocessing centre or hub
<b>ASHRAE</b>	American Society of Heating, Refrigerating and Air-conditioning Engineers
<b>ATC</b>	Agricultural transformation centre
<b>ATVET</b>	Agricultural technical and vocational education and training
<b>AUDA</b>	African Union Development Agency
<b>CAADP</b>	Comprehensive African Agricultural Programme
<b>CAAP</b>	Common African Agro-Parks Programme
<b>CC</b>	Collection centre
<b>EIP</b>	Eco-industrial park
<b>ESIA</b>	Environmental and social impact assessment
<b>EPC</b>	Engineering, procurement and construction
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FDI</b>	Foreign direct investment
<b>GDP</b>	Gross domestic product
<b>GIS</b>	Geographic information system
<b>GIZ</b>	German Agency for International Cooperation ( <i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i> )
<b>HVAC</b>	Heating, ventilation and air-conditioning
<b>IAFP</b>	Integrated agro-food park
<b>IAIP</b>	Integrated agro-industrial park
<b>ICT</b>	Information and communication technology
<b>IFC</b>	International Finance Corporation
<b>MDB</b>	Multilateral Development Bank
<b>MFP</b>	Mega food park
<b>MSMEs</b>	Micro, small and medium-sized enterprises
<b>PIU</b>	Project implementation unit
<b>PPP</b>	Public-private partnership
<b>QA</b>	Quality assurance
<b>QC</b>	Quality control
<b>R &amp; D</b>	Research and development
<b>RTC</b>	Rural transformation centre
<b>SAPZ</b>	Special agro-industrial processing zone
<b>SEZ</b>	Special economic zone
<b>SME</b>	Small and medium-sized enterprise
<b>SPV</b>	Special purpose vehicle
<b>UNIDO</b>	United Nations Industrial Development Organization
<b>WBG</b>	World Bank Group



# Executive Summary

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## I. Introduction

Integrated agro-food parks (IAFPs) operate as a form of spatial industrial development policy instruments that aim to achieve sustainable industrialization and national progress on the Sustainable Development Goals in developing countries. The *Guidelines for Planning, Development and Management of Integrated Agro-Food Parks* offer stakeholders specialized guidance on international best practices regarding sustainable agro-food park development, operation, promotion and regulation. They also support agro-industrial park stakeholders by providing practical tools to enhance performance and manage risks.

The IAFP represents one of the practical approaches used by numerous developing countries to transform and expand their agro-industrial sectors. An IAFP is a concentration of producers, agribusinesses and institutions that are engaged in the same and complementary agro-industrial subsectors. Thus, they interconnect and build value networks and productive capacities when addressing common challenges and pursuing common opportunities. The key message of the Guidelines is that carefully designed IAFPs need to be integrated with the rural economy, incorporate both soft and hard infrastructure, help to overcome the business constraints of agro-industrial firms, and facilitate entry into manufacturing and higher value-added activities. The IAFP model can generate high productivity, stimulate innovation, promote investment and foster social inclusion and environmental protection.

Developing competitive agro-industries, improving agricultural productivity and strengthening the linkages of the agricultural sector with the wider economy are crucial to poverty reduction and structural change in low-income countries. At the same time, a number of trends shaping the core characteristics of the agro-industrial sector in developing countries present both opportunities and challenges to the potential of the IAFP. Many developing countries and economies in transition suffer from insufficient specialized infrastructure and are poorly integrated into global markets, especially in rural areas. These challenges are further exacerbated by underdeveloped small and medium-sized enterprises (SMEs); limited access to finance; inadequate forward and backward linkages between farmers and processors; lack of entrepreneurial opportunities and inefficient technologies; high post-harvest losses; high transaction costs for producers; and poor integration into higher value-added segments of agricultural value chains. It is critical that IAFPs successfully overcome these challenges to achieve their economic development and public policy objectives.

These guidelines were prepared by UNIDO, the African Development Bank (AfDB), African Union Development Agency (AUDA), African Export-Import Bank, Export-Import Bank of China and Mahindra Consulting Engineers Limited. The literature on agro-food parks was extensively reviewed, including contemporary handbooks focusing on agro-industrial agglomeration models such as territorial tools for agro-industrial development; studies on special agro-industrial processing zones; and research conducted on integrated agro-industrial parks (FAO, 2017; AfDB, 2021a, 2021b, 2021c; UNIDO, 2019a, 2019b, 2019c). In addition, earlier UNIDO studies, tools and technical cooperation projects informed the core of the Guidelines. Information from field visits, meetings with park managers, regulators and government representatives, case study research on industrial park practices in UNIDO Member States, and feedback from an external review group were also incorporated.

The Guidelines have been designed to offer practical recommendations that are relevant to both new and existing agro-industrial parks and integrated agro-food parks in various international contexts, with a focus on developing and transition countries.

The publication is further supported by case studies, best practices, and successful experiences. It has been designed to give its target audience clear guidance and considerations relevant to the development and scaling up of agro-based industrial cluster and agglomeration models. The publication can be used at all development stages of IAFPs, such as: industrial park planning and design, construction, park operations, marketing and investment promotion, environmental and social impact and energy management. Lastly, the Guidelines are intended to be used and applied to IAFPs by a variety of stakeholders, including: park regulators, park developers, park operators, park tenants, and stakeholders and partners, such as multilateral development agencies and development finance institutions.

## II. Integrated agro-food parks

As defined by UNIDO, an IAFP is an agribusiness development corridor integrating value chain actors with high-quality infrastructure, utilities, logistics and specialized facilities and services to create economies of scale for sustainable market-driven agribusiness development and rural transformation. It is spatially demarcated, with hard and soft infrastructure platforms dedicated to supporting firms and other stakeholders engaged in agroprocessing, production, and related activities. The development objectives of an IAFP are to promote the value addition of agricultural production through processing, manufacturing and storage of food, feed, and biofuel products; drive technological change; and spur industrialization of the agribusiness sector by offering premises and supporting services that connect value chain enterprises. It performs five main functions, which include: production support, processing and value addition, research and development (R and D), services, and trade facilitation.

IAFPs consist of three distinct yet integrated components that intentionally foster linkages among value chain stakeholders. The three components are: the agroprocessing centre (APC), which is an industrial park that houses a cluster of agroprocessing and agro-allied firms grouped together to share infrastructure; the primary processing and aggregation centres, known as rural transformation centres (RTCs) or agriculture transformation centres (ATCs), that are intended to host community-based rural institutions, providing a mix of hard and soft infrastructure and services to agro-producers and entrepreneurs active in the agricultural sector; and the consolidation centres, serving as a stocking point providing logistics and services and supporting connectivity between the rural agriculture production regions and RTCs and APCs.

Different terms are frequently used interchangeably to refer to these components. For example, agroprocessing centres and agroprocessing hubs refer to the same operation. Similarly, collection centres and consolidation centres are also used interchangeably.

International experience shows that agro-industrial parks follow various models; these can vary according to their target industrial activity, nature of shared facilities and support services, development objectives and ownership type. The model considerations of an IAFP include: the development objectives, planning and physical design (location and size), infrastructure and services offered, stakeholder identification and engagement, the institutional

framework (financing, ownership, and management), and monitoring and evaluation. There is no one-size-fits-all model, as each model should be adapted to country-specific peculiarities and economic development contexts. In some cases, the IAFP model has proved effective in industrializing the agribusiness sector and benefiting surrounding rural catchment areas, through employment generation and poverty alleviation. One IAFP can create as many as 2,000–4,000 direct and indirect jobs, in addition to raising the income of smallholder farmers and their accessibility to wages in the rural non-farm sector.

Against these prospects, the IAFP model can trigger multiplier effects and development objectives through the coordination and co-location of agribusiness participants, service providers and inputs, to achieve competitive advantage and agglomeration benefits. These include minimizing post-harvest losses, increasing availability of and access to infrastructure and utilities, strengthened service provision, enhanced innovation and R and D, and the enhancement of human capital through skills upgrading. In relation to achieving sustainable food systems, IAFPs can also play an important role in boosting agribusiness value chains and food security.

It is equally important to highlight the challenges and hurdles that limit the sustained success of IAFPs such as inadequate infrastructure, limited pools of skilled human resources, weak knowledge spillovers between foreign and local firms and the lack of innovation and technological capabilities of domestic firms. Other institutional-based challenges include an un conducive policy, business and regulatory framework, insufficient mobilization of financial resources, and weak engagement of the domestic private sector. Various best practices should be considered, while designing a strategy to develop, plan and operate IAFPs. These lessons learned are reflected in the present Guidelines.

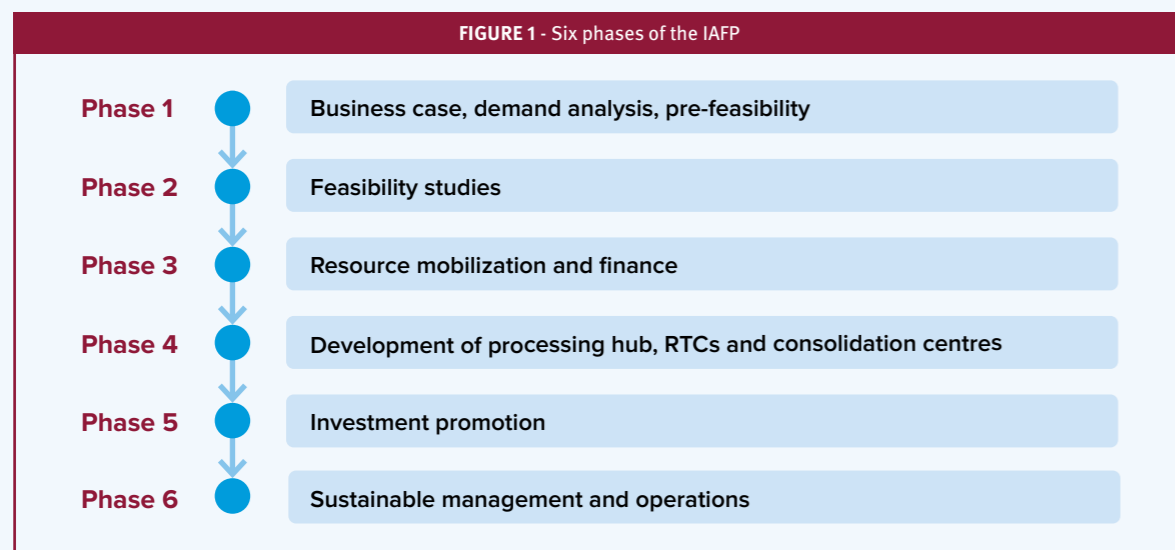
### III. Planning integrated agro-food parks

The development of IAFPs involves careful planning, coordination, and oversight. The principal planning steps include, first, business case formulation, pre-feasibility studies and demand assessments; second, pre-identification of suitable park locations; and, third, detailed feasibility analysis of the selected site, including master planning and environmental and social impact assessments. Review and development of supporting policy, legal and regulatory frameworks are often considered during the planning process as well (discussed in detail in chapter 9). Each phase requires incremental time and resources and extensive stakeholder consultation and engagement. The two-phase planning process results in a framework planning model for an IAFP that covers location, size, stakeholder roles, business case, infrastructure and services offered, institutional and policy framework, and linkages with the surrounding area.

Planning for IAFPs is especially complex because their operations often extend across large geographical footprints and varied stakeholder groups due to geographically dispersed agricultural catchment zones and connectivity, requiring careful consideration of linkages with supply chains and logistics influencing the integrity of perishable goods. The coordination of multidisciplinary teams requires a unique skill-set, fostering a collaborative environment in which stakeholders are well informed, are all moving in the same direction, and critical path concerns are anticipated, raised and dealt with in a timely manner.

The public sector plays a facilitative role in the development of IAFPs by creating a conducive policy and regulatory environment and investing in the essential hard and soft infrastructure, to ensure that smallholder farmers, youth and other groups are incorporated inclusively at the production level, and that micro, small and medium-sized enterprises (MSMEs) are properly integrated at the processing level. The Government also provides incentives to attract the private sector to develop and operate the sites and to locate and operate within the IAFPs.

Sound planning must be forward-thinking to address the practicalities of subsequent phases, namely, resource mobilization and financing, investment promotion, construction, and sustainable management and operation of parks. The analytical and design tools employed during the planning phases establish the business case, institutional and policy frameworks, and infrastructural blueprints for future phases. The success of all subsequent phases is contingent upon the analysis, stakeholder consultation, assumptions and policies developed during the planning phases. The six phases of the IAFP life cycle are captured in Figure 1 below:



It is crucial that IAFPs are built on a business case that demonstrates why serviced industrial lands are needed and what the benefits of the IAFP project will be when finalized. The business case should be prepared early in the project cycle before any decision is made to initiate the project. A carefully developed business case must examine both the project's opportunities and its risks, and convincingly detail the project's rationale. The IAFP pre-feasibility planning phase will result in a clearly communicated business case - justification for moving forward with IAFP development, with supporting evidence including investor demand assessment, value chain analysis, subsector selection, benchmarking of industrial parks, policy analysis and recommendations, agro-industrial system analysis, economic and social impact projections, environmental and green design considerations, location site analysis and recommendations, and stakeholder consultation. The analytical tools will highlight alternative options and will comprehensively inform the rationale for a recommended model and location for IAFPs. Many of these analyses are interdependent and developed through an iterative process.

Comprehensive and detailed market identification and demand projections, properly scaled and phased master plans, technical designs, farmer-producer support, project cost and benefit analysis, social and environmental

Any final decision to establish and finance an IAFP should be made only after conducting a reliable and site-specific full feasibility analysis with clearly supportive conclusions.

assessments, institutional mapping and governance system analyses, off-site and on-site infrastructure requirement assessments and development plans, financial modelling and structuring plans, and also economic impact modelling, are crucial to any final positive determination to proceed with an IAFP. The environmental and social impact assessment (ESIA) must underpin the site master planning, and predict and evaluate a project's impact on the ecosystem and the biophysical and human environment, and also propose any required project impact mitigation plans. The outcome of the feasibility and technical studies will define the design and implementation modalities of the programme that will cover the project objectives. The process informs the institutional arrangements for the park development, operations and management, with clearly defined roles and responsibilities of key participants. The feasibility report should be discussed by all parties during stakeholders' workshops held at the national and provincial levels, after which the fine-tuning and finalization of the designs must be done taking into consideration the comments and suggestions raised by the stakeholders.

### IV. Resource mobilization and financing IAFPs

IAFPs are capital-intensive projects that offer the opportunity to concentrate scarce resources to provide priority sectors and regions with high-quality infrastructure and services. The public nature of the various components of hard and soft infrastructure required to develop and sustain IAFPs calls for strong collaboration and financial commitment from public entities. In the context of developing and emerging economies, sufficient financing of these components is often a prerequisite to attracting private investment for long-term business operations in and around IAFP zones.

Financial resources constitute one of the key inputs in realizing the objectives and achieving the goals of the IAFP. Securing financing requires detailed calculations of revenue projections, operational expenses, sources of funding, financing costs and taxation over the time frame of the project's life time.

Operational expenses, for example, include raw materials, consumables, utilities, salaries and compensation, outflow in terms of fees for royalties, technical knowhow and engagement or deputation of experts and other fees towards partnerships with external organizations, repairs and maintenance, insurance, operational overheads, administrative salaries and expenses, marketing expenses, financing charges, interest on term loans and depreciation.

There are several financing needs and sources to consider for IAFPs. The planning process, infrastructure development, and management and operations are typically financed through a range of public, public-private partnership and private means. Public financing refers to financing from government earnings or funds. The major sources of government earnings come from taxes, rates, licence fees, surpluses of State-owned enterprises, fines and penalties, gifts and grants and borrowing from multilateral and

bilateral organizations. Governments may choose to raise funds for IAFPs through a government (or sovereign) bond. Governments may also choose to fund IAFPs through a sovereign wealth fund. Multilateral banks and multilateral financial institutions are also important sources of financial and technical assistance to IAFPs. A common denominator for most multilateral financial institutions is that they provide financing through debt, equity, and risk mitigation instruments, for both sovereign (government) and non-sovereign (private sector) IAFP operations.

Private sector financing offers some key advantages: namely, that the private investor is taking the risk – as well as the return – without any effect on public debt levels (Tyson, 2018). Key sources of private finance for IAFPs include domestic and international commercial banks, capital markets, venture capital, and domestic and foreign direct investment. While such sources have the benefit of combining liquidity and risk appetite with expertise, they often entail relatively high costs, reflecting the associated risk calculations. Financing instruments typically take the form of loans, equity and project financing, and the private entity would usually finance additional investments from its equity. From the non-sovereign window, the private sector can also source funds for investment in IAFP operations from special facilities of international and regional multilateral financing organizations such as International Finance Corporation (IFC), AfDB, the African Export-Import Bank, the Export-Import Bank of China and the Export-Import Bank of Korea.

Financial sources may be diverse, mixed in nature and in the form of co-financing arrangements. IAFP projects may receive assistance from the Government through federal and State government grants and equity funds, and also through the provision of land and certain infrastructure, such as on-site and connectivity infrastructure. Mixed or co-financing arrangements may cover the operational costs (ownership and management of enterprises in IAFPs). This may be

covered by a mix of private sector participation – comprising foreign direct investment (FDI), entirely or in partnership with businesses, domestic investors, and through public-private partnership (PPP) ownership arrangements involving equity participation by both parties. Co-financing, where two or more financing institutions agree to fund different activities within a project, can also be done through parallel or joint financing.

The PPP approach is an emerging area in the development and financing of IAFPs. It is “emerging” in the sense that, while various advanced economies have successfully used this model, many developing countries have yet to adopt policies towards the use of PPPs for project development. PPPs tend to be the most common form of private financing of infrastructure for agro-industrial zones and parks (Tyson, 2018).

A PPP in the IAFP development context denotes a contractual arrangement between the Government or local government-owned entity on one side and a private entity (or consortium) on the other, for the provision of developed industrial plots, ready-built facilities, general infrastructure and specialized agro-infrastructure.

The PPP agreement should define and grant specific rights to the private sector to build and operate the IAFP for a fixed period of time, as well as allocate risk between the private entity and the central government or regional government party (UNIDO, 2016). Partnerships with the private sector can add dynamism to zone development and offer an important source of knowledge transfer. Partnerships also lead to the sharing of risk between the public and private sectors. Partnership arrangements require that the host Government develops an appropriate legal, regulatory and institutional framework, and this can be challenging in country contexts with weak public institutional capacity (Tyson, 2018).

economies as they are often highly vulnerable to climate change impacts, particularly in the form of weather volatility, pest infestations and other stresses and shocks to agricultural production. Consumer preferences for more sustainable food production and industrial methods are placing increasing pressure on companies to improve sustainable management along their entire operations, extending back to their supply chains.

Eco-industrial parks are designed on the principle of industrial symbiosis, which is often synonymous with the term “circular economy” – a regenerative system in which resource input and waste, emissions and energy losses are minimized.

Circular economies eliminate waste and replace it with a circular flow of materials and energy based on waste reduction, reuse, recycling, repair, refurbishing and remanufacturing practices. This approach has many benefits, including achieving environmental sustainability, improving business competitiveness through reduced operating costs and improving productivity, generating employment, reducing waste, increasing green investment, mitigating climate change, and establishing inclusive governance of environmental and social topics relevant to local communities. In short, eco-industrial principles can support sustainable development of the agricultural and allied sectors and the associated goals of achieving desired long-term objectives such as food security, value addition, growth in exports, creating jobs, and building resilient agroecosystems.

An industrial zone or park can become an eco-industrial park through the combination of the following factors:

- Improving the efficiency of the units with IAFPs through waste recycling techniques and minimization of waste and emission generation from individual enterprises
- Optimization of resource exchanges between companies
- Environmental and utility systems
- Proper zoning and planning
- Environmental and social management of park operations.

Furthermore, inclusive development is about improving the quality of life of all members of society. To be specific, the concept of sustainable development covers three different yet interrelated dimensions of industrial development, namely, an economic dimension, a social dimension and a

participative dimension. Key considerations for designing inclusive IAFPs include on and off-farm job creation, trade facilitation, vocational training opportunities, better working and labour conditions, improved occupational health and safety, and taking account of special considerations for the constructive participation of women and youth in the IAFP network, among others.

The design and planning stage is the most crucial point to identify sustainable elements. An ESIA must underpin site master planning and predict and evaluate a project’s environmental and social impacts on the ecosystem and the bio-physical and human environment, as well as propose any required project impact mitigation plans. ESIA should, in addition, lay the foundation for ongoing assessment of socioeconomic and environmental impacts throughout the project’s lifespan, including during pre-construction activities (such as relocation of people displaced due to the project and others); construction activities (for example, land clearing and site preparation, infrastructure construction and others); and post-construction operational activities (such as maintenance and others). Many development finance institutions have policies, guidelines and tools to effectively integrate environmental and social considerations into their operations that can help IAFP developers in preparing these assessments and plans.

Optimizing energy use is another component of the circular economy promoted in IAFPs. It is currently recommended in the planning of industrial parks to transfer the surplus energy to adjacent firms within the park or businesses in nearby communities (UNIDO, 2019). The application of different digital technologies in energy management can both enhance inter-firm cooperation and generate substantial energy savings within a single facility. At the firm level, applications of the Internet of things to reduce energy consumption include real-time energy profile, benchmarking, and energy-driven maintenance. Real-time energy profiles show instantaneous energy consumption patterns that can be used to capitalize on opportunities for savings.

## V. Inclusive and sustainable IAFPs

UNIDO supports the promotion of eco-industrial park principles for the development of inclusive and sustainable IAFPs, which incorporate both eco-design and social inclusion dimensions. Eco-industrial parks integrate economic opportunities and improved ecosystems, as well as innovative avenues for business incorporating both the aspect of economic growth and that of environmental and social well-being. This is particularly important for countries with developing and transitional

## VI. Constructing integrated agro-food parks

The construction of an IAFP commences after detailed engineering design is completed, environmental and construction permits have been issued and financing secured. Construction required for an IAFP encompasses both on-site and off-site infrastructure, ensuring connectivity between agroprocessing hubs and production catchment areas, RTCs and end markets. A great deal of public

infrastructure may be required to make it feasible to secure private financing for on-site development of agro-parks and enterprise co-location. The phasing of such infrastructure is likely to favour the provision of basic public infrastructure and connectivity (including roads, power, water, gas, telecommunications and waste treatment – horizontal infrastructure) before private construction (vertical

infrastructure) begins. Private businesses must be assured a certain level of access to basic infrastructure in order to ensure their investments in connecting the last mile will facilitate operations to commence within a certain time frame and therefore their risk exposure is acceptable.

Typically, the construction of horizontal infrastructure (such as roads, railways, electrical lines, pipelines, transmission facilities, water lines, sewers and fibre optics) precedes the development of vertical infrastructure (such as commercial buildings and factory shells). Construction proposals shall cover ways to develop IAFPs in a phased manner to facilitate the flow of investment and to recalibrate the development, especially the vertical infrastructure, to market needs. In the initial phase, the general approach is to develop all horizontal infrastructure with few essential ready-built industrial structures to facilitate visibility, fulfilling the perceived requirements, and trigger SME industrial activities. Fully developed horizontal infrastructure facilities coupled with essential vertical infrastructure in the form of ready-built factories will better enable the marketing of the IAFP to target firms. During the subsequent phases, the development would encompass the building of additional ready-built industrial structures.

At each stage of the development and assessment of IAFPs, modular concepts and a user-friendly planning approach that incorporates compatible designs are critical for sustained implementation of the IAFPs.

Construction should prioritize locally manufactured inputs, and all infrastructure should be modular, functional, cost-effective and flexible to take gradual occupancy into account. One of the main advantages of adopting a modular construction approach is the ability to construct the required structures off site before transporting them onto the identified site. The IAFP is required to have state-of-the-art design and engineering plans compliant with international and local codes of infrastructure (both horizontal and vertical) development requirements. Construction activities have the potential to affect the environment and

## VII. Investment promotion for IAFPs

IAFPs and investment promotion activities have a symbiotic relationship reflecting mutual benefits that may be derived from each other. Investment promotion is critical to the success of IAFPs, and therefore should be incorporated into every phase of IAFP planning, construction and operations.

communities. Construction management strategies must therefore minimize the adverse impacts of the construction processes on the natural environment and ecosystem (in terms of habitat, soil, water, air, and others) and on people (in terms of noise, light, fumes, dust, and usage of local amenities), including by identifying and using the most efficient construction methods and materials available. The plan should follow the development control regulations for the jurisdiction, which outline a set of rules that are designed to ensure proper and efficient development, as well as the general welfare of the public.

Project management and oversight of IAFP construction is critical to ensuring that quality services are delivered in a timely manner and within budget. The project should involve coordination with various agencies. Development of the implementation schedule must be ensured. The exercise should include identification of major development activities, associated timelines, and the implementation schedule from the perspective of the IAFP project implementation unit, and the selected IAFP developer, and implicated public line ministries and other development partners. As part of the implementation plan, the key interventions required by various agencies involved in the development process for achieving the desired objective should be covered.

Ultimately, the main objective should be to create a world-class, multi-formatted, industrial developed area, with built-up space for business, residential and commercial usage and excellent state-of-the-art infrastructure facilities. The process of transferring the developed land is in the hands of the respective special purpose vehicle (SPV)<sup>1</sup> for the IAFP. The transfer of developed industrial plots, factory shells or warehouses can be done either through sales or leases. The provision of land – together with key infrastructure – is typically one of the major contributions of the public sector to IAFPs (FAO, 2017). However, like most infrastructure projects, IAFPs also face key challenges in relation to land acquisition, and this should be factored into the land transfer process.

At the core of the investment promotion strategy is understanding the business perspective and customizing tools and approaches to take care of investor needs throughout the business life cycle.

Key selling points of IAFPs are the unique, subsector specific mix of hard and soft infrastructure, locational advantages, logistics and connectivity, and supply chain linkages facilitated by co-location of interdependent firms. Additional investment incentives may be appropriate depending on local factors and competition from other parks. All investment incentives must, however, be justified and properly balance benefit with cost. In the light of stiff competition for attracting private investment for the development of IAFPs, as well as attracting tenant companies, marketing approaches that clearly articulate key IAFP features and the competitive environment in which they sit are the cornerstones of successful investment promotion strategies.

Investment promotion agencies have a niche role to play in understanding and communicating a country or location's comparative advantages, key markets, and competitive factors.

## VIII. Operating integrated agro-food parks

There are various models for developing and operating IAFPs. An IAFP can be developed and operated by the government – at the national, state or local level; by private enterprise – whether by a construction company developer or consortium, or manufacturers association; or by some sort of PPP – for instance, through a joint venture between the Government and private enterprise. Different government ministries, public agencies and State-owned development and facilities management corporations regularly invest in IAFPs, given the public interest they present to the economy.

The operations phase of an IAFP requires competent day-to-day operations of the site as well as institutional oversight to ensure accountability of implementing entities (public and private) as well as continued regulatory compliance, monitoring and performance evaluation. Accordingly, there are often at least four distinct entities involved in the operations phase that have uniquely defined roles and responsibilities. These are a joint steering committee, a project implementation unit (also called the IAFP Authority) that reports to the joint steering committee, a developer, and a concessionaire or operator.

The joint steering committee is often a high-level interministerial committee under the leadership of the presidency, vice-presidency or ministry, as may be designated by the Head of Government.

National and subnational investment promotion agencies and IAFP developers and operators have important roles to play in promoting new investment, and retaining and expanding investments in and around IAFPs. They are also important contributors to establishing IAFP policy frameworks and liaising with private enterprise. IAFP developers and operators are deeply involved in the location-specific promotional efforts as well as the continued provision of professional services to tenant firms.

Lastly, investment promotion agencies and IAFP developers and operators may consider providing a series of other useful services to new and existing investors. Such services may include providing information on relevant policies, laws, regulations, and utility costs, facilitating access to financing, facilitating access to land and water for proprietary production, facilitating access to qualified labour, dispute resolution services, and after-care services including administrative, operational and strategic services for the continuing success and expansion of existing businesses.

The role of the joint steering committee is to coordinate the activities of government departments and agencies towards delivery of the IAFP. The committee is to monitor the implementation process and most importantly support the mobilization of resources through investment promotion, forums and seeking partnerships with donors. International best practice also suggests involving private sector representatives in the joint steering committee to ensure transparency, accountability, and incorporation of private sector principles into IAFP planning activities. The project implementation unit, or IAFP Authority, shall perform the role of implementing agency and shall coordinate the execution of various activities towards the development of the IAFP in a time-bound manner under the overall guidance of the joint steering committee.

IAFP developers and operators are often private firms or consortiums selected through a competitive process administered by the project implementation unit and approved by the joint steering committee. In some models, they may be the same entity. In other models, they may be different or possibly several different entities. The final negotiation of the financing arrangements, risk and reward distribution between public and private entities is often captured in a special purpose vehicle, a legal tool used to pool funds and equity ownership of the IAFP.

IAFP operation involves site and facilities management and maintenance, investment promotion, performance

1) Investopedia defines a special purpose vehicle, also called a special purpose entity (SPE), as a subsidiary created as a separate company with its own balance sheet by a corporation in order to isolate financial risk.

monitoring and evaluation, continuous improvement and reinvestment. During the project's implementation phase, the park's management mainly focuses on coordinating participants' activities, attracting investment, and initiating the sale or lease of land to residents. IAFP operators must transfer developed land, and ensure effective utilities connections and network management. They also manage, maintain and repair all of the IAFP facilities, or alternatively contract specialized service providers to carry out these functions. The operators must supervise residents' building construction on plots, plant installation and operations and ensure security services; they may also provide environmental management services within the park.

IAFP operators are tasked with developing and maintaining a manual that will record and provide all necessary details regarding the activities carried out during the operation and maintenance of the IAFP. The manual will provide overall guidance to management and help in taking efficient and productive decisions. Other documents required include a visitor management system manual, information and communication technology (ICT) networks management manual, maintenance of established facilities manual with clearly indicating stakeholders' responsibilities, utilities (water, electricity, telecoms and others) services and rates management manual, general amenities (such as school, crèche, polyclinic, places of worship, retail spaces, recreation centres, training centres and others) operation and management manual, and stores and warehouses management manuals. The operator maintains the site and supervises its daily operation on the basis of the park operations framework manual. Park operators should possess technical experience and capacity (such as energy management, waste utilization, investment and marketing) in order to manage activities within the IAFP and ensure sustained investment.

The scope of the operators' responsibilities and functions will vary according to their agreements with the respective developers. If the Government contributes to the IAFP (through land, equity, subsidies or tax incentives), the operators may also be expected to provide a number of "public goods" in the form of services aimed at developing entrepreneurship, strengthening supply chains through linkage programmes, improving entrepreneur and resident workforce skills and ensuring employee care (UNIDO, 2019a).

The one-stop-shop services component is a key pillar in the operational strategy; this refers to a centre set up within or for the IAFP which provides efficient and streamlined

administrative services, such as investment registration, authorization, registration, operation, and production of the enterprises in the IAFP.

Staff coordinate closely with line ministries and relevant agencies to offer a seamlessly integrated administrative services package to investors and ongoing operations. Efficient and coordinated operation of IAFPs can be challenging given that the parks host a wide range of stakeholders. A one-stop-shop with proper decision-making power is a solution, providing a single point of contact to facilitate the various stakeholders' requirements, particularly for regulatory compliance. It improves administrative efficiency in obtaining necessary services and government approvals, as well as simplifying the associated procedures.

The successful management of IAFPs also entails both public relations and communications. The operating strategies should include the adoption of well-planned and executed branding and advertising campaigns and other investment promotion methods. This will be used to promote the unique value and selling point of the IAFPs and to identify tenants. It is important to create an identity and develop a communication strategy to inform target groups, including developers and co-developers, about the APC and RTC initiative and construction and the operations and maintenance providers.

The scope of services and the level of engagement must be identified during the design and detailed stage and operators must be selected to provide services and support to the occupant units in a coordinated manner. The responsible agency for ensuring delivery of the services mentioned below to the customer should be identified. The broad scope of services required for operations and maintenance and facility management services include: housekeeping, landscaping, electrical, water management, sewage management, security, and solid waste management. The best-in-class vendors for these services should be identified through a market demand assessment survey identifying the existing potential, and are to be selected based on a cost-benefit analysis based on the offerings. IAFPs should also be leveraged as indirect social platforms for basic protection of workers' rights and standards; worker welfare programmes, standards and practices; enhancing work skills through appropriate training; and contribution to quality jobs and a knowledge-based economy. This requires a strong emphasis on responsible labour standards and also on social services available to workers based at IAFPs.

## IX. Policy, legal and regulatory framework for effective IAFPs

The legal and institutional framework is one of the most crucial enablers of any IAFP programme to ensure it is globally competitive in its approach to achieving development objectives. Policy frameworks are cross-cutting to all IAFP development and operation phases, with consideration especially critical in the planning phases.

IAFPs are best developed if they are part of a national policy framework that explicitly supports agro-industrialization and related value chain strengthening measures. The policy framework, institutional strengths and weaknesses, resource allocation, ownership and governance structures, and stakeholder consultation and coordination are all important considerations when evaluating how IAFPs fit into existing policy and institutional frameworks, as well as determining how gaps may be taken of to meet the specific needs of IAFPs.

Accordingly, policymakers should first examine economy-wide competitiveness factors that influence the feasibility of IAFPs and investor perceptions. These include infrastructure quality, the strength of institutions including property rights, government regulations and the legal framework for dispute settlement, and conditions and policies that affect production efficiency, labour market efficiency, financial efficiency, technology, and market size and scale economies.

Agriculture and subsector-specific factors must also be evaluated and appropriately considered in IAFP policy frameworks, including policies that govern commodity price supports and trade, seed, import and registration policies for agricultural inputs, farm machinery and specialized post-harvest and processing equipment, quality assurance (QA) and quality control (QC) procedures and standards compliance, agricultural extension, agricultural research and development, water access and treatment, agricultural land use and investment, and financial systems.

Factors of competitiveness can be enhanced through the adoption and implementation of an "SEZ-type" IAFP programme. The special economic zone (SEZ) focus is typically applied to offer a superior business environment in the parks. Though not all economic constraints can be eased through an SEZ policy, SEZs are particularly well suited to addressing constraints resulting from poor business environments, such as burdensome and unnecessary regulations, and access to production inputs. Lessons learned from SEZ policy frameworks and practices, therefore,

are directly applicable to IAFPs.

IAFPs often apply various fiscal and financial incentives favourable to enterprises located within the IAFP construct. Such a tax environment is intended to be additive for the attraction of agroprocessing investment (FDI in particular), if other core business needs, such as infrastructure connectivity and supply chain and market linkages, can also be satisfied. The extent to which taxes are liberalized and incentives granted, however, varies among different programmes and should be evaluated in the context of key factors driving investment, market demand, park competitiveness and distortion to non-IAFP firms conducting similar operations elsewhere in the domestic economy. One would want to avoid encouraging existing businesses to move into zones to benefit from preferential tax policies, which would not be additive to the economy and would simply erode the tax base.

Institutional governance of an IAFP involves two key and distinct elements: regulatory governance, which is generally the role of the State; and commercial development and operation, which is generally the role of the private sector. There is some flexibility as regards the role of the State, in particular in its more prominent role in IAFP planning and development. In some African countries, industrial park regimes that have relied on private developers have not had noteworthy success. In others, the time it took to find suitable zone developer and operators was lengthier than Governments may have desired. In some contexts, therefore, the risk-reward calculation of park development may not be sufficiently enticing without a significant public sector role, in particular during the planning phase and in the construction of connective infrastructure.

Accordingly, international experience suggests that PPPs are likely to be the most effective institutional option for IAFPs. Privately-driven IAFP development and operations reflect 50 years of SEZ best practice. Advantages of private IAFP developers and operators include: cost savings for Governments; added value IAFP services, infrastructure and facilities; and stronger economic performance. The risk profile in certain contexts may, however, be too high to secure private investment. To de-risk investment, an increasing number of Governments have therefore moved towards promoting the joint venture, special purpose vehicle, PPP model for the development and operation of IAFPs, under which underlying risks are shared by both the private sector and public sector partners in the IAFP, according to their agreed level of equity exposure.

All IAFP developers and operators should engage in specified activities throughout the development and operation of the project, which should be expressed as conditions, covenants, and representations and warranties in their developer agreement or licence.

IAFPs are complex, multidisciplinary systems that touch on a number of topics including industrial science, agriculture, business, trade, transportation, energy, labour policy, fiscal policy, financial systems, public health, natural resources management, and a range of other disciplines. This complexity implicates a myriad of policies, institutions and stakeholders throughout the IAFP project life cycle. Regulation of IAFPs, therefore, can require many functions that implicate multiple agencies – including IAFP and enterprise licensing, expatriate worker visas, environmental, social and governance factors QA and QC for export certifications, and others. To promote coordinated and streamlined regulatory services for IAFP users, the creation or extension of a one-stop-shop is advised, legally supported through clear laws and regulations, as well as memorandums of understanding for allocating responsibilities under an inter-agency framework.

RTCs and collection centres (CCs) are generally considered part of a single, integrated, multi-site IAFP, under the overall management of a single IAFP developer or operator, providing administrative, operational, and management efficiencies and thereby lowering costs for investors and users. Like the APC, RTCs and CCs should support themselves by providing paid services, including for sourcing, storing, drying, and bagging raw material at commercial rates, distributing agro-inputs on behalf of importers as commission agents, and accepting fees for any other services purchased by farmers, processors or traders. Operations and maintenance fees should, accordingly, be collected from CCs and RTCs to ensure their sustainable operations.



# Introduction

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## 1.1 ABOUT THIS PUBLICATION

The development of agro-industry and rural industrialization presents a promising prospect for developing countries and economies in transition. The integrated agro-food park (IAFP) is one of the practical approaches used by numerous developing countries in order to transform the agro-industry sector. UNIDO defines IAFPs as an agribusiness development corridor integrating value-chain entities with high-quality infrastructure, utilities, logistics and specialized facilities and services to create economies of scale for sustainable market-driven agribusiness development and rural transformation. It is a concentration of producers, agribusinesses and institutions that are engaged in the same agro-industrial subsector. These stakeholders interconnect and build value networks and productive capacities when dealing with common challenges and pursuing common opportunities. The development of an IAFP, however, is a complex process as it involves various participants and processes, and requires strong political support and coordination at multiple levels. Many developing countries have limited capacity to plan and implement the IAFP model adequately and thus can benefit from policy guidance and practical steps to plan and operate IAFPs sustainably and in different economic development contexts.

Industrial parks and other location-specific industrial development policy instruments are important for sustainable industrialization and perceived as key to national progress on the Sustainable Development Goals in developing countries. Carefully designed zones and parks with both soft and hard infrastructure help overcome business constraints to firm entry into manufacturing. In addition, they can, if carefully planned and executed, generate high productivity, stimulate innovation, promote investment and foster social inclusion and environmental protection. In this context, over the past four decades, UNIDO has been promoting zone development through assisting Member States in the planning and establishment of industrial parks, including integrated agro-food parks to support sustainable rural industrialization.

The Guidelines for Planning, Development and Management of Integrated Agro-Food Parks (IAFPs), 2022 have been jointly developed by the United Nations Industrial Development Organization (UNIDO), African Development Bank (AfDB), Export-Import Bank of China, African Union Development Agency (AUDA), African Export-Import Bank, and Mahindra Consulting Engineers Limited.

Developed by a multidisciplinary team of experts, these guidelines offer stakeholders specialized guidance on sustainable agro-food industrial park development, operation, promotion and regulation based on international best practice. They also help agro-park stakeholders to manage risk and to provide practical tools to measure and enhance performance. The guidelines are of paramount importance for developing countries with the goal of driving rural development through agro-industrial growth. Due to its complexity, the development of IAFPs requires a collaborative multi-stakeholder approach through strong stakeholder engagement and building solid partnerships.

As part of its holistic approach, UNIDO, in collaboration with other partners, consolidates best practices and develops the necessary guidance tools to support the Member States and partners on issues related to industrial park planning, operation, financing and management. Most of these knowledge products offer a general reference framework to assist industrial-park-related decision-making, including for IAFPs. The first UNIDO guidelines for the establishment of industrial estates in developing countries were launched as early as 1978. Since then, UNIDO has been consolidating knowledge and best practices in the form of guidance frameworks, as well as by organizing international knowledge-sharing platforms. For example, in partnership with the World Bank Group and the German Development Agency (*Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ)), UNIDO developed an international framework for eco-industrial parks, and engaged a cross-disciplinary team to launch the “international guidelines for industrial parks” in 2019.

## 1.2 INCLUSIVE AND SUSTAINABLE AGRO-INDUSTRIALIZATION

Agro-industrialization has a pivotal role to play in the growth of developing countries and economies in transition, through fostering the broader industrialization required to meet the Sustainable Development Goals, in particular Goal 1 on no poverty, Goal 2 on zero hunger, Goal 3 on good health and well-being, Goal 8 on decent work and economic growth, Goal 9 on industry, innovation and infrastructure, Goal 12 on responsible consumption and production, Goal 13 on climate action, and Goal 17 on partnerships for the Goals.

The 2030 Agenda for Sustainable Development recognizes the importance of inclusive and sustainable industrialization and allied agro-industries in order to eradicate poverty, as no country or region in the world has ever achieved a decent standard of living for its citizens without a robust industrial sector.

Industrialization generates economies of scale in national output, increases household income with more stable and higher-skilled jobs in the manufacturing sector, and expands consumption, setting economies on a virtuous growth cycle. Indeed, agro-industries provide important growth opportunities for emerging economies to capitalize on strong agricultural production bases and expand their manufacturing potential and industrial output to meet growing demand for food within countries and globally.

The growth of the agro-industrial manufacturing sector creates on and off-farm employment opportunities, and promotes dynamic economies that connect rural areas to urban markets. This is particularly helpful to counter-balance strong urbanization trends that are taking place in developing countries.

Over the last few decades, the global manufacturing sector has undergone a profound transformation in terms of structure, technology, sectoral interlinkages and boundaries. As a result, the manufacturing value added has increased steadily in both industrialized and developing countries since 1990. Premature de-industrialization has also been increasingly noticeable in developing countries, however, where the manufacturing sector shows a decreasing share of the gross domestic product (GDP) against an increasing share by the service sector.

It is clear that Governments must apply well-designed strategies and policies to industrialize and structurally transform their economies, particularly if they are still developing. These strategies comprise a wide variety of approaches and instruments, depending on the level of industrial development and the overall economic context in which they are designed to produce results. The agro-industrial sector is an important starting point in the long-term process of economic transformation and structural change and can provide knowledge spillover that can be applied to other manufacturing activities. IAFPs are one instrument that can contribute to agro-industrialization expansion.

### 1.3 CONCEPT OF INTEGRATED AGRO-FOOD PARKS

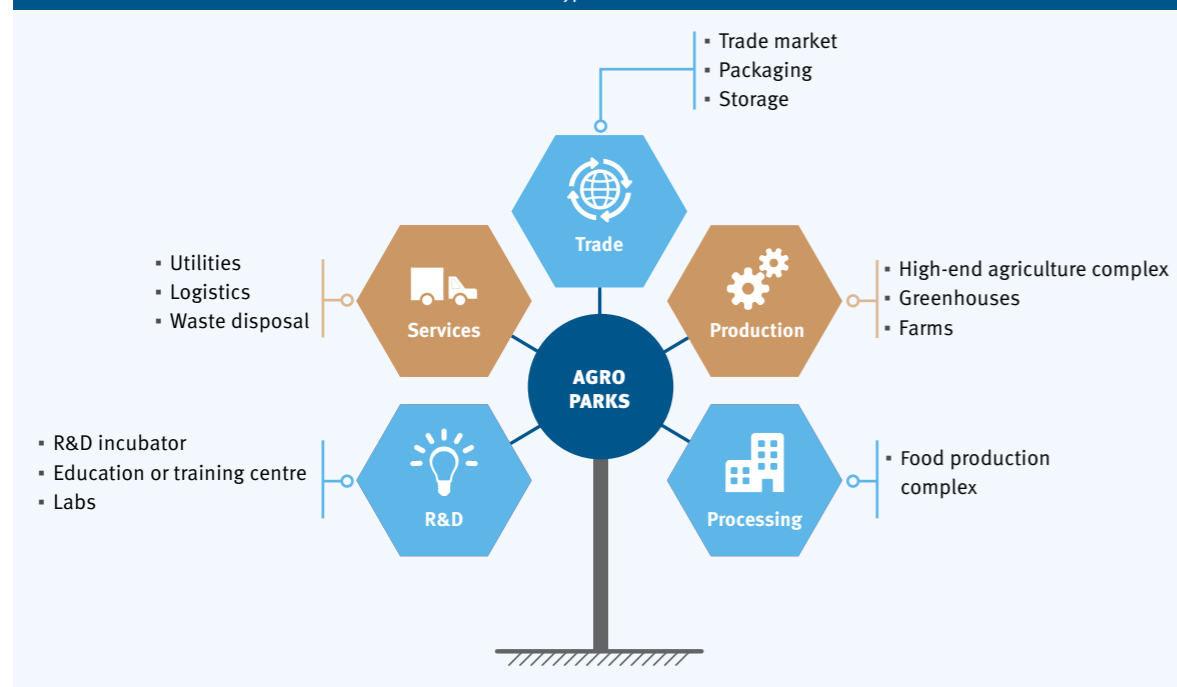
An IAFP is an agribusiness development corridor integrating value chain entities with high-quality infrastructure, utilities, logistics, and specialized facilities and services to create economies of scale for sustainable market-driven agribusiness development and rural transformation. It is spatially demarcated, with hard and soft infrastructure platforms dedicated to supporting firms and other stakeholders engaged in agroprocessing and related activities. IAFPs also seek to generate spillovers and multiplier effects in surrounding rural populations (UNIDO, 2019a).

The development objectives of an IAFP are to promote the value addition of agricultural production through processing, manufacturing and storage of food, feed, and biofuel products, drive technological change and to spur industrialization of the agribusiness sector by offering premises and supporting services.

IAFPs typically comprise three distinct yet integrated components: the agroprocessing hub, which houses a cluster of firms grouped together to share infrastructure and services; the primary processing and aggregation centres, known as rural or agriculture transformation centres (RTCs or ATCs); and the consolidating or collection centres, serving as a stocking point providing logistics and services and supporting connectivity between the rural agriculture production regions and RTCs and APCs.

International experience shows that agro-industrial parks follow various models; these can vary according to their target industrial activity, the nature of shared facilities and support services, development objectives and ownership type. In some cases, they have proved to be effective in industrializing the agricultural sector and surrounding rural catchment areas, through employment generation and poverty alleviation.

FIGURE 2 - Typical IAFP functions



Source: UNIDO, 2019

### 1.4 PUBLIC POLICY ARGUMENTS FOR ESTABLISHING IAFPs

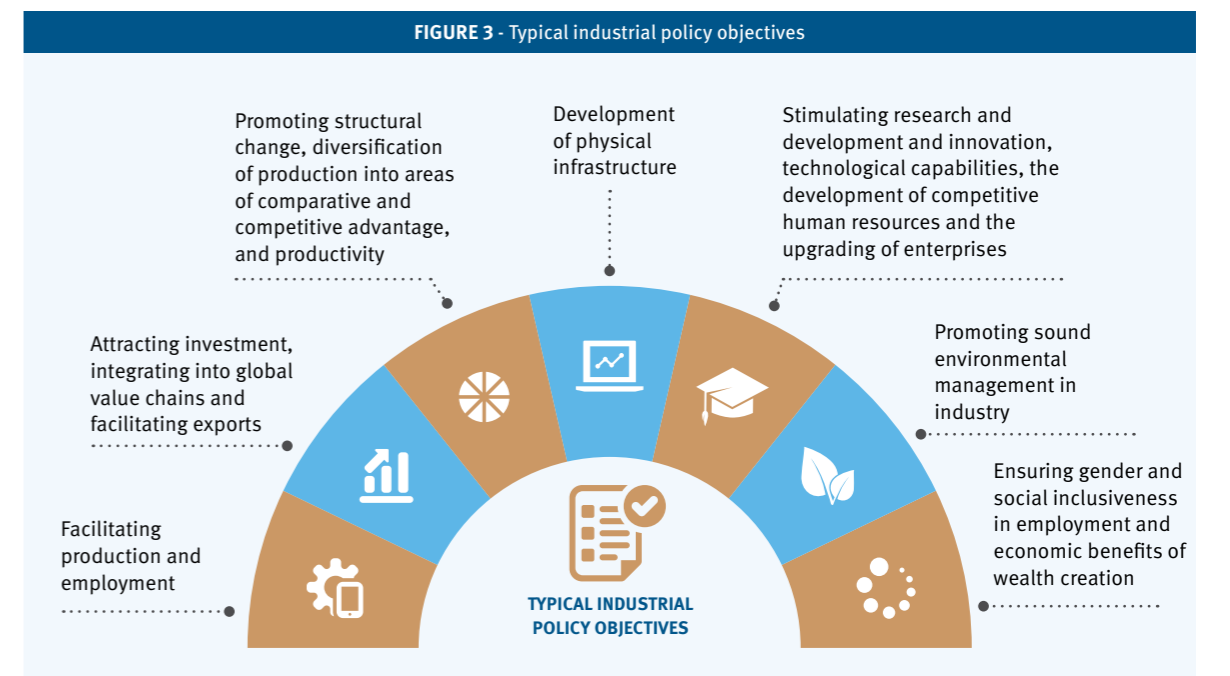
The public policy motivation for promoting agro-food parks often derives from the industrial policies or strategies of national, state and local governments, seeking to induce industrial transformation, diversification and upgrading towards more competitive, sustainable and inclusive economies, through structural changes correcting for market failures.

The principal rationale for establishing an IAFP is to enable agro-related industry to settle and develop at a specific location that is planned and improved to that effect. IAFPs are especially useful tools to overcome challenging local conditions such as connective infrastructure constraints, investment barriers such as limited access to financial services, land acquisition complexities, high costs of essential public services, and fractured supply chains, among others. IAFPs can provide a vehicle to pool and focus public and private resources in a specific region to take care of multiple

constraints at the same time. IAFPs are, for this reason, an important tool within a country's broader industrial and infrastructure policies.

Industrial policy in general has the potential to enhance the competitiveness of the economy, enable the restructuring of existing sectors and allow enterprises to become more efficient, diversify the economy into new industrial sectors, integrate enterprises into global value chains, as well as to lead to gains in technology, know-how and production methods (UNIDO, 2019a). As such, industrial policy is cross-disciplinary and seeks to ensure coordinated action in many different policy areas with linked objectives, including through investment, trade, fiscal, financial, research and development and innovation, education, labour, infrastructure, transportation, energy and environmental policy measures. To ensure successful implementation, the industrial policy targets and policy performance criteria should be clearly defined.

FIGURE 3 - Typical industrial policy objectives



Source: UNIDO

Investment policy is at the core of industrial policy because its objectives can only be realized with higher levels of investments in infrastructure, human capital, and science and technology, all of which are required to enhance a country's competitive position. They include public, private and public-private investments. Investment policies have a variety of objectives, which can for instance include: generating savings and capital; infrastructure development; stimulation of research and development, digital growth, know-how, and technology transfer; and elimination of regional development disparities.

The success of IAFPs is also dependent on agricultural policy which governs efforts to enhance agricultural productivity through dissemination of improved seed varieties and production technologies (such as irrigation, mechanization, pest control), input subsidies, research and development of climate-smart

technologies, and improved soil health, among others. Sanitary and phytosanitary control measures often fall under the auspices of agricultural ministries, and trade policies to protect or promote trade of agricultural products are often housed within agricultural policy (for example, trade bans, export support, price controls). Agricultural policy can also include efforts to add greater value to primary production through the promotion of agroprocessing enterprises. A strong long-term policy commitment is needed to ensure policy stability and success, as are proper dialogue and cooperation mechanisms between the central, regional and local governments, involving the private sector and civil society. Within the broader overall context of industrial, investment and agricultural policy and their general goals, more specific policy motivations for IAFPs and other location-specific industrial development policy instruments may include those shown in the Box 1 below.



Source: stock.adobe.com

**BOX 1 - Policy motivation for IAFPs**



**DEVELOPING THE MANUFACTURING SECTOR**

A competitive manufacturing sector plays a key role in both economic growth and socioeconomic transformation. IAFPs can provide a favourable business environment to develop the manufacturing sector and to add economic value in economies that are heavily dependent on the production of unprocessed or semi-processed agricultural products or extractive resources.



**SUPPORTING VALUE CHAIN INTEGRATION**

The IAFPs can also facilitate backward and forward linkages where an economy's raw materials and supplies flow to the park for processing. They have backward linkages to farmers and their raw materials, as well as forward linkages to food wholesalers, retailers and exporters. A number of service providers are also implicated all along agro-industrial value chains including agricultural input providers, transporters, warehousing and cold storage, machinery manufacturers, retailers and maintenance, quality control services, packaging and marketing, financial services, and others.



**ATTRACTING INVESTMENT**

IAFPs are an important tool for attracting investment and technology, given that some of the key factors that influence investment decisions are the availability of land, infrastructure, quality services, and proximity to both raw material supply and strategic markets. The technology transfer opportunities that foreign investment in particular can bring to an economy are crucial to improving production capacity through the associated transition from labour-intensive to technology-intensive production that often accompanies it.



**REGIONAL AND NATIONAL DEVELOPMENT**

Contributing to regional and national development objectives is often a primary driver of the decision to establish industrial parks that foster new investment, industries, jobs, linkages and growth.



**IMPROVING THE BUSINESS ENVIRONMENT**

IAFPs can improve companies' productivity by reducing production costs, reducing waste and pollution, and generally increasing economic opportunities.



**FOSTERING INNOVATION**

IAFPs create environments that foster collaboration and innovation by providing a location where the Government, private sector and universities and research institutes can collaborate, as well as conduct and commercialize research and reinforce entrepreneurship. They can also support entrepreneurs by incubating new businesses. The shared infrastructure and services offered by industrial parks can, moreover, reduce small business market entry barriers and facilitate access to seed capital.



**ECONOMIC EXPERIMENTATION AND DEMONSTRATION**

IAFPs can serve as a test of economic reforms and new policies and approaches in a geographically-concentrated pilot area. The piloting of new approaches can then, if successful, be replicated, along with the best practices drawn from these pilots. Best practices may also be applied to other industrial locations and businesses.



**COMMUNITY DEVELOPMENT**

IAFPs, when properly designed, can serve as local economic hubs and growth centres with certain positive externalities, such as delivering on broader local community goals, local employment creation, as well as transportation services, education and training, health care, mail and communication services, and women's economic empowerment, among others.



**PROMOTING ENVIRONMENTAL SAFEGUARDS**

IAFPs can offer the opportunity to decrease production costs through common infrastructure and systems, while also leading to increased materials, water and energy efficiencies, including through waste recycling, water management and resource recovery. Eco-friendly IAFPs can further reduce pollution and waste by applying pollution prevention, renewable energy, industrial symbiosis, and other environmental management methods and technologies. IAFPs can also promote improved agricultural production practices and technologies to improve soil health, ecosystem health, human health and environmental sustainability.

Source: Authors' elaboration of UNIDO, 2019a

## 1.5 EMERGING GLOBAL TRENDS: OPPORTUNITIES AND CHALLENGES FOR IAFPs

### Rising population and resulting increase in food demand

Population trends that already impact the agribusiness sector include: a growing global population, expected to reach 8.5 billion by the end of this decade; a lack of opportunity in rural areas leading to ever-increasing numbers of youth migrating to cities and across borders in search of a better life; and a sustained high level of rural to urban migration resulting in an expected proportion of urban dwellers of 60 per cent by 2030. Alongside economic growth, such demographic shifts bring significant changes in consumption patterns, at a time when food prices are increasing rapidly. Income growth in developing countries generates a dietary transition towards a higher consumption of meat, dairy, fruit and vegetables. Feeding a rapidly growing global population requires a systemic shift in agriculture and agro-industry.

### Greening of industrial production

The need to reduce environmental footprints, and in particular to decarbonize economies, is becoming an increasingly significant factor in business operations and decision-making. There is now a major emphasis on how to combine green growth with spatial planning initiatives. Furthermore, in order to curb environmental impacts and ensure productivity in resource-scarce environments, Governments and businesses alike are looking to scale up resource efficiency and to implement cleaner production practices. Changes in consumer demand, the nature of products and the economics of production have all contributed to a fundamental shift in the way companies do business, and to reshaping the competitive landscape for manufacturing. Such change can be expected to continue apace. Environmental considerations have therefore become a vital issue in the process of establishing IAFPs as well as an impetus for retrofitting and upgrading existing ones to improve their environmental performance. Greening of industrial production calls for radically different business models.

### Digitalization and automation of industrial production

The rapid development and spread of digital innovations such as the Internet of things, artificial intelligence, blockchain, and quantum computing has had transformative impacts on the agro-food sector. Digitalization has created new opportunities and catalysed new business models, institutions, systems and dynamics. Digitalization and automation have great potential to transform the agro-food sector by providing benefits to a wide variety of agricultural value chain stakeholders, improving rural livelihoods and promoting sustainable agro-food systems. Exploring the advantages of current information technologies promotes the steady and rapid development of the big data industry and facilitates the growth of intelligent manufacturing, as well as smart industrial parks. The rise of e-commerce and digital platforms and the advent of smart products and services, such as smart office services, smart personnel services, smart transport services, smart manufacturing, smart supply chains, smart building, intelligent property management, smart energy and others, all have profound implications for the agro-food sector. The use of digital technology in agriculture is gaining momentum including in developing countries, yet the digital divide exists in and across regions. Agriculture is still one of the slowest disciplines to adopt the application of digital technologies, even in advanced economies (McKinsey, 2019). Furthermore, the COVID-19 pandemic has amplified the speed and scope of digitalization and the increasing demand for and dependency on digital technologies, as well as heightened potential risks of a greater digital divide.

### Rising number of industrial parks and competition for investment

Since the early 1990s, there has been a sharp increase in the number of industrial parks across the world, especially in industrializing and emerging economies. The number of industrial parks worldwide increased from 29 in 1975 to 4,700 in 2021, according to UNCTAD. Three out of every four countries have at least one industrial park. Maintaining competitiveness amidst domestic and global competition will continue to be a critical issue for industrial parks, their developers and their operators. The future industrial park will probably be one with ever higher quality infrastructure, along with superior services as these competing parks all strive to best satisfy the demands of enterprises.

Agribusinesses must adapt to a rapidly shifting context for the demand and supply of food, as well as the nature of agricultural production. There is an urgent, overarching need to deal with climate change – which links to agricultural production in complex ways, both through the contribution of the sector to it, and the significant threats that it poses to the sector – with a need to ensure the alignment of agriculture to environmental sustainability goals. At the same time, agricultural practices are increasingly geared to more efficient regional and global agricultural value chains,

with greater opportunities for trade and investment. New technologies, including agriculture-focused information and communication technologies (ICT) and the digitalization of the supply chain, are transforming the food system and offering new opportunities to improve policy. With a growing population and limited natural resources, researchers and agribusinesses are racing to increase productivity, with increasing attention being given to innovation to help find a way to sustainably feed a growing population.

## 1.6 CHALLENGES OF AGRO-INDUSTRIALIZATION

Agriculture is the most important economic sector and greatest source of employment in many countries, in particular in Africa and Asia (Roser, 2013). It contributes up to 23 per cent of the GDP of Africa and provides work for nearly 60 per cent of the economically active population in sub-Saharan Africa (Pais, Jayaram and van Wamelen, 2020). The food-processing and beverages subsector accounts for more than 50 per cent of total manufacturing value added in low and middle-income countries (Mukasa and others, 2017). Food and agricultural products constitute the largest share of Africa's exports, accounting for between \$35 billion and \$40 billion a year. Paradoxically, several developing

countries are both net agricultural importers and net food importers. The continent's food and agricultural imports amount to between \$45 billion and \$50 billion a year (Pais, Jayaram and van Wamelen, 2020).

In many developing countries, in particular in sub-Saharan Africa, a robust agro-industrial sector with the potential to lift millions from poverty and increase global food supply chains has not emerged. Some of the leading challenges to the emergence of a strong agro-industrial sector in developing countries are described below.



Source: stock.adobe.com

## 1 Fragmented and poorly developed agricultural value chains

Strong supply chains are critical foundations to the competitiveness of agroprocessors. In many developing countries, however, supply chains are highly fragmented with millions of unorganized smallholder farmers and limited agro-input, aggregation, logistics and market information service providers. Consequently, SMEs and agricultural producers in developing countries miss out on local and global market opportunities with manufacturers and retail outlets due to a lack of technical and financial resources and lack of integration with production networks and buyers. The higher transaction costs for producers and limited access to formal and diverse markets negatively impacts the income generation of SMEs who may not benefit from higher-value-adding segments in agro-industrial value chains.

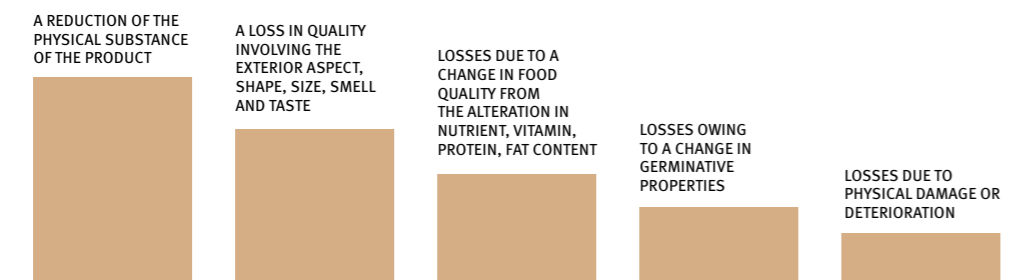
Competition is the biggest challenge that the industry will face due to the intense competition from globalization of economies and the liberalization of markets, international supermarkets, the increasing demand for high-quality, organic, minimally processed products and the emphasis on social responsibility and traceability. Increasing competition is among the biggest challenges that nascent agro-industry faces due to the increasing demand for high-quality, organic, conscientiously processed and packaged products and the emphasis on social responsibility and traceability in global markets. Meeting market specifications at a competitive cost will require inclusive and sustainable business models and supply chain and manufacturing practices, and targeted trade facilitation mechanisms.

## 2 High post-harvest losses

Post-harvest losses are a measurable quantitative and qualitative loss for any given product. This can occur at any phase within the post-harvest system and should also take into account product deterioration. When a product is intended for a specific purpose, if a loss in the original value occurs, the product is subsequently lost even if it can be recovered for other by-product uses. Post-harvest loss can amount to a significant loss of economic profits. Better post-harvest production and technological inputs therefore should be incorporated within the value chain, placing particular emphasis on the early supplier segments with primary agricultural producers and aggregators. Food waste is also a significant contributor to greenhouse gas emissions and climate change.

According to the Food and Agriculture Organization of the United Nations (FAO), 30 per cent of food produced for human consumption is lost or wasted along the supply chain every year. Harvest losses can be very high: for example, the quantitative harvest loss is between 30 and 50 per cent. Fruit and vegetable losses are estimated to be 50 per cent or more. They occur at every stage of the supply chain – from production to consumption – and the losses occur in a variety of forms, as depicted in Figure 4 (Ambuko, 2017).

FIGURE 4 - Forms of post-harvest losses



Source: Ambuko, 2017

Most often, losses are the result of poor management of post-harvest systems and lead to a lack of growth in production and farmer income. At the harvest level, losses tend to occur at the primary stage of farming: poor quality seed inputs, unproductive farming practices, lack of pest control and harvesting techniques. During post-harvest processing, further losses are common,

such as poor processing technology, inadequate packaging and storage facilities, limited safeguards against pests, and unreliable transportation conditions. Lastly, post-production losses tend to be linked to ineffective marketing practices, sectoral policies and other socioeconomic aspects.

## 3 Higher transaction cost for producers

Transaction costs are difficult to measure and can heavily impact commercial production. When institutions are effectively managed, they can reduce the toll of transaction costs for both the producers and their buyers. The transaction costs that can occur for the producer can happen at various stages such as before, during and after production, also known as information costs, negotiation costs and monitoring and enforcement costs. Information costs (before the transaction) include price information which may be difficult to obtain; if the price information is incorrect, the seller could select a market in which the producer may lose some profit. Negotiation costs occur during the transaction, for example time spent at the market waiting to sell the produce, as time spent there could be exploited for other activities. Monitoring and enforcement costs occurs after the transaction, when the producer has to spend time going to the merchant to obtain payment for the produce. Another transaction cost could be if the final sale price is less than the price agreed.

High transaction costs cause markets to suffer as a result of low participation by investors. Thus, producers focus on the costs of doing business to ensure their goods and services are attractive to investors. A foreign investor will face lower uncertainty if the procedures and rules governing economic exchange in the home country are similar to those in a host country. The greater the institutional distance between the host and home country, the higher the transaction costs for the foreign investor, with a lower chance of interaction with domestic suppliers (UNIDO, 2015).

## 4 Fragmentation of land holdings

A farm is typically classified as a smallholding if it has a threshold size of 2 hectares or less. Around two-thirds of the developing world's 3 billion rural people live in 475 million small farm households, working on land plots smaller than 2 hectares (FAO, 2015). *The economic lives of smallholder farmers An analysis based on household data from nine countries*. FAO: Rome). Many smallholder farmers are poor and food insecure and have limited access to markets and services. Fragmentation of landholdings occurs as a result of an increasing rural population that has limited opportunities for off-farm employment. Fragmentation decreases per capita income and leads to disguised unemployment in the agriculture and agribusiness sectors in rural areas in most developing countries.

Fragmentation and low per capita productivity lead to high aggregation costs of surplus production to meet the scale required by industries. The lack of progress in agricultural commercialization and limited forward linkages of producers with agricultural supply chains continue to isolate farmers from potential markets, and reinforces a negative cycle that stalemates (if not reduces) productivity and, in turn, makes smallholder farmers less attractive economic units.

## 5 Limited rural connectivity and access to agribusiness infrastructure, inputs and services

Rural producers often face significant market barriers due to underdeveloped transportation, logistics and utilities networks that prohibit their participation in commercial agricultural value chains. Many developing countries still have limited rural connectivity and access to necessary utilities for sustained industrial production. Regional connectivity and reliable transport networks between rural and urban populations, as well as transboundary connectivity, are important for the development of agricultural value chains and support access to markets and trade facilitation; access to jobs in rural and peri-urban areas; rural tourism; socioeconomic transformation; and other dimensions of rural development. Recently, improved transport networks have resulted in changes in the agro-food industry, specifically in developing countries. Rural areas often remain underdeveloped, however, with limited opportunities due to weak transport infrastructure and high transport costs, and farmers have to increase commodity prices to cover these costs. Technical shortcomings, lack of maintenance, budgetary constraints and other negative externalities also influence the long-term effectiveness of interventions securing rural connectivity (ESCAP, 2019).

In many developing country, public infrastructure such as roads, ports, energy, water, and ICT connectivity is often insufficient or absent. Feeder roads are often in disrepair; irrigation systems are not widespread; and access to electricity is limited, often requiring the expensive and environmentally harmful to integrate farmers into agribusiness markets.

## 6 Limited access to markets

Supply-side marketing is essential to allow companies to gain a competitive advantage in the marketplace. Marketing strategies include: product features, prices, distribution channels, transportation routes and carriers used, promotional strategies, quality standards, sales promotion, product availability and market responses. A marketing strategy is a prerequisite to functioning successfully and profitably in the marketplace, and should include descriptions of the product, price, promotion, advertising, distribution and services (UNIDO, 2005).

Competition for market share in the food and beverage industry is fierce globally; in many developing countries, domestic food products may have to compete against low-cost (and often higher quality) imports. An agricultural and food marketing system is obligatory to profitably exploit opportunities within the marketplace. Although much of this is limited to private firms and central to their business strategy, Governments sometimes have “buy local” campaigns and geographic origination branding of certain products that meet unique product and quality standards.

Effective marketing creates awareness of the product available for purchase; one strategy is to deliver sales and marketing materials to merchants to display their supply as the best option. Effective marketing can establish and maintain long-term relationships with the retail sector and customer base, and thus encourage further sales which will have positive economic implications on the supply-side of the business interaction. Through direct marketing, information can be provided to companies and international buyers who have the ability to source products from around of the region.

## 7 Limited access to finance

Farmers’ access to rural financial services is constrained by sociocultural, economic, legal and educational barriers. Financial inclusion remains a key development concern, as better access to financial services will allow for greater integration into the economy, assisting the economic and social development of the region. A lack of access to finance and financial services signifies a significant hindrance to income opportunities and the economic welfare of developing countries, mainly affecting the poor, women, youth and micro, small and medium-sized enterprises (MSMEs). Financial access constraints are most pronounced in rural areas, but are common throughout developing economies. The presence of formal financial institutions (such as banks or microfinance institutions) is limited in rural areas, and existing financial services intended for rural communities rarely benefit farmers, partly due to collateral requirements. The lack of financial institutions leaves farmers and agribusinesses unable to access savings, insurance and credit products. Many businesses lack access to formal finance, and do not have bank accounts to facilitate business operations, bulk purchasing of inputs and raw materials, or capital investment in improved equipment and facilities.

The low levels of financial sector development, market structure and regulatory framework also affect the access of rural producers to financial services. Imperfect competition can lead to market concentration, increasing costs of finance and market segmentation, resulting in an undersupply to rural areas. Undiversified financial sectors, common in developing rural regions, also increases an economy’s vulnerability to external shocks. Market failures highlight the need for policy and regulations to enhance financial inclusion, universal access, competition, and consumer protection. To promote financial services, rural areas should increase the use of technology, digital solutions, innovative business models, and financial literacy and capacity, to improve the supply of financial services (UNCTAD, 2020).

Limited financial resources mean that smallholder farmers, in particular women and youth, are unable to expand agricultural activities (through purchase of equipment and inputs, infrastructure maintenance, transport of products to market, and others).

## 8 Institutional and policy related inefficiencies

Strengthening the capacity of institutions is one of the four strategic priorities of the UNIDO medium-term programme framework (2018–2021). Strengthening knowledge and institutions improves the knowledge for inclusive and sustainable industrial development at the project, programme, country and international level, and institutional capacity at the technical, policy and normative levels.

Good institutional features are vital for successful economic growth. Inefficient policies are one of the main causes of failing institutions. Inefficient institutions persist when groups that favour the non-growth enhancing policies that such institutions create

and when these institutions are significantly powerful, while other social arrangements that counteract inefficient institutions have little power. Institutions determine the framework for policies, economic institutions govern the limits of numerous redistributive policies and other regulations that influence economic transactions, whilst political institutions control the country’s social system, providing representation for its population (Acemoglu, 2006).

## 9 Limited agricultural skills and knowledge









Skills shortages in many developing countries have an impact on the ability to make use of new agricultural technology and services. The agricultural sector continues to employ a significant proportion of the workforce, but most knowledge is gained through inter-generational transfer of skills. These links are eroding as rural children spend more time attending formal education than in the fields. The vast majority of workers in the agricultural sector are without adequate vocational training and education to support the adoption of new technology and services or shift seamlessly to employment in the agro-industrial sector. Formal agricultural technical and vocational education and training (ATVET) has only recently begun to emerge in many developing countries. This means that there is a shortage of qualified trainers, curricula, and infrastructure for practical agricultural learning. The majority of ATVET institutions lack access to the latest knowledge and technology, while instructors and extension workers lack the technical skills, knowledge and pedagogy needed to effectively deliver training courses to farmers. Much of the global research and development into improved agricultural technology and practices does not reach poor rural farmers in developing countries. Moreover, agriculture is seen by many, especially the youth, as only a livelihood option of last resort, making it difficult to recruit youth for ATVET programmes (Brown and Majumdar, 2020).

## 1.7 OBJECTIVES OF THE GUIDELINES

The main objective of these guidelines is to provide a guidance framework to stakeholders and partners regarding the development and operation of IAFPs for developing countries, thereby contributing to the Sustainable Development Goals. It aims to advance the knowledge and enrich the debate on the role of IAFPs in promoting the development of agro-industries and rural development.

In many developing countries, IAFPs are viewed as important tools for inclusive and sustainable industrialization, and therefore as a key to national progress on the Sustainable Development Goals, in particular Goals 1, 2, 3, 8, 9, 12, 13 and 17 (see Box 2 below).

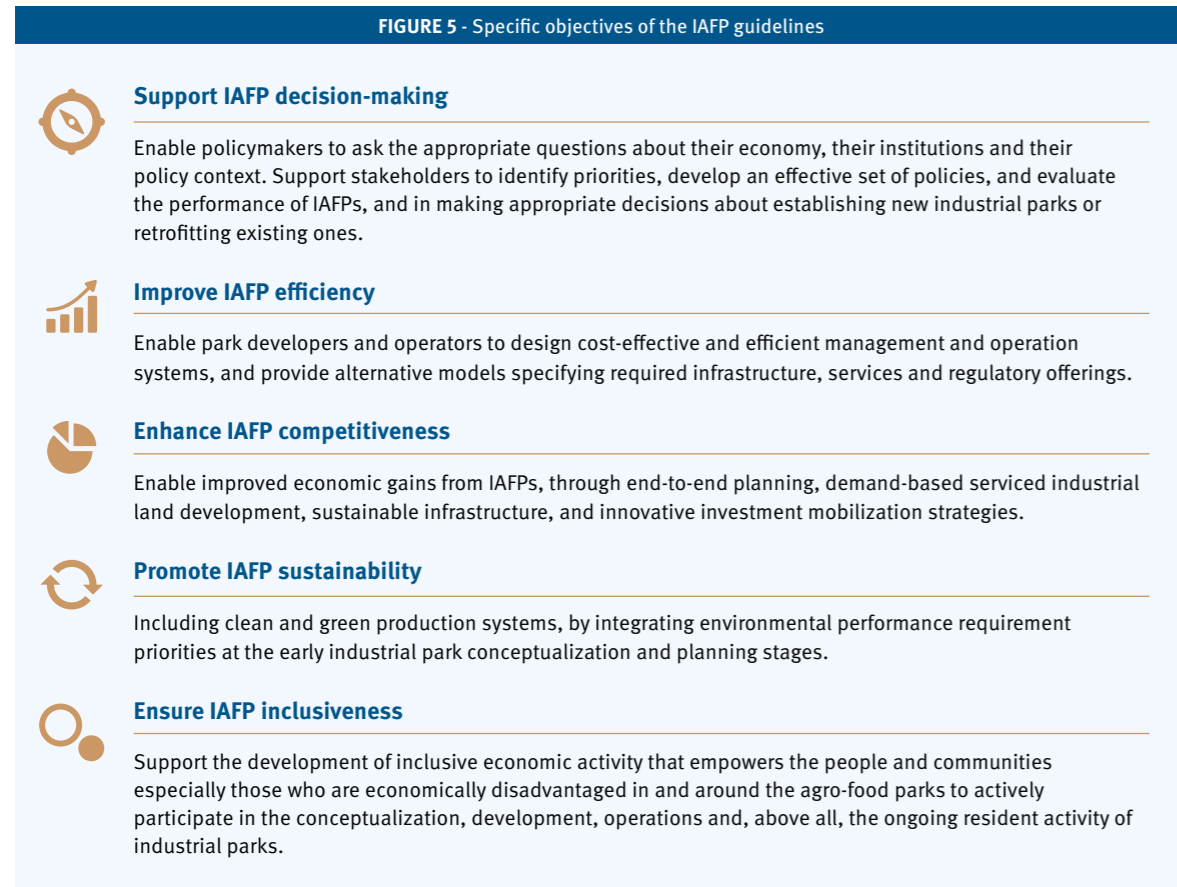
**BOX 2 - IAFP Contribution to the Sustainable Development Goals**

 <p><b>Goal 1</b> End poverty in all its forms everywhere</p>	 <p><b>Goal 9</b> Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p>
 <p><b>Goal 2</b> End hunger, achieve food security and improved nutrition, and promote sustainable agriculture</p>	 <p><b>Goal 12</b> Ensure sustainable consumption and production patterns</p>
 <p><b>Goal 3</b> Ensure healthy lives and promote well-being for all at all ages</p>	 <p><b>Goal 13</b> Take urgent action to combat climate change and its impacts</p>
 <p><b>Goal 8</b> Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	 <p><b>Goal 17</b> Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development</p>

These industrial vehicles contribute to the Sustainable Development Goals both through socially and environmentally responsible industrialization within the parks and rural networks themselves, and by demonstrating what is possible in the broader economic

development agenda of the country. In line with the Sustainable Development Goals, these guidelines aim to promote the development of competitive, inclusive and sustainable agro-industrial food parks through a comprehensive reference framework.

FIGURE 5 - Specific objectives of the IAFP guidelines



## 1.8 TARGET AUDIENCE

Given that IAFPs can promote investment, create employment and foster economic growth that is also environmentally sustainable and socially responsible, government decision makers, the private sector, academia and other social stakeholders alike are encouraged to participate in the design of their

overarching policy framework, as well as in IAFP implementation. These guidelines are therefore intended to be used and applied by a variety of stakeholders with an interest in industrial parks, including those listed below.



### IAFP and Cluster Developers

who create IAFP regulatory framework, oversee and so that they may take advantage of opportunities to enhance the planning and setting up of IAFPs, as well as reduce the associated risks and, in this manner, establish industrial parks that better respond to the demands of enterprises, ensure appropriate financing is available for their project, and deliver fit-for-purpose infrastructure and services.



### IAFP and Cluster Regulators

who create IAFP regulatory framework, oversee and assure the quality of their planning, implementation and operation, as well as the resident activity therein, so that they may more effectively prioritize policy decisions based on applying inclusive and sustainable industrial development principles in industrial parks, supporting and incentivizing these initiatives and, most importantly, monitoring and evaluating the results they achieve.



### IAFP and Cluster Operators

who provide services and support to tenants on a day-to-day basis, so that they may provide said services in an improved and more coordinated manner.



### IAFP Tenants

so that they can make informed investment and funds allocation decisions, and reduce their production costs, while ensuring environmentally-sustainable and socially-responsible operations.



### Multiple stakeholders and partners

such as multilateral development agencies, financial institutions, and other development partners - so that they can provide effective financial and non-financial support to existing and new industrial parks alike.

## 1.9 PARTNERSHIPS AND METHODS OF PREPARATION

These guidelines were prepared by a multi-disciplinary team of experts, by bringing together their technical experience and international best practices in developing and implementing industrial park projects.

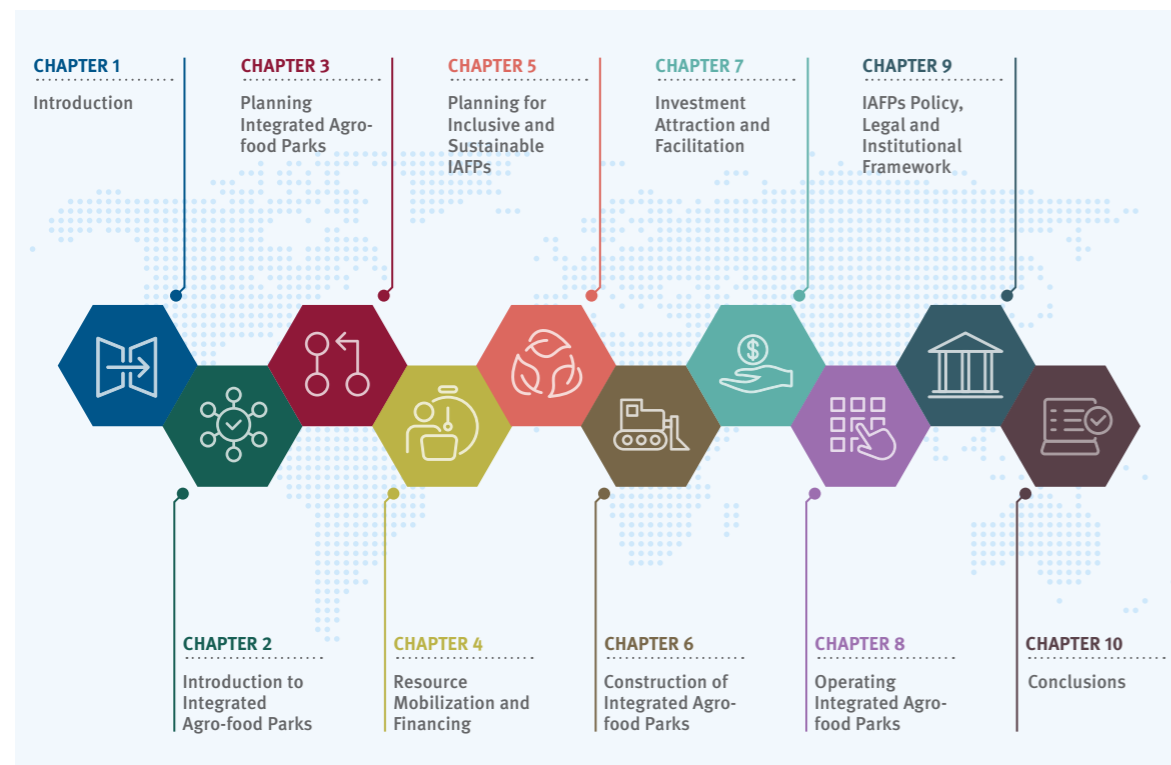
The literature on the subject was extensively reviewed including contemporary handbooks specializing in agro-industrial agglomeration models, studies on special agro-industrial processing zones, and research conducted on integrated agro-industrial parks (FAO, 2017; AfDB, 2021; UNIDO, 2019). In addition, earlier studies, tools and technical cooperation projects informed the core of the guidelines. Information from field visits, meetings with park managers, regulators and government representatives, and case study research on industrial parks practices in UNIDO Member States, as well as feedback from an external review

group were also incorporated herein. The guidelines have been designed to offer practical recommendations that are relevant to both new and existing agro-industrial parks and IAFPs in various international contexts, with a core focus on developing countries and countries with economies in transition. The guidelines are further supported by case studies, best practices, and successful experiences. This publication has been designed to give its target users and audience clear guidance and critical considerations relevant to the development and scaling up of integrated agro-industrial parks. It can be used at all development stages of IAFPs such as: industrial park planning and design, construction, park operations, marketing and investment promotion, environmental impact and energy management.

## 1.10 STRUCTURE OF THE GUIDELINES

The publication comprises the following ten interrelated chapters that roughly follow the IAFP conceptual, development and operations processes with special attention given to elements of critical importance to

the success of IAFPs, such as planning, financing, construction, policy framework, investment promotion and operations.



Source: UNIDO

■ **Chapter 1** provides an overview of the guidelines by introducing the integrated agro-food park (IAFP) concept, defining the objectives and target audience of the guidelines, defining the methodology and data sources of the publication, and providing the context and arguments for IAFPs, including contributions to the Sustainable Development Goals. It also provides an overview of the challenges that the agro-industrial sector is facing to contribute to the overall economic transformation in developing countries, particularly acute for supply chain development.

■ **Chapter 2** considers the conceptual framework of IAFPs and public policy rationale, including opportunities that IAFPs offer in terms of agricultural reform and transformation. It also explores the systemic interactions of several independent firms (producers, agribusinesses and institutions) in an industrial set-up or industrial setting in order to gain economies of scale and positive externalities by sharing infrastructure and services. The chapter explains how different components of IAFPs, such as the agroprocessing centre, rural transformation centres and consolidation centres, function as a unified system to facilitate demand-driven combination and integration of various agricultural activities and encourage linkages with value chain contributors.

■ **Chapter 3** offers guidance on the IAFP planning process from business case conceptualization to detailed feasibility studies. In so doing, it highlights best practices for the various types of analysis involved in IAFP development, including business case assessment, formulation and decision-making, location and site selection, master planning and environmental and social impact assessments. The chapter introduces an iterative decision-making model which suggests decision-making parameters for analytical and conceptual refinement as well as approving incremental time and resources, including extensive stakeholder consultation and engagement.

■ **Chapter 4** discusses resource mobilization and financing of IAFPs throughout the IAFP life cycle. It provides a classification of financing sources and strategies for accessing finance through a range of public, private and mixed models. The chapter disaggregates the public and private nature of IAFP phases and components and suggests different funding sources and financial structuring to achieve development objectives. It is rich with practical examples.

■ **Chapter 5** introduces environmental and social considerations for the planning of inclusive and sustainable IAFPs. Principles of inclusive and sustainable industrial development and corresponding strategies are discussed which include both eco-design and social inclusion dimensions. Considerations for hard and soft infrastructures, practices and business models are highlighted; as well as suggestions for the role of development partners in promoting inclusive and sustainable IAFPs.

■ **Chapter 6** discusses the construction required for IAFPs which encompasses on-site and off-site infrastructure, ensuring connectivity between APCs and production catchment areas, RTCs and end markets. Practical guidance is offered for horizontal and vertical infrastructure construction including environmental and social considerations, modular technologies, transportation networks, and project management and monitoring.

■ **Chapter 7** explores the roles and responsibilities of key entities for investment promotion of IAFPs. Key IAFP selling points and tools are discussed, as well as strategies to target investors and provide useful services to investors.

■ **Chapter 8** explores topics related to the operations and management of IAFPs. IAFP operations and management involve site and facilities management and maintenance, continuing investment promotion, performance monitoring and evaluation, and ongoing improvements and reinvestment. This chapter clearly defines the roles and responsibilities of entities involved in the development, operations and oversight of IAFPs, highlights issues related to legal compliance, and suggests criteria and process for selecting operations and maintenance entities.

■ **Chapter 9** provides guidance on the development of policy, legal and institutional frameworks for IAFPs, including the national and economic policy conducive to the success of IAFPs, as well as a discussion on IAFP-specific policy, legal and regulatory frameworks. The chapter also provides guidance on institutional frameworks for governance of IAFPs, including discussions on the roles and responsibilities of various stakeholders.

■ **Chapter 10** summarizes key conclusions emanating from the IAFP guidelines, including high-level overviews of each of the IAFP development and operations phases.



# 2



## Introduction to Integrated Agro-food Parks

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## 2.1 OVERVIEW

There are several challenges that need to be dealt with in order to achieve the sustainable development of agribusiness and agro-industrialization in developing countries. Agricultural transformation has yet to be accomplished in many developing countries owing to the neglect of the agriculture sector in overall development efforts, long-term underinvestment and poor governance that have characterized the agriculture sector in many developing countries. The legacy of exporting primary commodities in bulk unprocessed form with no value addition has sealed the fate of agro-industrialization as a rarity in the development of many emerging economies, in particular in sub-Saharan African countries. Today, innovation has become a necessity for the survival and economic viability of development of agribusiness in the global economy. Integrated agro-food parks (IAFPs) are envisaged to be a spatial cluster-based solution to spearhead agricultural transformation and support the development of agro-industrialization in developing countries.

An IAFP is a series of centrally managed physical platforms offering high-quality infrastructure, logistics, and specialized facilities and services, to a community of tenants, agro-industries, related agribusiness firms, service providers, and research and knowledge institutions for the transformation of agriculture produce (FAO, 2017). It is typically located in regions of high agriculture growth with access to key infrastructure (roads, electricity, water, telecommunications, and others). It is spatially demarcated, with hard and soft infrastructure platforms dedicated to supporting firms and other stakeholders engaged in agroprocessing and related activities.

IAFPs consist of three distinct yet integrated components that intentionally foster linkages among value chain stakeholders. The three components of the IAFP are: the agroprocessing hub, which is an industrial park that houses a cluster of firms grouped together to share infrastructure; the primary processing and aggregation centres, known as rural

or agriculture transformation centres (RTCs or ATCs); and the consolidation centres, serving as a stocking point providing logistics and services and supporting connectivity between the rural agriculture production regions and RTCs and APCs.

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The development objectives of an IAFP are to: promote the value addition of agricultural production through processing, manufacturing and storage of food, feed, and biofuel products; and drive technological change and spur industrialization of the agribusiness sector by offering premises and supporting services. In relation to achieving sustainable food systems, IAFP can also play an important role in boosting agribusiness value chains and food security. There are also various challenges and hurdles, however, that can limit the sustained success of IAFP. These include inadequate infrastructure, limited pools of skilled human resources, weak knowledge spillovers between foreign and local firms, and the lack of innovation and technological capabilities of domestic firms.

This chapter explains the model framework for developing IAFP based on international best practices and success stories and highlights the potential of the IAFP in supporting the development of agribusiness and agro-industrialization in developing countries through the coordination and co-location of agribusiness participants, service providers and inputs, to achieve competitive advantage.

## 2.2 EVOLUTION OF INTEGRATED AGRO-FOOD PARKS

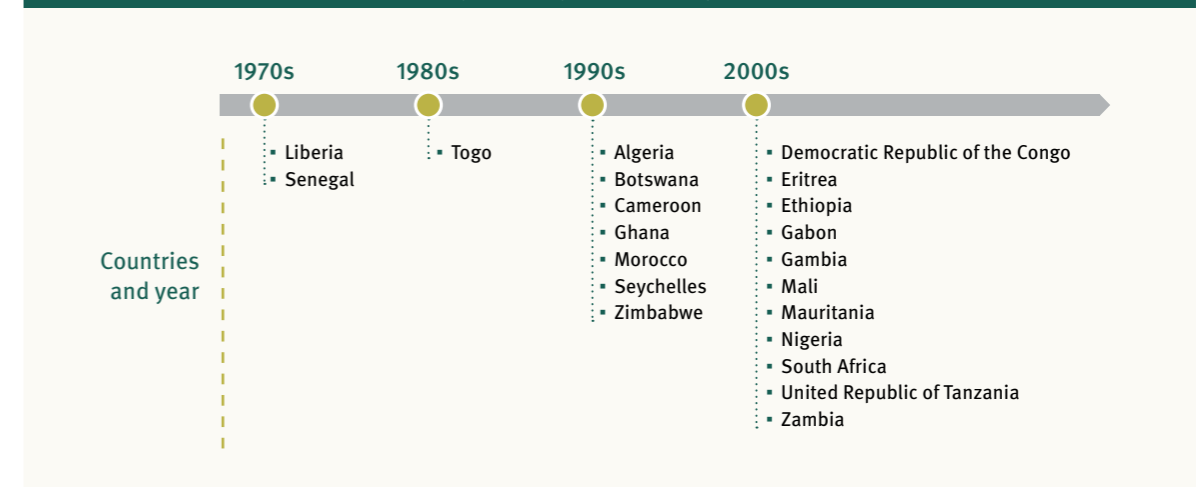
The use of a cluster model as a tool for agricultural value addition and competitiveness is relatively recent in both industrialized and emerging economies. Following the 2007 and 2008 global food and financial crises, a new wave of agro-food park initiatives emerged in both developed and developing countries to respond to growing concerns related to food security and volatile pricing. Food being a subject of global importance, many countries have focused on enhancing agriculture and food-processing using an innovative business model and a cluster-based development approach. At the same time, international development and finance institutions also acknowledged the role of food parks in promoting rural development and modernizing the agribusiness system.

While the cluster-based approach traditionally has been used to attract investment and create employment, it also contributes to rural transformation and food-processing sector development if it is able to create effective integration of value-chain actors. Globally, many countries have adopted different models of food-cluster development that vary based on government

policy, raw material availability and export capabilities. India and China<sup>2</sup> are among the countries that have relied most notably on food clusters as a result of generous financial facilities (in the form of federal or provincial grants) for setting up food parks (see Box 3). Food clusters were also adopted by Malaysia, Viet Nam and New Zealand to promote growth of the agricultural and food-processing sectors. The food processing sectors were also prioritized by Government in countries such as the Philippines and United Arab Emirates to attract foreign investment under their special economic zone schemes. In Dubai, for example, food processing industries are located within the Dubai Industrial Park (ICRIER, 2015).

The food park model was also used in Europe to promote the development of agro-industry. The territorial approach in the Italian agro-district model and the Netherlands food clusters stand out as examples of using food parks and agro-corridors to generate agro-industrial clustering, to improve competitiveness, spur innovation, and facilitate trade for a country's high-value agribusiness sector.

FIGURE 6 - Agroprocessing parks in Africa, by decade of launching



Source: Compiled by the authors

2) China launched a programme to develop national industrial parks in the 1980s, with almost half of those mixed manufacturing parks in operation hosting food, beverages and agricultural machinery firms (FAO, 2017).

In Africa, the food processing sector is an important part of free trade zones and export processing zones, and benefits from several government incentives that are not applicable to the rest of the country. Most spatially-organized agro-industrial efforts have been launched in Africa only within the last decade (see Figure 6), with strong support from development institutions such as the African Development Bank, the World Bank and UNIDO helping to coordinate a range of initiatives such as integrated agro-industrial parks, agro-corridors, staple-crop processing zones (SCPZs) and special agro-industrial processing zones (SAPZs). While there is limited research on the performance of Africa's special economic zones generally, and even less on agro-parks or food parks (Haile, forthcoming; AfDB, 2021a), early indications point to successes in attracting new investment in agro-industry from these efforts, albeit at a slow pace due to long incubation periods and delays in the construction of basic and connective infrastructure (Haile, forthcoming).

In general, the uptake of food parks has been slower compared to other types of parks. Policymakers have found it more challenging to adapt the cluster model to a new environment with participants that

are relatively smaller and more fragmented, and that operate in rural and peri-urban spaces (FAO, 2017). The slow progress of food parks is also due to traditional institutional fragmentation between agricultural and industrial policies, as well as lack of coordination between government institutions. Traditionally clusters or zones are often the mandate of institutions responsible for industrial development (such as a ministry of industry), while agricultural production (crops, livestock and fisheries), food security and rural economic empowerment are the domain of different institutions (for example, Ministry of Agriculture, Rural Development, and others). The growing sophistication of agricultural value chains has blurred the boundaries of what counts as "agriculture" or "industry" in terms of economic activities and sectors (Cramer, Di John and Sender, 2018). There is considerable need to rethink these institutional and sectoral boundaries which require inter-sector and inter-ministerial coordination to respond to the contemporary landscape of agro-industry and its valuable position in the global economy. The success of food parks rests on a combination of rural development, industrial value addition and agricultural productivity.



Source: stock.adobe.com

### BOX 3 - India's mega food-park scheme



The Government of India pinpointed food processing as the priority sector in the National Manufacturing Policy (2011) and established a nodal agency (the Ministry of Food Processing Industries) to coordinate the design and implementation of food processing industry policies and strategies. To achieve the targets of its Vision 2015, the Ministry initiated a mega food park (MFP), which was launched in 2008–2009 as a carefully planned, cluster-based, and privately driven scheme, known as the "50-50-50 scheme", for developing food processing industries. Under this scheme, the Ministry gives a grant of up to Rs. 500 million to build an MFP with a minimum land area of 50 acres (excluding land required for setting up PPCs and CCs at various locations) with an investment of at least Rs. 500 million by the Mega Food Park developer. It is expected that, on average, each project will have around 25–30 food processing units and create direct and indirect employment of about 5,000 persons. Upon being fully operational, each MFP is expected to benefit approximately 25,000 farmers.

The MFP scheme in India involves various stakeholders playing different roles. The special purpose vehicle which is registered under the Companies Act is responsible for the execution, ownership and management of the MFPs. An external project management company supports SPVs and Ministry of Food Processing Industries in the implementation of the MFP scheme. The Inter-Ministerial Approval Committee, headed by the Minister of Food Processing Industries and supported by the technical committee, approves the project funded under the MFP scheme and monitors its overall implementation. Subject to fulfilment of the conditions of the scheme guidelines, the funds are released to the SPVs. Under this scheme, 22 mega food parks are operational, with their status regularly monitored and updated.

MFPs in India aim to link agricultural production to the market by bringing together farmers, processors and retailers to maximize value addition, minimize wastage, increase farmers' income and create employment opportunities in the rural sector. Based on the "cluster" approach, the MFP offers state-of-the-art infrastructure in a well-defined agricultural or horticultural zone and modern food processing units in the industrial plots to help connect with established supply chains. This infrastructure typically includes CCs, primary processing centres (PPCs), central processing centres (CPCs), cold chain, standards monitoring units, and around 25–30 fully developed plots for entrepreneurs to set up food processing units. The central processing centres includes common facilities such as a testing laboratory; cleaning, grading, sorting and packing facilities; dry warehouses; specialized storage facilities including controlled atmosphere chambers; pressure ventilators; variable humidity stores; pre-cooling chambers; ripening chambers; and cold chain infrastructure including reefer vans, packaging unit, irradiation facilities, steam sterilization units, steam generating units, and food incubation cum development centres.



Source: Ambuko, 2017; Image: stock.adobe.com

Increased interest in agro-based processing and staple crops production in a bid to achieve Agenda 2063 for Africa and the Action Plan for the Accelerated Industrial Development of Africa (AIDA), a number of African nations have set up or are in the process of setting up food processing parks. Governments across Africa are prioritizing agro-production and agroprocessing to increase productivity and add value to the entire agricultural sector. Many countries launched IAFP initiatives to promote agricultural transformation, increase value addition and stimulate multiplier effects through production linkages. There is also immense interest among investors, both local and global, to engage in agro-projects throughout the value chain.

The African Union initiated the Common African Agro-Parks Programme (CAAPs) as one of the concrete initiatives to implement the Comprehensive Africa Agriculture Development Programme (CAADP) within the framework of the African Union Agenda 2063.

The African Union initiated the Common African Agro-Parks Programme (CAAPs) as one of the concrete initiatives to implement the Comprehensive Africa Agriculture Development Programme (CAADP) within the framework of the African Union Agenda 2063. CAAPs is set as a mega initiative to create regional agro-industrial hubs that will respond to the continent's demand of interventions aiming at: - increasing supply of domestically produced agricultural goods-, reversing projections on food imports, and value-added

#### BOX 4 - African Development Bank's special agro-industrial processing zones

AfDB has focused its attention on the design and programming of a spatial model of agro-industrial processing, termed the "Special Agro-industrial Processing Zone" (SAPZ). This strategic spatial solution aims to transform agriculture in Africa into a high value-added industry. Agro-industrialization interventions by AfDB operate through two primary channels: funding of infrastructure projects that enable the creation of productivity-enhancing agricultural development; and supporting policy dialogue, technical assistance, innovation and technological development, institutional capacity-building, and financing arrangements for agricultural transformation and rural development.

The SAPZ has its origin in the AfDB "Staple Crops Processing Zone" (SCPZ) initiative, previously launched as a flagship programme under the Feed Africa Strategy. This agro-based spatial development initiative looked to agglomerate agroprocessing activities within staple commodity areas of high agricultural potential with the aim of boosting productivity and integrating production, processing and marketing.

processing of agricultural commodities toward boosting intra-African trade and investments. UNIDO is one of the implementing partners of the African Union CAAPs, initiated to implement CAADP within the framework of the African Union Agenda 2063.

UNIDO provides full project life cycle support to food parks, in particular in Africa. More than 15 agricultural and food park initiatives are currently under implementation in Africa (in Ethiopia, Kenya, Nigeria, Senegal, United Republic of Tanzania, Zambia, Zimbabwe). Similarly, the AfDB has been coordinating a dedicated policy directed to special agro-industrial processing zones. As part of the AfDB High Five (High 5s) Agenda, the transformation of African agriculture and industry has been prioritized through the "Feed Africa" and "Industrialize Africa" strategies. The aim is to transform agriculture into a "globally competitive, inclusive and business-oriented sector that creates wealth, generates gainful employment and improves quality of life in rural areas" and the Industrialize Africa strategy provides the rationale for identifying agro-processing as the underpinning of an industrial policy to support the transition from a low-productivity agrarian to an internationally competitive agro-industrial economy (AfDB, 2017). Other organizations supporting the effort to further agro-industrialization in Africa include the Food and Agriculture Organization of the United Nations, the Economic Commission for Africa, the World Bank Group, and others.

The SAPZ model is a broader spatial development solution to agro-industry and is applicable to a wider range of agricultural production activities – farming, livestock, fisheries, and forestry – and is designed to achieve the twin objectives of agricultural transformation and rural development through agro-industrialization. The model has supported various phases of specific and allied agro-industrialization activities in the following African countries: Ethiopia and Togo, with approved operations in Guinea, Mali and Senegal and feasibility studies under way in Côte d'Ivoire, Liberia, Madagascar, Mozambique, Nigeria and Zambia.

The key planning and operational features of the model include:

- Linked with a regional member country's national action plan for agricultural transformation, targeting high-value agricultural potential
- Public-private orientated: government-enabled (facilitator) but private-sector-led (manager)
- Catalysing government capacity and mobilizing leadership and political will at the highest level to champion and own the SAPZ process
- Government provision of a stable macroeconomic framework as part of an SAPZ strategy and an enabling policy environment for attracting private investment; proper legal and regulatory institutional framework for coordinating and monitoring the implementation cycle
- Government-coordinated infrastructure and "plug and play" model to attract the private sector financial, knowledge and technology resources and maximize potential of SAPZ as profitable venture with broad-based development benefits for the host Government and catchment community.

Source: AfDB 2022

## 2.3 CONCEPTS OF INTEGRATED AGRO-FOOD PARKS

UNIDO defines integrated agro-food parks (IAFPs) as an agribusiness development corridor integrating value-chain actors with high-quality infrastructure, utilities, logistics and specialized facilities and services to create economies of scale for sustainable market-driven agribusiness development and rural transformation.

Several terms are used for more or less the same concept, sometimes interchangeably; agropark, greenport, agri business park, agro production park, agro cluster, mega food park, integrated agro-industrial park, agropole, staple crop processing zone and special agroprocessing zone are some of the common names one can find in agribusiness documents. The terms agro-park, agribusiness park, agropole, staple-crop processing zone and agro-food park may be used synonymously and usually refer to the concept in general or to its basic conceptualization.

This spatially demarcated hard and soft infrastructure platform is dedicated to supporting agribusiness stakeholders to transform agricultural commodities into marketable products. The purpose-built shared facilities enable agricultural producers, processors, aggregators and distributors to operate in the same vicinity so as to reduce transaction costs and share business development services for increased productivity and competitiveness.

IAFPs usually consist of three distinct yet integrated components: agroprocessing hubs, RTCs; and (consolidation (or collection) centres (CCs)<sup>3</sup>. These three components are often located within areas of high agricultural potential to boost agro-industrial productivity output, and integrate production,

3) While the UNIDO conceptualization of the IAFP encompasses the three core components described above, different terminologies tend to be used interchangeably to refer to the same components among other stakeholders, and in the literature. For example, according to the Department of Rural Development and Land Reform of South Africa (2016), the three interrelated components of the IAFP consist of: the farmer production support hub (rural transformation centre), agro-hub (agroprocessing centre), and rural-urban market centre (consolidation centre).

processing and marketing of selected commodities. They provide the link from farm to market while collectively adding value to agricultural produce, both food and non-food, by sourcing them from reliable producer supply chains, processing them into marketable products and by improving storability

### 2.3.1 Agroprocessing Centre or Hub

The agroprocessing centre or hub (APC/APH) is the heart of the IAFP. They are centrally managed clusters of agro-industrial and allied firms grouped together to gain economies of scale and positive externalities by sharing utilities, shared, common, and specialized infrastructure and taking advantage of opportunities for bulk purchasing and selling, as well as business services. Multiple functions take place in the APCs, such as final processing, storage, packaging, marketing and distribution.<sup>4</sup> APCs are supported by adequate

and product shelf life. IAFPs can combine different agro-production chains, thus maximizing operational synergies, economies of scale, and income generation activities, by targeting the vertical and horizontal integration of value chains.

The APC houses purpose-built shared facilities to enable processors and distributors to operate in the same location so as to reduce transaction costs and share services for increased productivity and competitiveness.

infrastructure, logistics and specialized facilities and services required for agro-industrial activities (including electricity, water, cold chain facilities, laboratory and certification services, business services, ICT, waste treatment, and others).

### 2.3.2 Rural Transformation Centres

Each agroprocessing centre is served by a network of RTCs or ATCs that facilitate linkages to producers.

The RTCs are a geographical cluster of facilities and services, strategically located within the agricultural production zone.

Each RTC comprises a physical complex of facilities where agricultural produce from farming communities is collected, sorted, stored and may undergo primary processing (according to product-specific need), before onward transport as raw material to facilities in the APC or distribution and sale directly to consumers (as may be the case for fresh fruits and vegetables).

Apart from these primary functions, RTCs also may provide micro financial services to farmers, as well as basic social services. Services on offer at the RTCs

include warehousing, cold storage facilities, extension services, training and other social amenities such as banking and health care services. Thus, RTCs function as a primary processing hub and storage facility in addition to offering capacity-building, knowledge dissemination, market intelligence and other rural interventions. Farmers and farmer groups not only deliver their produce and receive agricultural inputs and agriculture extension services, but for most of these producers the RTCs are the main point of contact with commercial agricultural value chains.

Linkage to smallholder farmers is a key feature of the RTCs and IAFPs. By aggregating produce from several farms in one location, RTCs are able to link smallholder farmers to larger agricultural value chains. Such linkages serve two key functions: to integrate raw material suppliers (smallholder farmers) with the

demand side of the food chain in an efficient manner; and to provide the appropriate raw materials to agro-industries (a lack of which is the major constraint affecting food processors in developing countries). This is essential for poverty reduction in rural areas and for the structural transformation of the economy (UNIDO, 2016).

The physical infrastructure of RTCs and APCs is complemented by contract farming agreements (UNIDO, 2016). Very few smallholder farmers presently have contractual links to agro-food processors. This contributes to a supply-driven agro-industry system characterized by uncertainty and high transaction costs for both farmers and processors. Current arrangements do not provide incentives for smallholder farmers

to produce the quality or quantity of raw materials required by agro-industries. With contract farming, agricultural producers enter into binding agreements with processors that may provide support in terms of production methods and technology; output quantity, quality and prices; and technical and financial assistance. This reduces transaction costs for both parties. Both processors and producers stand to benefit from better linkages between farmers and agro-industries. Processors profit from a guaranteed delivery of produce, while producers benefit from essential inputs and services (such as seeds, fertilizers, equipment, finance and technical advice), and access to more predictable markets, allowing for better expenditure planning and savings (UNIDO, 2016).

The major components of RTCs include:



#### Training and capacity-building for rural populations

Training opportunities for rural communities aimed at enhancing knowledge, skills and abilities to increase income-earning opportunities and, as a result, improve standards of living. Training covers areas such as cultivation, post-harvest handling, packaging and branding, product performance and animal feed management. In addition to the proposed training centres, a network arrangement can be established with the existing farmer training centres within the catchment area of the RTCs.



#### Market information centre

A one-stop information centre that combines information and services offered by various ministries and government agencies. The centre provides information on agro-food business development, prices, market trends, and current market demand in terms of products and quality, among other services.



#### Agriculture support services

These services help rural communities to enhance productivity; produce premium vegetables; and cover areas such as dairy development, including raw milk marketing. These services also target quality improvement by setting up agricultural input services, agricultural equipment support services, and agri-clinics, among others and support trading, negotiation, and investment planning.



#### Agro-food processing activities

Aim at developing food processing enterprises in rural areas, with an emphasis on improved agro-food product quality for local and overseas markets. They support agro-industrial development through value added activities and generate additional income for farming communities.



#### Agricultural produce supply chain management

These support services aim to improve the marketing of agricultural products through supply chain management from the farm to consumers. This will be achieved through better planning and appropriate quality control across the supply chain (UNIDO, 2018c).



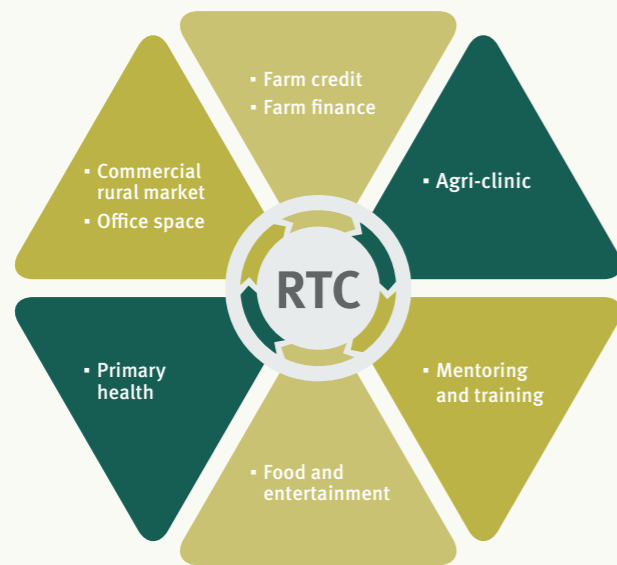
#### Aggregation, distribution and storage hub

Co-located producers will deliver their output to the hub to be conditioned and packaged, before being adequately stored and finally supplied to the agroprocessing hub for further value addition, or sent to distribution and retail centres of great demand.

Apart from their primary function, RTCs would also have infrastructure to support rural markets and social infrastructure aimed at fostering capacity-building.

4) Agro-processing activities may be demarcated into three main categories based on the level of technology usage: primary agro-processing (such as washing, cleaning, grading and labelling), secondary agro-processing (such as milling grain, cutting), and advanced agro-processing (such as product transformation, baking and extractive activities). Processing in agriculture involves the biological, physical, mechanical, and biochemical manipulation, (both scientific and traditional) of an agricultural product to facilitate easier handling and preservation for further use. Agro-processing encompasses technological and economical operations to transform raw agricultural, forestry, and fisheries material and products into more useable products, either for human or animal consumption, or for industrial purposes.

FIGURE 7 - Rural transformation centres' commercial and social functions



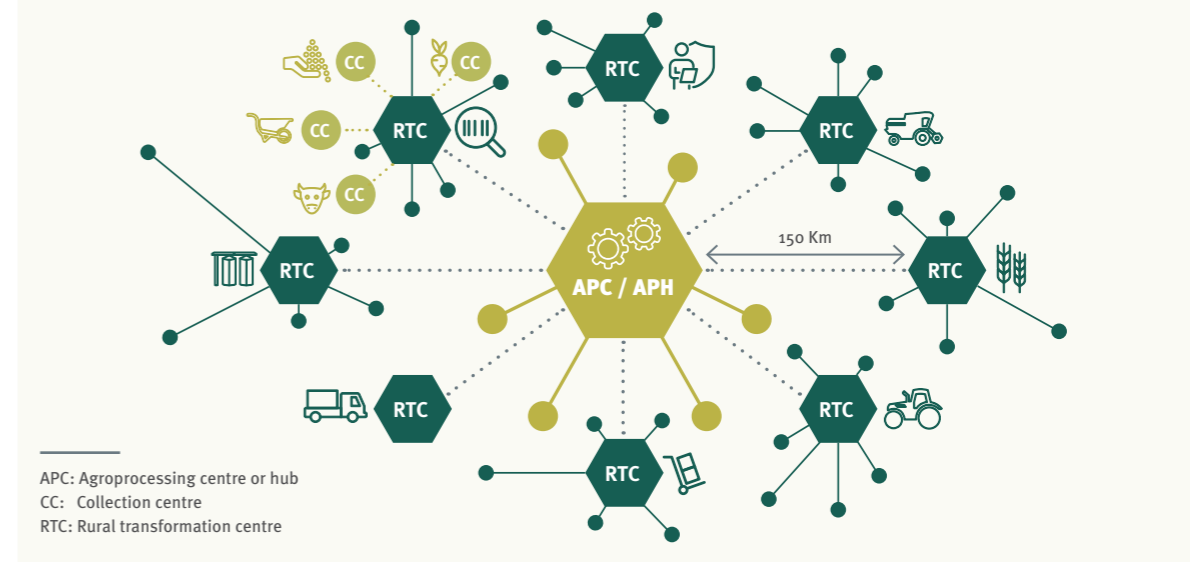
Source: UNIDO

### 2.3.3 Consolidation or collection centres

To ensure a steady supply of raw materials, the RTCs and IAFPs are sometimes complemented by CCs located in villages closer to the source of production within feeder catchment zones. Consolidation centres are subregional small-scale aggregation points used within some supply chains to consolidate product from large numbers of smaller suppliers or farmers groups. These are located in agricultural production areas where the potential supply from a cluster of farms and farmer organizations is carefully considered. The size of the procurement production area, agricultural land and mixed cultivation land, can range in radius depending on several factors including: the processing capacity of the site, total raw material requirements and per hectare productivity of the land. In addition, the boundaries of the effective zone of procurement are also influenced by legal issues like regional boundaries, establishment of collection centres and RTCs. For example, in the context of integrated agro-industrial parks (IAIPs) in Ethiopia, the procurement zone was restricted to the regional boundaries where the processing park is located and ranges within a radius of 30 to 100 kms from the IAIPs (UNIDO, 2016).

In general, the network of RTCs and CCs helps to ensure the adequate supply of raw material for maximum utilization of the APC and its tenants. In terms of geographical coverage and proximity, the three components can cover up to hundreds, and in some cases, thousands of hectares and a much wider catchment area surrounding the APC but also the wider influence area that comprises the rural transformation centres and consolidation and aggregation centres. The development of the IAFPs will inevitably vary in different regions of the world depending on current levels of sophistication with respect to the production, aggregation, preservation, and processing of agricultural commodities. Figure 8 depicts the illustrative spatial relationship among the three integrated IAFP components.

FIGURE 8 - Spatial relationship between APC, RTC and CC



Source: UNIDO

## 2.4 OBJECTIVES, BENEFITS AND BEST PRACTICES OF IAFP DEVELOPMENT

### 2.4.1 Objectives of IAFPs: economic, social and environmental dimensions

IAFPs have many objectives that marry business opportunities with economic development and poverty reduction needs to create win-win solutions for creating sustainable agro-industrial growth. Beneficiaries of IAFPs include national and subnational governments, tenant and allied firms, farmers and on and off-farm employees. At the centre of IAFPs are the driving

interests of agribusinesses and agro-allied businesses that strive to operate with greater profits and scale in more conducive business environments. Table 1 below outlines seven key objectives that make IAFPs unique agro-industrial development models.

TABLE 1 - IAFP objectives

<p>Create investment opportunities in agribusiness</p>	<ul style="list-style-type: none"> <li>▪ Tackle constraints related to infrastructure, utilities and business development services</li> <li>▪ Facilitate integration of the supply chains, which allows efficient flow of produce from farmers to industry and market</li> <li>▪ Provide a platform for industry-agriculture interaction and facilitation of trade all year round</li> <li>▪ Provide farmers and traders or exporters with market intelligence and information</li> <li>▪ Facilitate technology transfer and diffusion in agriculture and agroprocessing</li> <li>▪ Develop entrepreneurship skills of farmers, traders and other value chain actors</li> <li>▪ Maximize resource efficiency across value chains and enable industrial ecology and symbiosis</li> </ul>
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Accordingly, agro-food parks help their tenant firms to achieve competitiveness through co-location, strengthen supply chains and maximize the efficient use of natural resources. They are also designed to uniquely address supply chain weaknesses by fostering

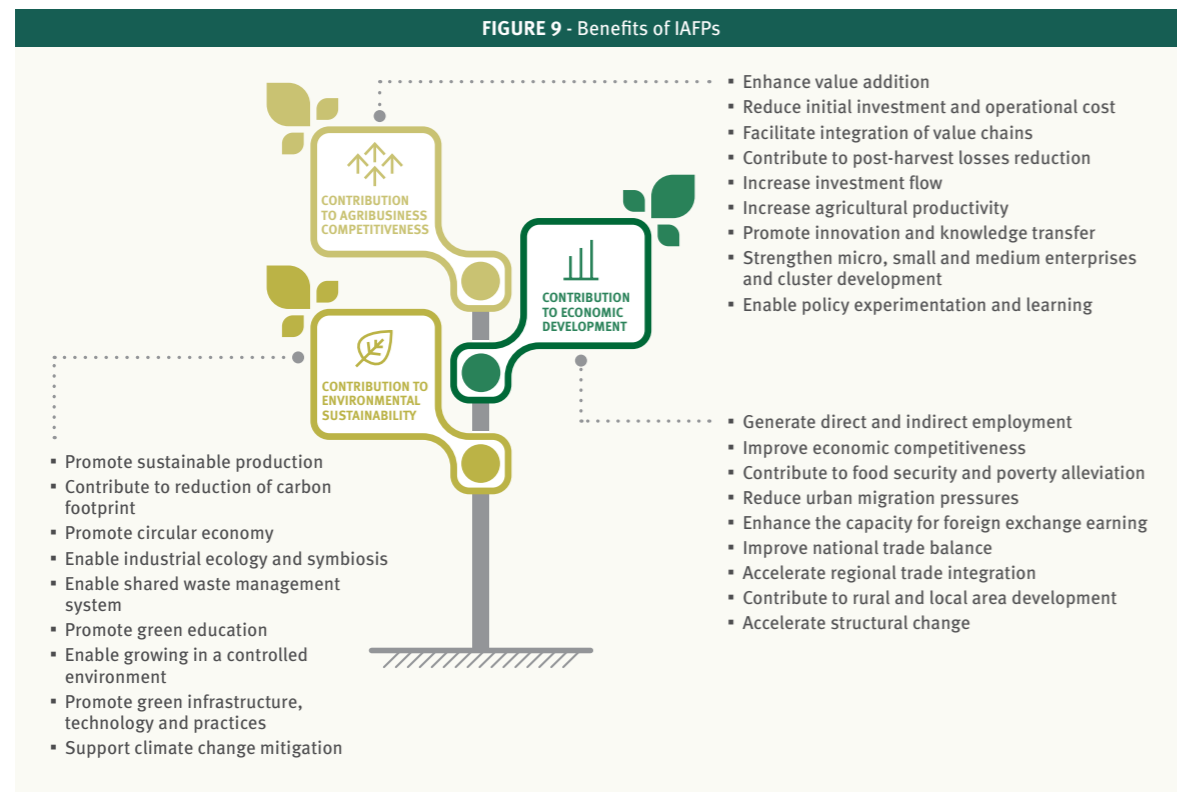
Agro-food parks facilitate localized competitiveness and growth by attracting agro-industrial and agribusiness firms into a specific territory that benefits from proximity to production basins.

linkages within supply chain networks that improve the quality and quantity of raw materials demanded by processors in concert with consumer preferences. Production and processing activities always give rise to the production of wastes, losses and by-products. IAFPs provide facilities for combining wastes from a number of unit industries for conversion to useful by-products such as fuels, feed or fertilizers. Through enabling resource use efficiency in the production and processing of agricultural products, they contribute to dealing with important environmental issues.

### 2.4.2 Summary of benefits: motivation for policymakers

The core functions of the IAFP – production, processing, research and development, services and trade facilitation – are complemented by specific mechanisms and supporting infrastructure: geographical delineations; independent management; and incentive mechanisms. The model captures both “immediate or static” benefits and “dynamic and strategic” benefits. The static benefits are those being

derived in the relatively short-term through the use of IAFPs as instruments of trade and investment policy. These encompass the direct effect of IAFP projects which includes investment flow, the employment generated, foreign direct investment and domestic investment attraction and concentration, increased exports and domestic sales and additional government foreign exchange earnings, among others.



Source: Authors' own elaboration

Integrated agro-food parks also leverage static benefits to trigger broad-based development impacts comprising a relatively long-term impact of the investment in terms of technological improvements, human resource development, overall rural development and industrialization. The successful implementation of IAFPs helps to significantly improve the prospects of agriculture and allied sectors in terms of enhanced productivity, increased value-added opportunities, and strong marketing support. Policymakers often adopt the IAFP model when their objectives are to generate or capture industrialization opportunities in the agro-food system, creating labour-intensive manufacturing jobs

and moving towards higher-value activities (FAO, 2017). The IAFPs increase the efficiency and value-capturing capacity of the firms located in them, and subsequently may play a multiplier role in the emergence of agro-industry as a leading sector that can propagate growth and linkages to other economic activities. They combine the pursuit of value addition and industrial efficiency with principles of industrial symbiosis<sup>5</sup> and innovation (Huber, 2000). These functions contribute to the growth and development of agribusiness and agro-industry as a leading sector that can form linkages with other industries to further structural transformation.

Some of the crucial IAFPs benefits - both immediate and strategic - are highlighted below:



#### Providing decent employment opportunities for the growing rural population

Agro-industries have significant multiplier effects due to backward and forward linkages along agricultural value chains. Investment in IAFP tenants generates employment opportunities for the rural population at each node of the value chain. In addition to direct jobs at the agroprocessing hub, IAFPs generate demand for agricultural raw materials at the farm level, which in turn contributes to increased demand for agricultural inputs, such as fertilizers, feeds, veterinary products, seeds, extension services, and training, among others. The demand for goods and services from allied industries such as farming equipment, processing technologies, environmental services and packaging contributes to off-farm employment. IAFPs also generate secondary employment by attracting a range of administrative, financial and logistic service providers, as well as numerous social and commercial services around the park.

In their capacity to create jobs and off-farm income opportunities, and improve the quality of life in rural areas, IAFPs support rural development and reduce rural-urban migration. A growing rural population in an already crowded agricultural sector means land plots are increasingly subdivided, making farming an untenable livelihood and reinforcing the subsistence nature of agricultural work. The high level of youth unemployment is leading to migration both within the country and outside, as well as leading to harmful social and economic consequences for the economy. IAFPs create manufacturing jobs in agro-industries, which often require skills that can be acquired through technical and vocational training, allowing manufacturing to better absorb the current oversupply of labour in the agricultural labour market.



#### Building agribusiness and agro-industrial competitiveness

The IAFP approach sets out to build the competitiveness of the co-located agricultural businesses and industries. At the firm level, different factors affecting competitiveness include increased access to infrastructure; shared services which reduces operationing costs such as storage, security, utilities and ITC services; access to skilled labour; by-product utilization and value capture; waste removal (liquid and solid); and environmental standards, as well as business, technical and legal services. At the sector level, the transformation and modernization of the agricultural sector is the major driving force for improving its economic viability and competitiveness.

IAFPs provide the goods and services that assist small-scale agro-industrial enterprises to add value to product efficiently, increase exports and remain competitive in global markets. Access to public infrastructure and shared specialized infrastructure, as well as agribusiness-related goods and services, provide resident firms with a competitive advantage, creating positive externalities with other industries in a positive reinforcement loop that lifts the entire sector, making it more competitive at the regional and global levels. Increased integration with commercial value chains also encourages the inclusion of informal economic stakeholders into the formal system.

5) Industrial symbiosis, a circular economy practice, entails the exchange of by-products, energy, and process wastes among closely situated firms. The keys to industrial symbiosis are collaboration and taking advantage of the synergistic possibilities offered by firms situated close to one another (Chertow, 2000).



### Integration of rural regions in global and regional value chains

By attracting large-scale firms and international buyers, IAFPs play a role in linking local producers to the high-value international markets. This global value chains linkage diffuses technology and best practices, giving smallholder farmers and small-scale processing firms the skills, knowledge and technology required to upgrade their agricultural and agro-processing practices. Moreover, increased integration with commercial value chains encourages the inclusion of informal economic participants into the formal system. IAFPs also encourages SMEs to locate closer to the source of their raw materials, furthering the spread of processing and manufacturing operations into less developed regions.



### Unlocking value and reducing post-harvest losses

Processing within IAFPs seeks to add greater value to agricultural produce, especially when combined with product differentiation strategies based on specific quality attributes (FAO, 2010). Linkages to APCs provide ready markets for produce, reducing losses, while improved agro-logistics ensures that produce moves more efficiently, further reducing losses. Improved storage facilities (dry and cold), as well as pre-cooling at CCs, RTCs and APCs, also helps to reduce post-harvest losses. Losses are also dealt with through training and access to information and services. At APCs, value addition processes further reduce losses. Processes such as in-field packing, pre-cutting and bagging of horticultural products, manufacturing of processed food products are a few of the activities. Minimizing losses will help, in turn, to respond to gluts arising from bumper harvests and improving by-product utilization.



### Promote agro-related innovation, knowledge and technology transfer

The opportunities for transfer of technology that foreign investment, in particular, can bring to an economy are crucial to improving production capacity through the associated transition from labour-intensive to technology-intensive production that often accompanies it. Introducing producers, processors and other value chain actors as well as IAFP residents to appropriate and emerging technology to optimize processes along the supply chain is crucial to the sustainable long-term growth of the sector. Through links to multinational firms, regional trade blocs and academia and research laboratories, IAFPs have a key role to play in the diffusion and local adoption of improved technology. Resident public and private extension services may facilitate this process in parks, by innovating, creating and harnessing both local and global best practices to solve challenges for local and national agribusiness development. IAFPs can also form hubs for innovation, research and development, training, and technology transfer, and business incubators.

In general, IAFPs help to drive the transition from supply-led subsistence production to commercialized market-driven production systems by shifting resources from less productive to more productive sectors. The move from low productivity agriculture to higher productivity agro-industries increases manufacturing value added. The emergence of a strong agro-industrial sector is a stepping stone to industrialization. While long-term growth is possible without a strong manufacturing sector, the vast majority of developed economies passed through a manufacturing phase.



### Improved extension services with private sector participation

With their proximity to and linkage with smallholders, and with the presence of large-scale processing firms in need of quality raw materials, IAFPs facilitate demand-driven extension services through which farmers gain access to information, education, research results, inputs, and markets, and improve their knowledge of and skills in production technologies. Parks facilitate the demonstration of participatory and collaborative processes where the private sector – tenants of the park – take part in the delivery of extension services. Apart from contributing to improved efficiency, decentralized and demand-driven extension programmes also reduce government burden. For example, the Sunvado factory in Yirgalem IAIP in Ethiopia (see Box 7) hired 26 extension workers to provide training and extension services for farmers.

## BOX 5 - Fresh Park Venlo, the Netherlands



The Netherlands Greenport Venlo, established in 2005, is a cluster region in the Netherlands, and home to Fresh Park Venlo, a 40 hectare business park that hosts around 130 fresh produce companies and suppliers. Tenants are representative of all segments of the agro-food value chain, and include growers, traders, packers and transport providers, and the range of products covers diverse foods such as ready-to-cook fresh goods, meat, fish, dairy products, flowers, vegetables and fruit.

**Know-how spillovers:** Products and companies, are clustered leading to the diffusion of concentrated specialist knowledge for product development, innovation in storage and packaging or innovations in the field of logistics. Each company benefits from the shared know-how, the short distances and the tailor-made range of services.

**Agro-corridors:** All of these production activities take place in special purposed business units and are catered to by the strategic location hotspots, between the import and export ports of Rotterdam and Antwerp and the German-European market. The location has provided trade facilitation mechanisms in the form of agro-transport corridors including trimodal connection terminals (road, water and rail). This makes it possible to supply products sustainably, reliably and quickly.

**Logistics:** Dedicated to the processing and distribution of fresh foods, including fruits, vegetables, fish, and meat. More than 130 growers, brokers, traders, distributors, and retailers work in the park, situated in one of the largest agro-food production areas in the Netherlands.

**Vocational training and skills development:** Greenport Venlo is located near the Brightlands Campus Greenport Venlo, and companies can access services in business development, innovation, expertise, and workforce training.

Source: AfDB 2022

## 2.5 MAJOR CHARACTERISTICS AND BEST PRACTICES IN IAFP DEVELOPMENT

Following international experiences, it is possible to underline various best practices that distinguish IAFPs from the simple agglomeration of industries in a specific location. The following section outlines a series of best practices and features of IAFPs, that if incorporated will accrue associated benefits. Broadly, seven characteristics define the IAFP concept: spatial clustering of firms, linking smallholder farmers and producers to consumers, environmental sustainability at its core, serviced with enabling infrastructure,

utilities and value-added services integrated rural area development, geographically delineated land with a dedicated management system, and the presence of strong public-private partnership.



### 2.5.1 Enables spatial clustering

IAFPs are characterized by clustering: the spatial concentration of producers, agribusinesses, support service providers, and other institutions. The clustering of several companies (as opposed to the presence of a single company)<sup>6</sup> in one place produces advantages of scale for the investors and offers unique opportunities for firms to take advantage of business interlinkages and value networks to tackle common challenges and pursue collaborative business opportunities. It reduces the transaction and overhead costs and administrative burden associated with the acquisition of land or premises, and in terms of operations it will result

in more streamlined performance, stronger supply chains, and reduced costs for transport, energy and related services. With business profitability in mind, renting space in agroprocessing hubs is intended to be commercially attractive to investors. The clustering of firms also provides the critical mass needed for the efficient provision of services such as eco-friendly waste recycling and disposal, which is difficult to provide to widely dispersed firms. In practice, clustering can take many forms and with varied combinations of agricultural and non-agricultural activities. Spatial clustering can provide the following benefits.

BENEFIT	DESCRIPTION
Closing the cycle	Various chains can save energy and reduce environmental impact by utilizing waste and by-products.
Reducing transport requirement	Co-location of production, processing, packaging and distribution activities.
Preserving the rural countryside	Moving agricultural processing facilities to IAFP closer to peri-urban areas means that rural areas can preserve nature, landscape, housing and recreation with less pollution.
Improving animal welfare	Animals do not require transportation but have dedicated facilities with space on site.
Restricting disease outbreaks	Animal diseases can be restricted due to close monitoring and non-mixing of animals within and outside the park.
Linking producer and consumer	Consumers benefit from greater transparency and traceability of product origins including environmental and animal welfare certification.
Generating economic and social benefits	Food safety, less congested transport networks, environmental impact mitigation, improved animal welfare, and social and health facilities that workers and tenants can benefit from.

Source: Author's compilation

### 2.5.2 Linking smallholder farmers and producers to consumers

Linkage to smallholder farmers is another key feature of IAFP through their constituent RTCs. By aggregating produce from several farms into one location, IAFP are

able to link smallholder farmers to larger agricultural value chains. Such linkages serve two key functions: connecting raw material suppliers (especially

6) In practice, some countries grant a single factory industrial area a park or zone status if they meet certain local criteria. Often single-company zones employ relatively few workers and contribute little (with a few exceptions) to the exports of the countries concerned compared with multi-enterprise zones.

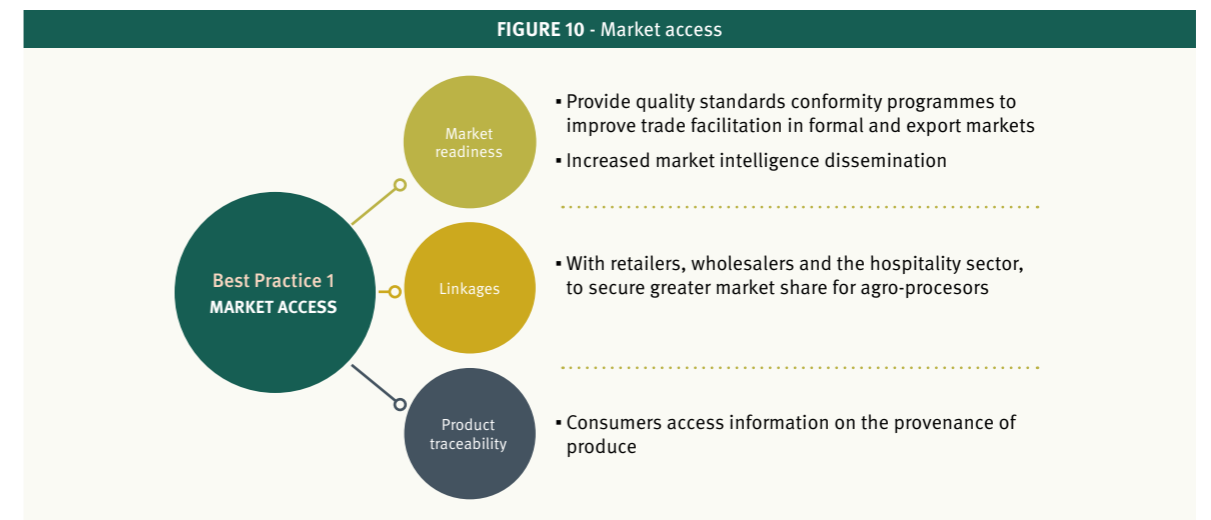
smallholder farmers) with the demand side of the food chain in an efficient manner; and providing the desired quantity and quality of raw materials to agro-industries (the availability of which is the major constraint affecting food processors in developing countries). Both processors and producers stand to benefit from better linkages between farmers and agro-industries. Processors can profit from a guaranteed delivery of high-quality and sufficient quantity of produce, while producers benefit from essential inputs and services such as seeds, fertilizers, equipment, finance, insurance, training and technical advice), and access to stable and more predictable markets, allowing for better expenditure planning and savings.

One of the main criticisms of current agricultural practice is that food production is often completely detached from the consumer, who knows little or nothing of exactly what is involved in the production along the supply chain and the labour requirements.

The majority of consumers do not know where their food comes from, and neither do they have any idea of the conditions under which it is produced. For many years, consumer organizations have been calling for the food chain to be made more transparent, so that the public can determine exactly from where a particular cut of meat or a food product comes.

The IAFP can thus bridge the gap between the producer and the consumer, as well as enabling socially responsible production that meets the general public's requirements in terms of respect for the environment and animal welfare, and traceability of production to control for food safety.

IAFPs can therefore also supply products which are recognizable to the consumer, such as those bearing an exclusive brand name, only produced in the IAFP system. The clustered production and quality-control style of the IAFP presents an ideal opportunity to meet the needs of specialized markets.



Source: UNIDO

### 2.5.3 Environmental sustainability at the core

IAFPs can offer the opportunity to increase operational efficiencies through common infrastructure and systems, including materials, water and energy use through waste recycling, water management and resource recovery. It can further reduce pollution and waste by applying pollution prevention, renewable energy, industrial symbiosis, and other environmental management methods and technology.

If various agricultural activities are concentrated in one place, it becomes possible to create a self-contained system. Various components of the IAFP can make use of each other's waste and by-products. This saves both space and energy, and reduces environmental impact. "Closing the cycle" can be achieved in both large-scale and small-scale agro-parks. A larger IAFP places agricultural activity on the same level of scale

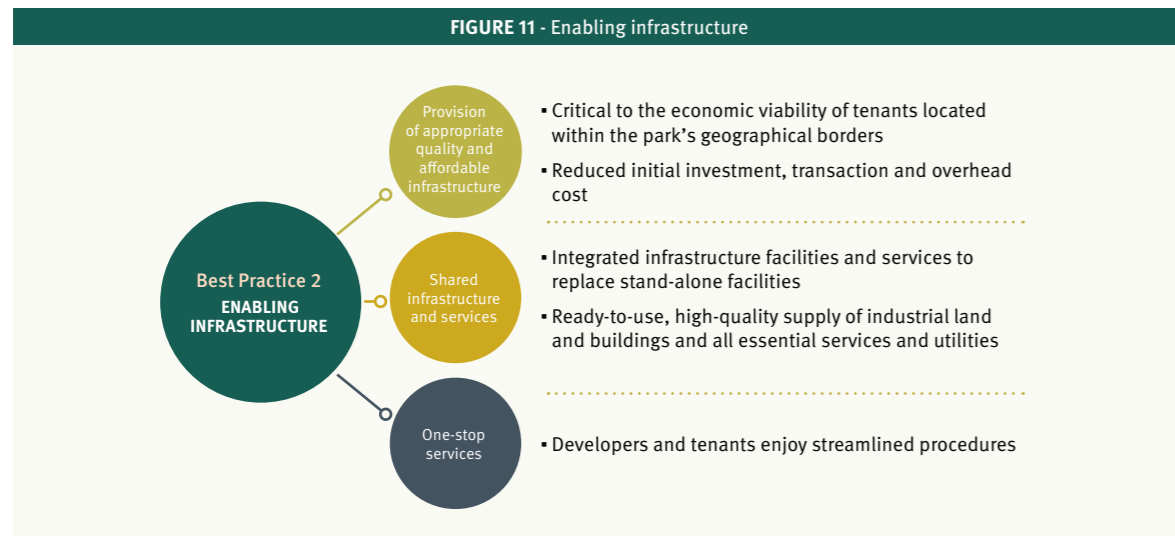
as industrial activity on an industrial estate, enabling certain linkages to be made. For example, the heat from an electrical generator can be used to heat greenhouses for horticultural production. Similarly, animal feed, organic fertilizer or essential oils are common by-products produced from organic waste of food processing. A form of symbiosis between the various companies is thus created, and there is no longer any such thing as ‘worthless’ waste.

The cycles of water, minerals and gases are skillfully closed and the use of fossil energy is minimized, particularly by the processing of various flows of residual and by-products. Agro-parks may therefore be seen as the application of industrial ecology in the agribusiness sector (Smeets, 2010).

### 2.5.4 Enabling infrastructure, utilities and value-added services

IAFPs offer the key basic and connective infrastructure that often is lacking in many developing countries and particularly in rural areas. IAFP provide opportunities to focus limited public and private resources on investment in undeveloped areas. Strategic location of the integrated agro-processing hubs and rural transformation centres close to road networks, rail hubs

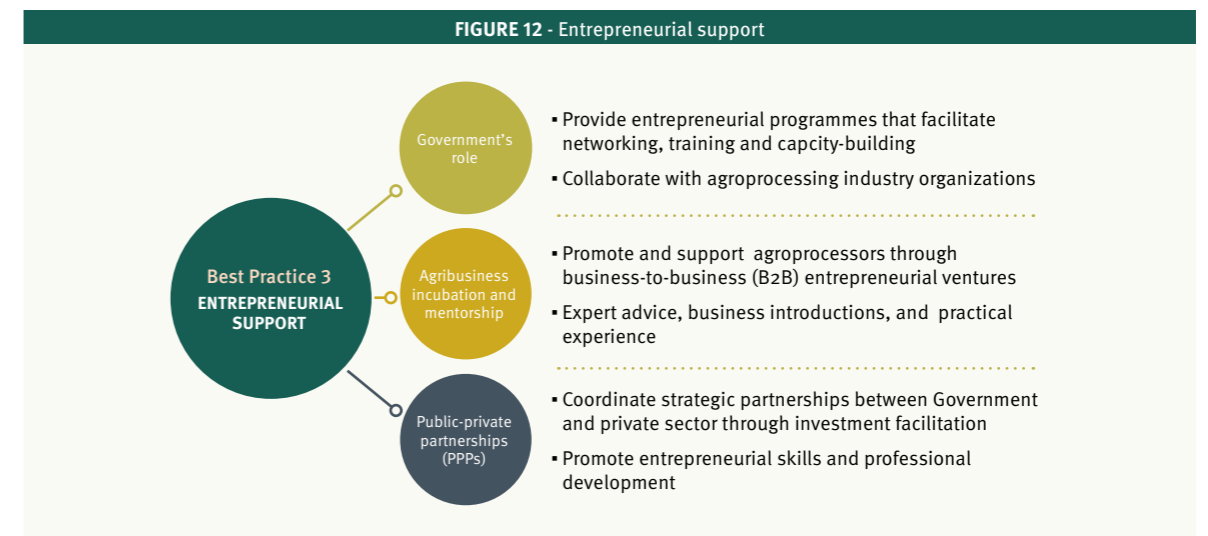
and docks facilitate both the delivery of raw materials and the onward transport of the agricultural products to domestic and foreign export markets. Consideration should be given to basic and connective infrastructure needs when evaluating the feasibility and design of IAFP.



Source: UNIDO

Another key feature that IAIPs facilitate is the inclusion of businesses allied to agro-industry. As commercial value chains become more integrated, there are greater benefits from specialization and an increasingly important role for agro-allied companies. Examples of such companies include those specialized in input supply, quality control, accounting, financial services, sales, distribution and transport. By offering incentives,

such as modest plot lease fees, financial assistance and training, the IAIPs can promote specialization and growth in such businesses, generating important off-farm employment. Other entrepreneurial support services also stand to benefit various relevant stakeholders in the agribusiness and agro-industrial sector (see below).

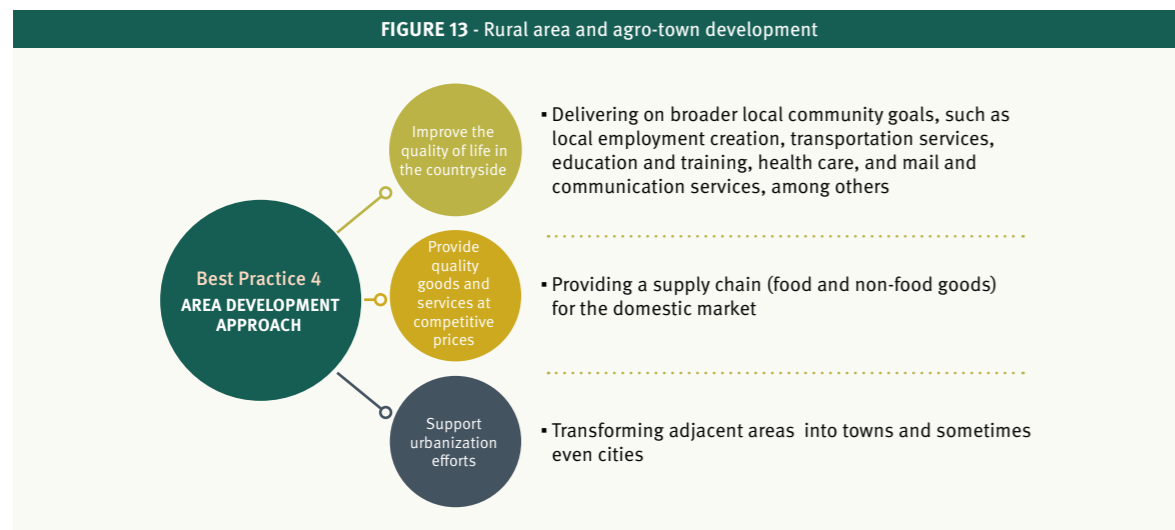


Source: UNIDO

### 2.5.5 Integrated and focused rural development

A primary driver for establishing IAFP is related to their prospective contributions to regional and national development that foster new investment, industries, jobs, linkages and growth. IAFP can evolve into local economic hubs and growth centres with certain positive externalities, and when properly designed, can serve as platforms for delivering on broader local community goals, such as local employment creation, transport services, education and training, health care, and mail and communication services, among others. Many IAFP have contributed to the growth of industrialized towns or urban districts, as employees have settled in or near them. Adjacent areas have been transformed into towns and sometimes even cities, and local authorities have responded to this process by increasing urban services such as low-cost housing, medical care and education, as well as by allowing residential, retail and mixed-used zoning. The growth of commercial businesses and residential areas in or adjacent to industrial parks has meant that such places have taken on increasingly urban economic and social characteristics, along with both the challenges and the opportunities that these present for industry. The majority of IAFP are sponsored by and physically linked to towns of various sizes and, through this interface, they facilitate physical and economic linkages between metropolitan and rural areas, and with more distant markets (FAO, 2017).

A further advantage of clustering of firms and services within the framework of the IAFP approach is the potential to improve the quality of life in the countryside, at least indirectly, through the opportunity of indirect employment on the farm, as well as direct employment in the IAFP and allied industries. IAFP approaches, however, need to be planned through a responsible framework that takes into account the social structure and the ecosystem in rural areas. The implementation of IAFP should not reduce the countryside to the “workshop” of the agricultural industry, to which nature, landscape, housing and recreation become secondary. Moving some segments of agro-industrial activity closer to peri-urban peripheries located near agro-processing hub and logistical hubs would help to balance the rural industrialization process, allowing rural areas to offer other appropriate (non-industrial) amenities, such as recreation, nature management, extensive agriculture, housing and employment.



Source: UNIDO

### 2.5.6 Geographically delineated land with dedicated management system

An IAFP comprises a well-defined, centrally managed tract of land furnished with dedicated infrastructure and services, often at an advantageous geographical location. Agroprocessing functions are often intentionally clustered in a confined area, based on the principles of industrial systems, to promote agricultural value addition. The delineation applies not only to the agroprocessing hub, which often covers a few hundreds and in some cases thousands of hectares, but also a wider catchment area (also known as raw material procurement zone) or influence area where the RTC and CC are located. The IAFP (inclusive of the agroprocessing hub, RTCs and CCs) is usually managed by a dedicated entity that could be public, private, or public-private.

The commodity volume anticipated, considering the production and surplus available in the catchment area, and the cost of procurement and transportation also influence the size. The agroprocessing hub will be

The overall size of an IAFP depends upon the number of plots projected, requirements for ready-made factory units, and the extent of the common infrastructure and services needed on site.

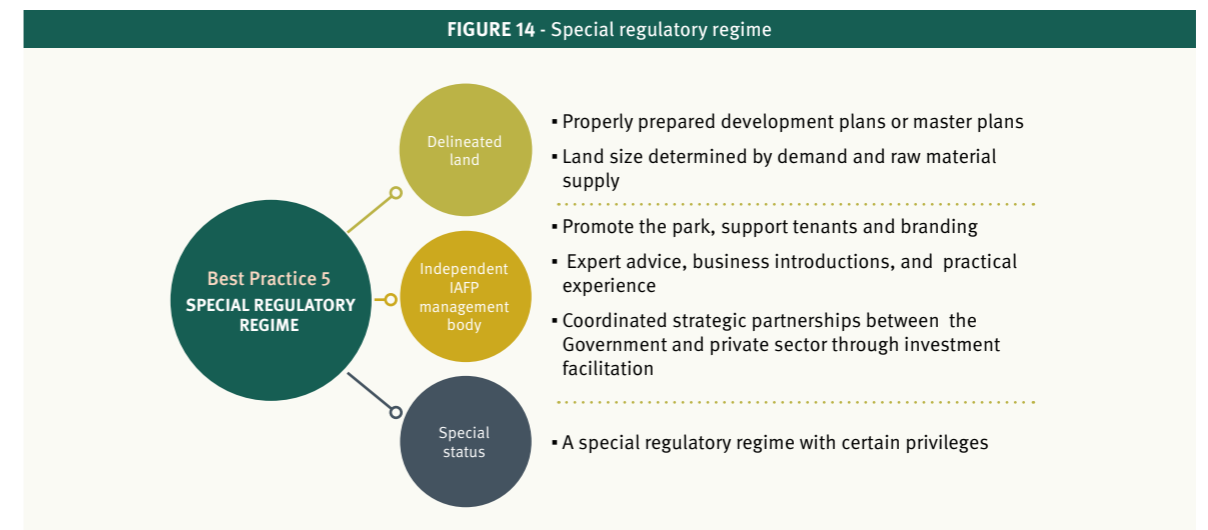
the sum total of land required for developed plots and sheds, the land required for commercial infrastructure plus land required for common facilities and the land set aside for roads, drainage areas, parks and a green belt. The number of plots and ready-built factories that will be required should be estimated on the basis of the development potential of the area.

In some cases, IAFPs also enjoy a special status governed by a special regulatory regime. Parks often operate under more liberal economic laws than those that typically prevail, regarding issues such as labour, land use, and foreign investment.

### 2.5.7 Strong public-private partnership

Government plays a key role in development of IAFPs. While experience varies from country to country and is largely linked to national development objectives, public assistance can be in the form of infrastructure development or incentivizing and encouraging the

private sector to enter into IAFP development projects. The host Government may support investment directly in value chains to help ensure technical support for upstream value chain actors and quality raw materials for the IAFPs.



Source: UNIDO

The IAFP programme also comprises a wide range of stakeholders, such as institutions at different tiers of government, the private sector; chambers of commerce and sectoral associations; development partners and financial institutions; smallholder farmers, cooperatives and unions; AND educational institutions and research institutions. Each stakeholder brings its own set of assets and interest, that need to be complementary and contribute to overarching agro-industrial development objectives. A number of successful IAFPs in developing countries are developed with foreign collaboration which leads to percolation of technology, knowledge, finance and best management practices. Government agencies in various countries often establish multi-stakeholder platforms to coordinate IAFP planning and development. Such a framework helps to clearly define roles and responsibilities, provide investor protection and privileges and ensures that IAFPs attract the right investments and reduce risks. It is also crucial to explore how various stakeholders' contributions interact and intersect with one another, and how to engage stakeholders and the local community in a well-coordinated manner to ensure their concerns are taken into account and properly managed.

Establishing a coordination structure led by public or private entities, in consultation with stakeholders and relevant institutions, will support successful agro-industrial development. Large-scale industrial infrastructure (roads, electrification, ports), as well as specialized agro-industrial infrastructure (large-scale cold and dry storage facilities, effluent treatment plants, industrial warehouses and buildings for lease) are mainly financed through public funds and loans from international finance institutions. In some instances, private companies may also invest in private infrastructure directly in IAFPs. In Ethiopia, for example, the government-financed critical infrastructure, then development partners (such a bilateral and multilateral development agencies) provided grant funding to further strengthen agricultural value chains, in such activities as the development of irrigation systems, strengthening agroprocessing cooperatives, and project linking farmers to agro-industries.

# 3



## Planning Integrated Agro-food Parks

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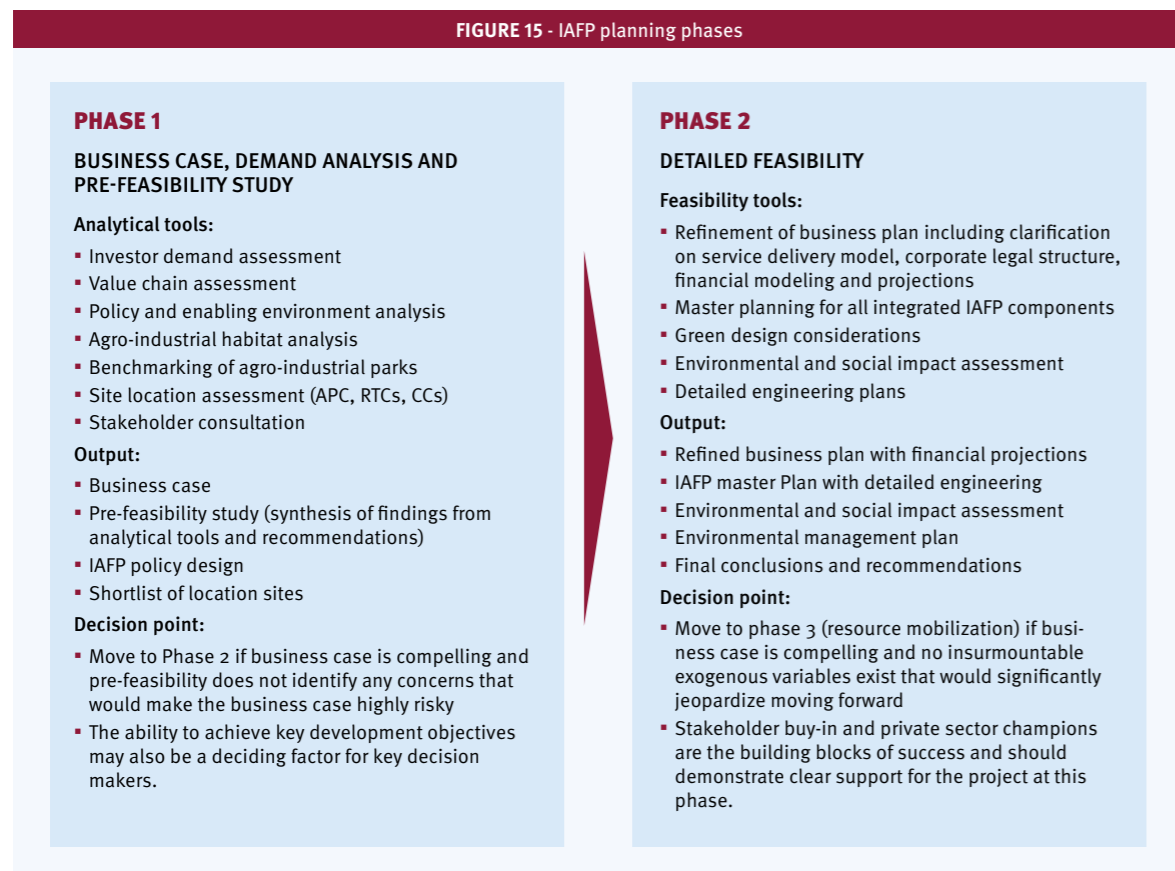
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### 3.1 OVERVIEW

The development of integrated agro-food parks (IAFPs) involves careful planning and oversight. The principal phases of planning IAFPs are: business case formulation, pre-feasibility studies and demand assessments; identification of suitable park locations; and detailed feasibility analysis of the selected site, including master planning and

environmental and social impact assessments. Each of these steps concludes in a go or no-go decision and may require refinements in various elements resulting in a non-linear, iterative process (Figure 15). Each phase requires incremental time and resources and extensive stakeholder consultation and engagement.

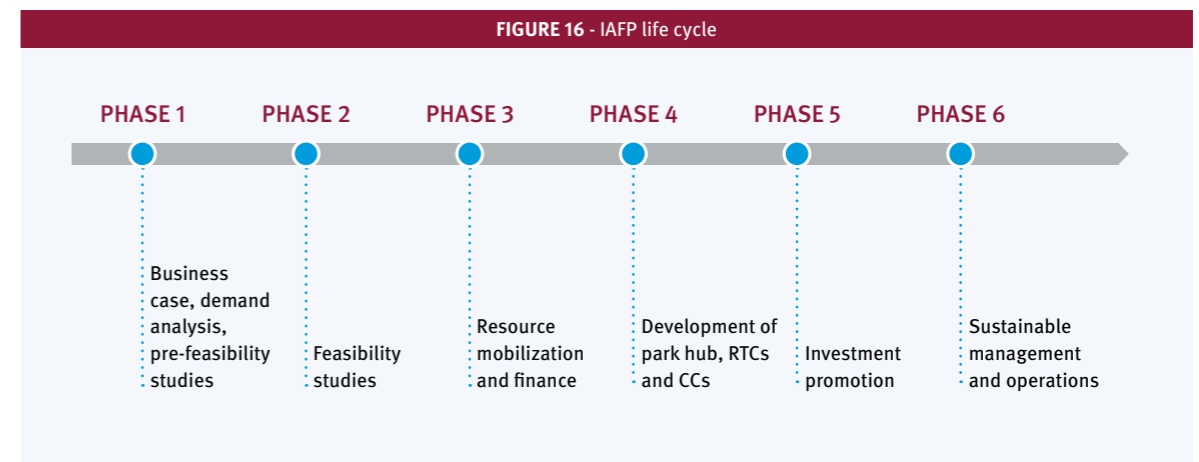
FIGURE 15 - IAFP planning phases



Sound planning must be forward-thinking to adequately deal with the practicalities of subsequent phases, namely resource mobilization and financing, investment promotion, construction, and sustainable management and operation of parks. The analytical and design tools employed during the planning phases establish

the business case, institutional framework and infrastructural blueprints for future phases. The success of all subsequent phases is dependent upon the analysis, stakeholder consultation, assumptions and policies developed during the planning phases. The six phases of the IAFP life cycle are captured in Figure 16.

FIGURE 16 - IAFP life cycle



In many ways, planning for an IAFP is similar to planning for multi-use industrial parks. The “international guidelines for industrial parks” (UNIDO, 2019a) provide extensive guidance on the planning process. Industrial park planning is a complex process involving different activities ranging from economic and financial analysis to engineering to assessment of environmental and social factors. Planning for IAFPs is especially complex because their operations often extend across large geographical footprints and varied stakeholder groups due to geographically dispersed agricultural catchment zones and connectivity, requiring careful consideration of linkages with supply chains and logistics influencing the integrity of perishable goods. The coordination of multidisciplinary teams requires a unique skills-set itself, fostering a collaborative environment where stakeholders are well informed, all are moving in the same direction, and critical path concerns are anticipated, raised and dealt with in a timely manner.

Feasibility studies and business plans are required to analyse and consider all of the project’s relevant factors—including economic, technical, legal, and scheduling considerations—to ascertain the likelihood of completing the project successfully. The feasibility studies are critical as they provide an assessment of the practicality of the proposed project in terms of people, tools technology, and resources required for the project to succeed, the expected return on investment and project viability. These studies determine the size of the IAFP and common infrastructure facilities; the

commercial infrastructure, farmer-producer support; and prepare the park zoning model and the financial plan which includes the cost required for development of the park in different phases based on the minimum required infrastructure.

The feasibility studies will establish where and how the IAFP will operate, identify potential obstacles that may impede its operations and recognize the amount of funding required to get the business up and running.

The study should also provide marketing strategies that help convince investors and banks to invest in the IAFP. The feasibility studies inform the master plan of the APC site, RTC sites and aggregation sites, complete with engineering drawings of common infrastructure.

The feasibility studies should also include a business plan, inclusive of revenue sources and streams and a financial (cost-benefit) analysis based on a demand analysis, as well as recommendations for institutional arrangements for the park development, operations and management, with clearly defined roles and responsibilities of key stakeholders. Suggestions for marketing strategies to attract investments into the IAFP are also useful outputs of the pre-feasibility study and feasibility study phases, ensuring planning resonates with potential investor interests. Feasibility studies will also provide information on the phased development of the park and the number of years to complete each phase of the park based on certain assumptions.

Lastly, it has become very critical to provide an environmental and social impact assessment of the sites before investments can commence in the IAFP. Other studies may include “climate adaptation and proofing,” especially as it relates to minimizing carbon emissions, maximizing alternative energy sources, natural resources management, and the current and future challenges and opportunities presented by climate change.

Governments and private developers may choose to hire specialized private firms to undertake various analytical studies involved in the pre-feasibility and

feasibility studies. Firms are able to hire specialized expertise that can reflect both local knowledge and international best practices. They can often meet more aggressive timelines and provide a neutral perspective.

In addition to stakeholder consultation throughout the planning process, it may be necessary to share the results of the feasibility study in a public forum. These forums may include a stakeholder forum, investment promotion forum and, where possible, international trade shows.<sup>7</sup>

The Government and its related agencies, national and subnational, are expected to be enablers providing political will, leadership and ownership of the whole process required to initially establish the IAFP. The private sector is engaged as partners in IAFP development and ultimately serves as the primary source of investment and operations that are often accompanied by technology and skills transfer, domestic employment generation, and economic multipliers.

agroprocessing hub. Support is provided through RTCs and CCs to organize the numerous local small farmers and other larger scale farmers to respond to income-generating opportunities created by agro-industrial processing demand. The Government also provides incentives to attract the private sector to locate and operate within the IAFPs and provide the site for the IAFP which may be greenfield or brownfield sites<sup>8</sup>.

The public sector plays a facilitative role in the development of IAFPs by creating a conducive policy and regulatory environment and investing in the essential hard infrastructure, as well as soft infrastructure to ensure that small farmers, youth and other groups are incorporated inclusively at the production level, and that micro, small and medium-sized enterprises (MSMEs) are properly integrated at the processing level.

In many countries, especially in sub-Saharan Africa, the development of IAFPs is novel. While there have been special economic zones with food processing plants located within them, the IAFP is unique in the sense that it specifically agglomerates agro-food processing activities within a dedicated space and organizes supply chains through RTCs and CCs. This integrated system connects farmer organizations within the IAFP catchment areas to factories located within the IAFP

**BOX 6 - Feasibility phase decision point**



**Feasibility phase decision point:** The conclusion of this phase should be a decision on how to proceed. Options include: to move to Phase 3 (Resource Mobilization and Financing), based on the analysis and recommendation of Phase 2; not to proceed to Phase 3 due to insurmountable exogenous variables that cannot be controlled and present a high risk to the project; or to revisit key elements of the analysis conducted to provide greater clarity to decision makers. Master planning and engineering plans can be further modified in later phases as financiers and investors are engaged or as unknown information emerges during later phases.

**3.2 DEVELOPMENT STRATEGY AND PRIVATE PARTICIPATION MODEL**

The integrated agro-food parks (IAFPs) are expected to trigger investments and spatial development in rural areas by promoting the commercial development of agriculture and agribusiness through the provision of essential infrastructure, desirable policy support, efficient regulatory and institutional arrangements, and capacity-building aimed at skills and entrepreneurship development. Attracting private investment in and around IAFPs requires a demand-driven approach and one that ensures that the private sector has a central

The overall development strategy behind the IAFPs is to spur additional investments in the agribusiness sector to help reduce post-harvest losses; add value to local content of foods; link farmers in clusters to food-manufacturing plants through forward linkages; and provide industry-specific infrastructure for agricultural production and processing.

role in the planning, construction and operation of IAFPs.

7) A trade show is an event held to bring together members of a particular industry to display, demonstrate, and discuss their latest products and services. Major trade shows usually take place in convention centres in larger cities and last several days.

**FIGURE 17 - Success factors for Government-led IAFP development**

**1. Strategic policy and framework**

The IAFP development strategy needs to be clear and fully integrated into national or regional industrial policy. It should be designed to best complement and support comparative advantages, as validated through a detailed strategic planning, feasibility and master-planning process. This is to ensure that the economic viability and long-term sustainability of the IAFP are based on real market demand.

**2. Legal and regulatory framework**

A predictable and transparent legal and regulatory framework is needed to define the clarity of roles and responsibilities of various parties, and to provide protection and certainty to the developers and investors. The legal framework helps to ensure that the IAFP attracts the right investments and is implemented with high standards to avoid unpredictable risks, such as political setbacks or interference and land speculation, among other factors.

**3. High-level leadership and intergovernmental and interagency coordination**

Given the complexity and potential risks of zone programmes, strong and long-term government commitment from the top leadership is needed to ensure policy continuity and the adequate provision of various public goods. A zone programme involves multiple government stakeholders in charge of: land, finance, transport, utilities (energy, water, communication, waste management), agriculture, customs, taxation, immigration and skills at the national and regional levels. It is also important to establish a proper dialogue and cooperation mechanism among the central, provincial, and local governments and across different government agencies.

8) According to investopedia the term “greenfield refers to buildings constructed on fields that were, literally, green. Brownfield investments, on the other hand, occur when an entity purchases or leases an existing facility to begin new production”.

To actively provide leadership and coordination for the implementation of the IAFP, the Government may set up a governance structure. This may constitute a very high level interministerial joint steering committee under the leadership of the presidency, vice-presidency or ministry, as may be designated by the Head of Government. The steering committee is supported by several technical committees that report to the joint steering committee. The role of the joint steering committee is to coordinate the activities of government departments and agencies in the delivery of the IAFP.

The committee is to monitor the implementation process and most importantly support the mobilization of resources through investment promotion and forums, and seek partnerships with donors. International best practice also suggests involving private sector representatives in the joint steering committee to ensure that transparency, accountability, and private sector principles are incorporated into IAFP planning activities.

**Construction phase:** The Government is expected to provide an enabling environment and basic infrastructure for private sector investments in the IAFP. Private operators and tenants most often provide specialized infrastructure in IAFPs, as discussed later

in the present chapter. IAFP infrastructure requirements can be divided into three categories: external or connective infrastructure, common infrastructure, and soft infrastructure. These three categories are described in more detail in Figure 19.

**BOX 7 - “Champions” at the highest level: IAIPs in Ethiopia**

The right power structure can mitigate an IAFP programme’s internal coordination challenges. International experience of failed and successful IAIPs shows that an IAFP regime should be regulated by an autonomous, powerful government authority, possibly linked to the Head of Government. An autonomous agency helps relieve the IAFP programme of day-to-day political considerations that may distort its incentives. Linking such an agency to a central authority facilitates coordination across various government ministries and agencies. By contrast, if the IAFP authority is the responsibility of a particular ministry such as the ministry of trade and industry, other ministries often have little incentive to coordinate their activities to support its aims.

For the four pilot integrated agro-industrial parks in Ethiopia, strong and long-term government commitment was gained from top leadership levels. The Ethiopian Prime Minister’s office assumed the overseeing role and a high-level taskforce made up of key government agencies was established to meet every three months and deliberate solely on the IAIPs under the close supervision of the Adviser for Macroeconomic Affairs in the Office of the Prime Minister (UNIDO, 2020). Interagency coordination was established through the IAIP programme steering committee composed of senior officials from the Ministry of Industry, the Ministry of Agriculture, the Ministry of Finance and Economic Cooperation, the bureaux of industry from each region, the Agricultural Transformation Agency (ATA) and private sector representatives.

Governments can involve the private sector at various points in IAFP planning, construction and operations processes. Figure 18 below summarizes key roles that

private firms can play in partnership with government entities. Insights of each phase are briefly discussed below.

**FIGURE 18 - Private sector engagement in IAFP phases**



**FIGURE 19 - Types of IAFP infrastructure**

**1. External or connective infrastructure**

This is necessary infrastructure located outside of the Agri Park. It includes roads, railways, airports, seaports, telecommunications infrastructure, energy (electricity), and water (including conveyance infrastructure).

**2. Common infrastructure**

This is provided inside the IAFP itself and may include roads, energy, ICT infrastructure, water and sewage disposal systems, and other specialized agricultural infrastructure such as cold storage systems, warehouses and related agricultural services. In some instances, the Government may opt to build the factory sheds within the park, but it is most advisable to design the park in a site and service mode with ‘plug and play’ facilities. It is also necessary to provide common infrastructure to the IAFP surroundings, aggregation centres, RTC and APCs to productively integrate raw materials.

**3. Soft infrastructure**

This includes nonphysical infrastructure and covers government support mechanisms such as various incentives and financial support mechanisms, quality control infrastructure (standards, testing, and certification for trade compliance and conformity), and services such as one-stop shops, immigration quotas and visa support for expatriate staff with appropriate skills. Support for supply chain strengthening to address needs such as farmer training, input systems, research and development, technology upgrading for equipment and system-wide improvements, and others.

Common infrastructure that is customized to tenants within IAFPs is commonly developed by private investors and developers. This is not novel; the private sector is known to lead and engage in such investments unilaterally for agricultural production, post-harvest management, and value addition where such investment is justifiable, with the Government’s presence more limited as a regulator. The private sector development of IAFPs critically should retain the essential development objectives: meet national or subregional expectations even when, some or all, of the infrastructure funding is borne by the private sector. For this to happen, the various risk factors that typically make private sector investment in infrastructure seem unattractive need to be highlighted. It is important to note, that while the private sector entity takes the initiative towards the development of an IAFP, it is rare to do so without government approval at the national or regional levels. In many countries the development of industrial based parks requires a licence from a government regulatory entity.

In cases where the private sector is the owner of the land, no tender process is required from the Government. The private sector entity can also opt to physically develop the site as developer by designing, financing, and constructing the site and operate and manage the IAFP. It can also contract these activities to a separate entity. In the latter case the Government remains the Regulator in providing licences and permits, coordinating public agency inputs monitoring performance and ensuring compliance. In this instance, the risks are very low for the Government and very high for the private sector entity.

**Operations phase:** In most countries, the Government is both the regulator and owner of the IAFP land or site. As the regulator, the Government designates the site, provides licences and permits for the IAFP, and coordinates public agencies to monitor the progress and performance of the IAFP and ensure compliance. As the owner, the Government has legal title to the IAFP site. Governments can then contract out the development of the park to a private entity – a

developer – chosen by a competitive tender process resulting in a development agreement or lease. The private developer will own (on lease) and develop the common infrastructure in the IAFP. The contract could also include a management and operations service contract or a concession agreement for the IAFP site. In this instance, the risks could be borne almost equally by both parties.

Private entities that invest in the development or construction of IAFP infrastructure are often also the operators. It is expected that an IAFP managed by the private sector would be more dynamic than a Government-operated IAFP, being in a better position to leverage private-sector expertise, be self-sustaining and attract private sector firms to invest and operate in the zones. Private-sector-led operations and management of IAFPs has also been arranged through specially created legal entities or some other contractual arrangement. The possible use of anchor investors and privately led programmes (major private sector investors on an IAFP) also has been successful.

Project revenues are most likely to be generated through payments by the IAFP tenants for space and services rendered. Governments may grant a private

entity a concession or right to develop or manage the IAFP during the concession period in return for the private entity paying a concession fee to the Government based on the level of tenancy revenues. The private entity would receive payments directly from the tenants of the IAFP, which may, for example, include rental payments, grounds maintenance fees, security fees and waste management fees. This would incentivize the private entity to develop the park and source industrial tenants. The Government may also support the project by providing tax and other financial incentives to potential tenants, as well as assist with marketing campaigns and investment promotion.

Once operational, the most significant role of the private sector in the IAFP model pertains to its role as long-term tenants and investors. The participation of private firms in IAFP operations will include both large investors as owners and managers of primary processing and production units and medium and small-sized businesses whose involvement could cover the entire range, from processing and logistics (or “upstream and midstream” activities) to distribution and marketing services (or “downstream” activities).

### 3.3 RURAL TRANSFORMATION CENTRE DEVELOPMENT MODELS

RTCs are an integral part of the IAFP model and have their own location, planning and operational considerations. They can be established as an integrated project with IAFP, as independent standalone entities, or as clusters. Local context, input from key stakeholders, and specificities highlighted in value chain analysis will inform the appropriate RTC development and operational structure. There could also be different structures in different subregions depending on the strength of existing supply chain contributors. Table 3 below summarizes each of the potential RTC development models, including their respective merits and deficiencies.

The development of RTCs can be one, or a combination, of the following structures:

- Entirely as a national or regional government initiative
- Farmer cooperatives
- Private sector initiative
- PPP initiative (independent concession; joint concession with IAFP, IAFP and RTC having common developer; or IAFP and RTC having independent developers)
- Captive RTCs for specific occupant unit of IAFP
- Cooperative formed by two or more occupant units of IAFP.

TABLE 3 - Options for rural transformation centre development models			
RTC development mode	Legal structure, business organization	Implementation structure	Business model
<b>ENTIRELY AS A NATIONAL OR REGIONAL GOVERNMENT INITIATIVE</b>	Public enterprise established for indefinite duration through regulation	<ol style="list-style-type: none"> <li>1. Funded by national or regional government</li> <li>2. Can be established and operated by national or regional government irrespective of whether IAIP is developed by national or regional government or by private sector or through PPP model</li> </ol>	<ol style="list-style-type: none"> <li>1. User fee charges on a pass-through basis</li> <li>2. Subsidized fee level for facilitation and capacity-building activities</li> </ol>
	Merits and demerits: <ol style="list-style-type: none"> <li>1. Affordable fee structure to occupant units of IAIP</li> <li>2. Convergence of government schemes and initiatives</li> <li>3. Protection of farmer interests</li> <li>4. Deficiencies associated with purely government-managed institutions</li> <li>5. Delayed response system</li> <li>6. May crowd out private enterprises</li> </ol>		
<b>FARMER COOPERATIVES</b>	Farmer cooperative Societies established under proclamation	<ol style="list-style-type: none"> <li>1. Funded by national or regional government</li> <li>2. Can be established and operated by farmer cooperative societies irrespective of whether IAIP is developed by national or regional government or by private sector or through PPP model</li> </ol>	<ol style="list-style-type: none"> <li>1. User fee charges on a pass-through basis</li> <li>2. Subsidized fee level for facilitation and capacity-building activities</li> <li>3. Non recovery of capital cost</li> </ol>
	Merits and demerits: <ol style="list-style-type: none"> <li>1. Affordable fee structure to occupant units of IAIP</li> <li>2. Convergence of government schemes and initiatives</li> <li>3. Protection of farmer interests through cooperative model</li> <li>4. Deficiencies associated with cooperative society managed institutions</li> <li>5. Delayed response system</li> </ol>		
<b>PRIVATE SECTOR INITIATIVE</b>	<ol style="list-style-type: none"> <li>1. Ordinary partnership</li> <li>2. Joint venture</li> <li>3. General partnership</li> <li>4. Limited partnership</li> <li>5. Share company</li> <li>6. Private limited company</li> <li>7. Sole proprietorship</li> </ol>	<ol style="list-style-type: none"> <li>1. Funded by private sector</li> <li>2. Can be established and operated by private sector irrespective of whether IAIP is developed by national or regional government or by private sector or through PPP model</li> </ol>	<ol style="list-style-type: none"> <li>1. User fee charges with full cost recovery model including capital and operational expenses</li> <li>2. Market-linked fee level for facilitation and capacity-building activities</li> </ol>
	Merits and demerits: <ol style="list-style-type: none"> <li>1. Enhanced level of services</li> <li>2. Driven by private sector business interests</li> <li>3. Enhanced and market-driven fee structure to occupant units of IAIP</li> <li>4. Difficulties in implementing checks and balances to protect farmer interests</li> <li>5. Difficulties in implementing mechanism to prevent holding of raw materials and excessive pricing of RTC services to both farmers and occupant units</li> </ol>		



<b>PPP INITIATIVE</b>	<ol style="list-style-type: none"> <li>1. Joint venture</li> <li>2. Share company</li> <li>3. Private limited company</li> </ol>	<ol style="list-style-type: none"> <li>1. Funded by national or regional government and private sector</li> <li>2. Can be established and operated under PPP mode irrespective of whether IAIP is developed by national or regional government or by private sector or through PPP model</li> <li>3. Can be established by IAIP developer as single concession or through independent PPP concession</li> </ol>	<ol style="list-style-type: none"> <li>1. Affordable user fee charges with full cost recovery model including capital and operational expenses</li> <li>2. Differential fee structure for facilitation and capacity-building activities</li> </ol>
	<p>Merits and demerits:</p> <ol style="list-style-type: none"> <li>1. Enhanced level of services</li> <li>2. Integration of private sector capabilities and convergence of government schemes and interventions</li> <li>3. Robust business structure</li> <li>4. Enhanced and market driven fee structure to occupant units of IAIP</li> <li>5. Driven on a business model with checks and balances to protect farmer interests</li> <li>6. National or regional government to devise mechanism to prevent holding of raw materials and excessive pricing of RTC services to both farmers and occupant units</li> </ol>		
<b>CAPTIVE RTC FOR SPECIFIC OCCUPANT UNITS OF IAIP</b>	<ol style="list-style-type: none"> <li>1. Ordinary partnership</li> <li>2. Joint venture</li> <li>3. General partnership</li> <li>4. Limited partnership</li> <li>5. Share company</li> <li>6. Private limited company</li> <li>7. Sole proprietorship</li> </ol>	<ol style="list-style-type: none"> <li>1. Funded by the occupant unit of IAIP</li> <li>2. Can be established and operated as captive RTC irrespective of whether IAIP is developed by national or regional government or by private sector or through PPP model</li> </ol>	<ol style="list-style-type: none"> <li>1. Captive model</li> <li>2. Operations driven by captive requirements</li> <li>3. Procurement and aggregating services driven by viability of the individual occupant unit</li> </ol>
	<p>Merits and demerits:</p> <ol style="list-style-type: none"> <li>1. Driven by private sector occupant unit business interest</li> <li>2. Effective business model from occupant unit perspective</li> <li>3. Not realizing the full objectives of RTC</li> <li>4. Difficulties in implementing checks and balances to protect farmer interests</li> <li>5. Difficulties in implementing mechanism to prevent holding of raw materials and excessive pricing of RTC services to farmers</li> </ol>		
<b>COOPERATIVE FORMED BY TWO OR MORE OCCUPANT UNITS OF IAIP</b>	<p>Occupant unit cooperatives societies established under proclamation</p>	<ol style="list-style-type: none"> <li>1. Funded by occupant units and national or regional government</li> <li>2. Can be established and operated as cooperative RTC irrespective of whether IAIP is developed by national or regional government or by private sector or through PPP model</li> </ol>	<ol style="list-style-type: none"> <li>1. Affordable user fee charges with full cost recovery model including capital and operational expenses on a pass-through basis</li> <li>2. Differential fee structure for facilitation and capacity-building activities</li> </ol>
	<p>Merits and demerits:</p> <ol style="list-style-type: none"> <li>1. Enhanced level of services since the model is driven by end users</li> <li>2. Affordable fee structure to occupant units of IAIP</li> <li>3. Moderate level of integration of private sector capabilities and convergence of government schemes and interventions</li> <li>4. Driven by private sector occupant units business interest and hence need to introduce checks and balances to protect farmer interests</li> <li>5. Moderate level of protection of farmer interests through cooperative model</li> <li>6. Deficiencies associated with cooperative society managed institutions</li> <li>7. National or regional government to devise mechanism to prevent holding of raw materials and excessive pricing of RTC services to farmers</li> <li>8. Effective business model from occupant units' perspective</li> <li>9. Not realizing the full objectives of RTC</li> <li>10. Difficulties in implementing checks and balances to protect farmer interests</li> <li>11. Difficulties in implementing mechanism to prevent holding of raw materials and excessive pricing of RTC services to farmers</li> </ol>		

Source: Author's compilation

### 3.4 PHASE 1: BUSINESS CASE, DEMAND ANALYSIS AND PRE-FEASIBILITY STUDY

The initial IAFP pre-feasibility planning phase will result in a clearly communicated business case - justification for moving forward with IAFP development, with supporting evidence including investor demand assessment, value chain analysis, subsector selection, benchmarking of industrial parks, policy analysis and recommendations, agro-industrial interconnected system analysis, economic

and social impact projections, environmental and green design considerations, location site analysis and recommendations, and stakeholder consultation. The analytical tools will highlight alternative options and will comprehensively inform the rationale for a recommended model and location for IAFPs. Many of these analyses are interdependent and developed through an iterative process.

#### 3.4.1 Business case

The business case should convey the IAFP vision, project profiles, business plans and strategy documents. Beyond this, it is also necessary to chart the current trends with respect to the development of the IAFP through a trajectory analysis of various parameters: size, patterns of development (horizontal

versus vertical, manufacturing units versus integrated smart cities); the required infrastructure; the business model for development and market demand, including analysis on how has market behaviour fluctuated over time. Box 8 describes the key elements of a business case.

#### BOX 8 - Developing a business concept

**Benchmarking:** establish benchmarking parameters for the IAFP and analyse key challenges regarding sustainable project development across the pillars of sustainability including suggestions for tackling the key challenges.

**Investor attraction:** the business plan should provide the mechanism to identify “anchor” investors, who would mobilize the funds necessary for the establishment of the IAFP. This should be complemented with an assessment and recommendations for the private sector to lead the development process.

**Operations and management:** involves the coordination of those activities that relate to planning, initiation, promotion of the IAFP, and their implications for regional and local communities. A very clear management plan shall be prepared in consultation with the stakeholders, including the administration and management of common facilities, subcontracting and direct employment of professional staff.

**Pricing plots and ready-built sheds:** pricing should be estimated and should be included in the business plan in an easy-to-understand and transparent way. The business plans must reflect prices prevailing in the local market, and take account of actual costs plus margins that will enable future exigencies with production and manufacturing to be fully considered.

**Governance:** the business plan should provide concrete suggestions on the legal framework and governance and management structure of the IAFP, including the level of government assistance; implementation and subsequent operations of the project; and scope for public-private participation for commercial operation. Land access and rights mapping and the legal implications of this should be dealt with in the business plan.

**Private sector:** identification of the role of the private sector in the business plan should cover key reasons for involvement in this field. Including: risk allocation, nature of investment made in the infrastructure, models of private sector involvement: private vs public-private partnerships (PPPs), greenfield vs operations and maintenance versus retrofitting. Quantitative analysis should examine the total number of private sector-led IAFPs, typical size, investment size, location (on a map), how many were approved, reached financial close, are operational, or closed down.

Source: Author

### 3.4.2 Investor demand assessment

Investors of IAFPs typically include both private entities and public institutions. These can be a wide array of stakeholders including private engineering companies that build and operate industrial facilities, agroprocessing and agro-allied enterprises, financial institutions, national and subnational governments, as well as development finance institutions. Understanding the motivations of each of these investors and crafting a business case that meets their needs, particularly of private businesses that are critical to sustainable operations over long-term horizons, is an important first step in the IAFP planning process.

Identifying market demand drivers is the first step in the process of understanding investor motivations and market demand. It is imperative to develop strategies that leverage the growing demand in both domestic and international markets, in addition to fulfilling the country’s food security and nutritional security. A more detailed step-by-step demand assessment is necessary to structure the targeting, positioning, and demand assessment of IAFPs (see Box 9 below).

**BOX 9 - Approach for IAFP targeting, positioning, and demand assessment**

<b>Step 1</b>	Identify potential agro-industrial sectors based on a set of guiding parameters along with the rationale behind this selection
<b>Step 2</b>	Target and position identified potential agro-industrial sectors based on the coverage of a particular sector and the importance of the parameter
<b>Step 3</b>	Evaluate the prioritized agro-industrial sectors based on infrastructural needs and industry-specific issues, and physical requirements
<b>Step 4</b>	Prepare zoning recommendations based on environmental and sustainability considerations
<b>Step 5</b>	Evaluate the prioritized agro-industrial sectors for having occupancy potential in the IAFP
<b>Step 6</b>	Conduct growth projections for the identified agro-industrial sectors over the short, medium and long term based on various strategy documents
<b>Step 7</b>	Examine the present performance and status of the identified agro-industrial sector in the region
<b>Step 8</b>	Evaluate the district share in the projected investment and the share of IAFP from the district share
<b>Step 9</b>	Evaluate the industrial built-up space and land requirement for the projected investment
<b>Step 10</b>	Use inputs for master planning based on demand modelling and gain feedback from key stakeholders.

There are various guiding parameters to help identify potential agro-industrial value chains and intervention areas that can harness market demand. This requires preliminary understanding of the macroeconomic context and the investment landscape of the country, accounting for approved government growth engines and enablers and the foreign direct investment inflows and outflows of the country. This identification should also be contextualized against the trade dynamics of the host country and the attractiveness of value chains

in relation to linkages and transport corridors that connect production basins to processing facilities and ultimately to markets.

These guiding factors should also be complemented with the key motivations driving pre-existing industries and firms to locate within an IAFP, such as environmental, regulatory support, infrastructure, cost efficiencies, pricing and other factors influencing this decision-making process. These criteria will inform

the selection process of MSMEs and larger firms and their prospective co-location within an IAFP.

Secondary and primary data should be used from different sources for analysing the demand for agro-parks. For the primary data, extensive discussions and interviews should be conducted with key informants, mainly from the regional and zonal bureaux of agriculture, specifically, with the crop, livestock, extension, and input experts. Moreover, focus group discussions should be held with farmers, cooperatives or unions and the private sector at different levels, and

secondary data should be collected with regard to the IAFP in terms of products, growth potential, markets, major players, and other factors.

Market demand analysis should assess the requirements of the market and expectations of the investors, including the facilities needed in the IAFP. Analysis of demand from the influence zone, domestic demand, export demand, seasonal patterns, behavioural change, growth trends, buyer and seller behaviours, and competitors’ profile should also be compiled.

### 3.4.3 Subsector selection

Subsector selection involves identifying the opportunities and challenges associated with various agricultural subsectors, including as regards to their relative competitive advantages, agro-industrial applications, key markets, and raw material linkages. The selection also assesses each subsector’s potential in terms of job creation and, ideally, employment of the target populations, competitiveness in export markets, price factors (labour costs, the cost of inputs, exchange rates), investments (both national and FDI), domestic and international demand for a product (market potential), current and potential contributions to GDP, manufacturing value-added, and spillover effects on other economic activities. The main business environment and policy framework factors driving or constraining industrial performance are also considered when selecting value chains (UNIDO, 2009a).

The UNIDO industrial policy approach recommends that the assessment of priority industries and ensuing investment promotion efforts be undertaken along three dimensions: the growth dimension, the pro-poor dimension and the environmental dimension (UNIDO, 2011a). The prioritization process should also emphasize the potential for agricultural commercialization and agro-industrial development. In this regard, some of the major considerations for agro-industrial subsector prioritization includes:

- Commodities of importance to the economy on the basis of the population involved especially from income generation and employment perspectives

relevance in terms of national food security, and contribution as a source of foreign exchange

- Competitive advantage with respect to production and agroprocessing in comparison to other countries and especially neighbouring countries. The factors considered included productivity, cost of production, existing support infrastructure and facilities (roads, logistics, marketing, and others), and the business environment
- Attractiveness of industry to investors – policy environment and incentives available to investors, including FDI
- Access to the requisite technology, infrastructure, services and facilities
- Potential for short-term impact – sectors and commodities that can achieve significant improvements along the value chain without requiring major infrastructure investments (UNIDO, 2009a).

The identification of subsectors that can bring a long-term competitive advantage for the host country or region, therefore, should form the basis for the design, location, investor targeting, and supportive policy framework of IAFPs.

**BOX 10 - Commodity selection for integrated agro-industry parks in Ethiopia**

Ethiopia aims to become the new manufacturing hub of Africa. The country unveiled ambitious plans to revolutionize the country’s manufacturing sector which, if realized, could result in GDP growth of 11 per cent per year for the next ten years, as well as play an important role in job creation and foreign exchange earnings. In 2010, the Ministry of Trade and Industry and Ministry of Agriculture of Ethiopia, in collaboration with international partners such as UNIDO and FAO, developed an agro-industrial sector strategy for the country. The strategy identified twelve commodities (out of twenty-two commodities which were assessed through reviews of secondary data and interviews with key sources including government departments and the private sector (producers, traders, agroprocessors and others) which were classified in three groups based on criteria such as economic importance to the country, attractiveness for investment, competitive advantage, and potential for short-term impact.

- **Group I:** comprises priority commodities (such as cereals (wheat, maize, teff and barley), oil seeds (sesame, niger seed, linseed and rape seed), coffee and sugar) that have significant economic importance because of the population involved in their production and their importance for food security, as well as their contribution to foreign exchange. Their production can be positively influenced in the short term with relatively low investment.
- **Group II:** includes commodities of secondary priority (such as fruits and vegetables, dairy, meat, and tea) that have the same economic attributes as those in Group I, but these commodities would require significant investment in infrastructure, as well as concentrated effort to enhance their competitiveness in the global market.
- **Group III:** comprises commodities (such as honey, pulses, spices and grapes and wine) with relatively low national economic importance although Ethiopia has a competitive advantage in comparison to other countries. Commodities in this group are attractive to investors and have the potential for significant improvement in the short term.

The national development strategy of Ethiopia also prioritized the creation of integrated agro-industrial parks as one of the key mechanisms for transforming the agribusiness sector. In the light of that, 17 agro-industrial growth corridors were identified. Of these, four agro-industrial growth corridors have been selected for piloting the establishment of four Integrated agro-industrial parks and 28 rural transformation centres linked to the IAIPs. Value chain commodity selection was carried out using a combination of secondary and primary data (including data from relevant government institutions, as well as key informant interviews, focus group discussions and field visits to the different sites). The value chain candidate commodities were compared using seven criteria, as summarized in the table below. Each criterion was assigned a different weight on the basis of its relative impact on the commercialization of the commodities to be selected. The production and marketability criteria were assigned the highest weight due to the fact that raw material and production, and marketability of the commodities, are the most important factors for the feasibility of the RTCs and the IAIP. Accordingly, six to ten commodities were selected for each IAIP for detailed value chain analysis based on the following seven criteria:

No.	Criterion	Weight
1	Current production	4
2	Marketability	3
3	Potential for employment	1
4	Number of MSMEs and cooperatives engaged in the specific commodity business	2
5	Potential of the commodity for value addition	2
6	Social acceptance	1
7	Potential to increases productivity	2

**Current production:** this criterion considered the actual level of production regardless of its productivity and the monetary value of the volume of production. To compare all the commodities based on the existing level of production, the four-year average volume of production was considered and each commodity was given a score to multiply it by the weight to obtain its weighted score.

**Marketability:** the market potential in general and the existence of a current market for a certain product in particular is a prerequisite for improving the competitiveness of the commodity and was considered to be the marketability of the commodity for this selection process.

**Potential for employment:** The candidate value chain commodity has to have a capacity to create employment along the value chain activities from inception of the product up to the end user so that many people would be able to engage in it in the commercialization process.

**Number of MSEs and cooperatives engaged in the specific commodity business:** This criterion considered both private operators and the farmers’ cooperatives that are engaged in the businesses as direct stakeholders, as the viability of the RTCs and IAIPs in the short and medium term is highly dependent on the linkage with suppliers of this kind. The existence of the MSEs and cooperatives in the chain will definitely fill the gaps between the products supplied by the smallholders and the raw material requirements of the RTCs and IAIPs.

**Potential of the commodity for value addition:** This criterion focuses on the potential of the candidate commodity to be processed to add value in the agribusiness. The justification behind the value addition is that the commodity with high potential for value addition could be the best fit to the RTCs and IAIPs as their primary purpose is value adding to facilitate further commercialization.

**Social acceptance:** This criterion looks into the social dimension of the commodities at any stage of the value chain in the course of commercialization. The contribution of the local community to the creation of viable RTCs and IAIPs is very important; and the higher the social acceptance of a commodity, the higher will be the contribution of the community in the given value chain. Thus, a modest weight was given to the social aspect of the commodity selection.

**Potential to increases productivity:** The potential increase in productivity of the commodities is essential to ensure adequate and sustainable supply of raw materials to the RTCs and IAIPs. This assumes that most agricultural commodities are producing under productivity that can be improved by tackling the major bottlenecks existing along the value chain (research, input supply and distribution, other technology access, production systems, post-harvest handling, storage, transport, aggregation, market information linkages, finance, contractual relationships between value chain contributors and other aspects).

Source: Feasibility studies for integrated agro-industrial parks, 2015

**3.4.4 Value chain analysis**

Value chain analysis may be conducted for one or a few prioritized value chains that emerge from the subsector selection process. This analysis explores structural elements of each value chain, including mapping the main value chain actors and understanding the governance and power dynamics of key stakeholders; clarifies market segments – current and potential; identifies major constraints to growth of the value chain; and suggests key interventions that will alleviate key constraints, stimulate growth and extend benefits.

Special attention must be given to the production supply side and any productive measures that are taken (or needed) for the improvement of production and value addition in the country. Supply-side areas requiring priority attention may include factors influencing productivity, post-harvest handling practices, natural resources management, the production of niche products, and risk mitigation, among others (table 4). The key outcomes of the

value chain analysis inform the various levels of implementation and operationalization of the IAFP design components. For the agroprocessing centre (APC) units based in the IAFP, information supplied will need to:

- Prioritize a shortlist of commodities to be processed and products to be produced in the APC
- Understand the key localized value chain issues in the context of proposed APC activities and deal with them
- Estimate net marketable surplus for prioritized commodities
- Estimate total land area requirements for the development of the APC based on the production targets and processing opportunities for the targeted commodities
- Determine the need and scope for the development of RTCs and CCs to bridge supply chain gaps and remedy weaknesses.

**TABLE 4 - Priority supply-side topics (illustrative)**

Productivity	Post-harvest handling	Natural resources management	Niche products	Risk mitigation
<ul style="list-style-type: none"> <li>Improving production and productivity</li> <li>Use of and access to improved agriculture technologies</li> <li>Irrigation</li> <li>Continuing research and development</li> </ul>	<ul style="list-style-type: none"> <li>Market information</li> <li>Wastage reduction</li> <li>Product aggregation</li> <li>Increasing value addition</li> <li>Adoption of state-of-the-art food processing technologies</li> <li>Logistics considerations including transportation infrastructure and service provision</li> </ul>	<ul style="list-style-type: none"> <li>Micropropagation</li> <li>Micro-irrigation and fertigation</li> <li>Integrated nutrient management and soil health</li> <li>Integrated pest management</li> <li>Conservation and development of native livestock</li> <li>Biodiversity conservation</li> <li>Agricultural water management</li> </ul>	<ul style="list-style-type: none"> <li>Organic farming</li> <li>Protected cultivation and greenhouse technology</li> <li>Focusing on high unit value realization in export markets</li> <li>Market information</li> </ul>	<ul style="list-style-type: none"> <li>Reducing production costs</li> <li>Price stabilization</li> <li>Climate shock and stress mitigation</li> <li>Crop loss insurance</li> </ul>

### 3.4.5 Beneficiary analysis

IAFPs can bring about positive impacts on the livelihood of neighbouring settlements as well as that of the industry beneficiaries of the project. The development of this plays a pivotal role in uplifting local economic development and quality of life, thereby stimulating livelihood promotion and improvement.

There is potential for large-scale direct and indirect employment through the IAFP throughout the construction, operation and management phases. During the construction phase, there is a substantial need for workers and sourcing of local labourers and other skilled workers. The development of the IAFP can lead to the economic upliftment and reinforcement of the local economy as it increases spending on wage goods in the influence areas and agro-industrial towns

which leads to diffusion of benefits in new growth poles.

Discussion around desired benefits (including increased income, employment, profitability, government revenues) and inclusion of disadvantaged groups inform the beneficiary analysis and help planners to quantify potential benefits to different stakeholder groups. Disaggregation of beneficiary groups, including producers, labourers, various types of enterprises, and women and youth help to inform IAFP design and customize interventions to targeted groups. Strong developmental arguments can be used to secure financing and complementary support from public institutions.

**FIGURE 20 - Livelihood impacts**



### 3.4.6 IAFP system analysis

In order to develop an integrated world-class agro-food processing industrial zone in a conducive environment and linkages to supply zones and state-of-the-art infrastructure facilities, the inherent issues related to a country’s agro-inputs, focus crop processing, food processing, agro-engineering and allied areas should be understood and incorporated into the IAFP planning process. Collective insights from the market assessment, value chain analysis and beneficiary analysis will inform the IAFP model and design and the types of interventions needed for the success of the IAFP. The IAFP and its components are not a “one size fits all” design, but rather should be customized to meet the needs of the target investors and value chains in specific contexts. IAFPs may include support infrastructure, rural support centres, social amenities, R and D, and knowledge hubs, as necessary, to tackle key gaps and sustainably improve economic performance as well as the standard of living in the country. Integration of all relevant factors responsible for sustainable agribusiness operations within and around IAFPs should become part of the integrated IAFP design, or IAFP system. Such components may include the following:

- Modern farm clusters, greenhouses, livestock pens (and nucleus farmer and outgrower arrangements)
- Collection centres, cold storage, ripening chambers and warehousing facilities
- Primary processing hubs
- Research and development incubation centres, quality control, quality assurance
- Agribusiness management institutes
- Information technology support and library, training centres
- Common infrastructure, utilities and services including maintenance of IAFP
- Environmental monitoring and meteorological systems
- Packaging and support services
- Commercial trade areas and market logistics
- Commercial space to accommodate support services such as waste management and bi-product utilization, utilities, finance, transportation, machinery, packaging and marketing support.

### 3.4.7 Policy analysis of business and investment environment

The macroeconomic policy environment, the business enabling environment, and current institutional arrangements should be analysed in the specific context of the broader enabling environment as well as the agribusiness subsector prioritized for the IAFP. All relevant policies and national regulations for agro-industry, agro-infrastructure and agribusiness should be reviewed, along with its bearing on various stakeholders and organizations. Chapter 9 – Policy,

Legal and Institutional Framework – elaborates on the types of policies, laws and regulations that influence IAFP competitiveness. In some cases, the creation of a customized regulatory framework, akin to a special economic zone, may be needed in order for businesses operating within an IAFP to circumvent challenging enabling environments and successfully attract desired investment into the parks.

### 3.4.8 Review of national regulations for green concepts and green campus norms

It is important that IAFP developments lean towards green concepts and green campus norms to keep up with changing industrial scenarios and public policy priorities of sustainability. Adopting green measures

can help to tackle national issues like water and energy efficiency; reduction in fossil fuels use; handling of consumer waste; conserving natural resources; and promoting regenerative agriculture. Against this

advantageous background many countries are adapting to green concepts and coming up with their very own standards suited to their needs and capabilities.

Concerns about environmental externalities are increasingly significant and need to be factored into business operations and decision-making. There is now a major emphasis on how to combine green growth with spatial planning initiatives. Furthermore, in order to curb environmental impacts and ensure productivity in resource-scarce environments, Governments and businesses alike are looking to scale up resource

efficiency and implement cleaner production practices. Environmental considerations have therefore become a vital issue in the process of establishing new IAFPs as well as an impetus for retrofitting and upgrading existing ones to improve their environmental performance. These trends, and the environmental safeguards for the industrial zones they create, are likely to become increasingly normative over the coming years. Integrated IAFPs can also promote improved environmental practices along the supply chain within targeted production basins to ensure sustainable growth for all stakeholders.

### 3.4.9 Benchmarking comparison study of agro-industrial parks

Benchmarking of key design and success factors against existing and pipeline agro-industrial zones in the region (and possibly internationally) which may compete with the proposed IAFP can be a fruitful exercise. Key parameters for agro-park benchmarking include:

- rationale
- scale
- sector coverage
- success factors
- challenges
- facility configuration
- business model and profitability
- quality assurance
- policy and regulatory framework – identify specific cases where supportive government policies, subsidies and tax concessions, and incentives helped catalyse industrial investments and growth in a particular country
- impact on development.

#### BOX 11 - IAFP planning model

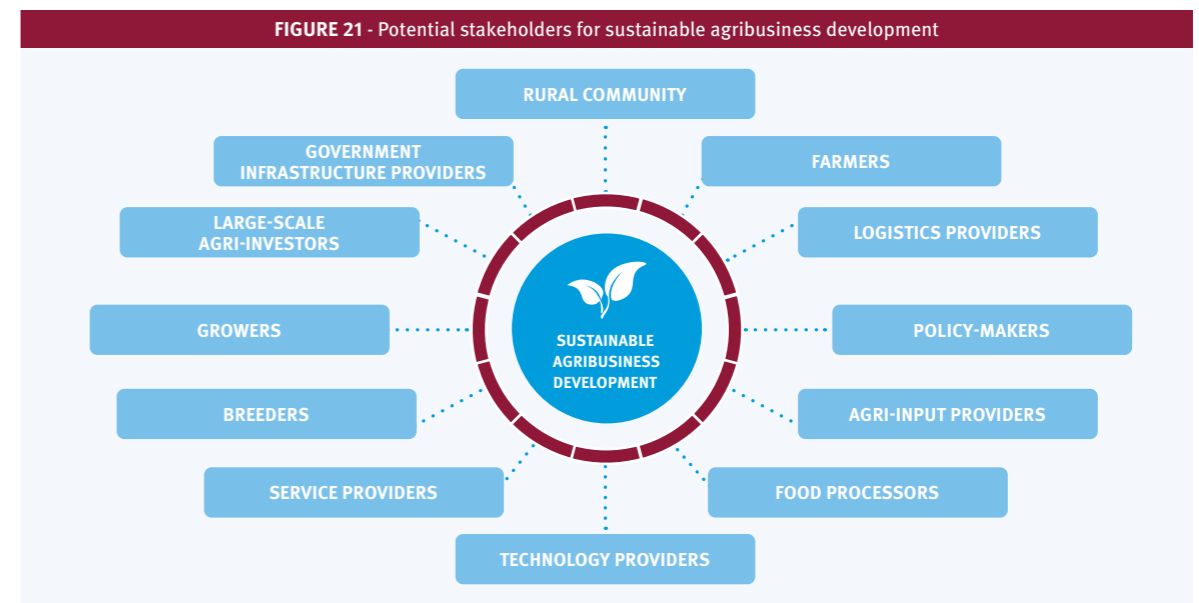
One of the successful planning models coordinated by UNIDO is the sustainable IAFP design and planning approach undertaken by Mahindra Consulting Engineers Limited, India. This supported the development of four pilot integrated agro-industrial parks in Ethiopia. The design of the IAFP used benchmarking against international and regional standards and demonstrated certain benefits in terms of leveraging the country's strengths. This helped to plan for a strong coordination mechanism for successful implementation and operation, accommodating specialized value chains, creating backward and forward linkages through the RTCs, dealing with existing infrastructural challenges and creating an attractive proposal for the investor with comparable benefits and returns.

### 3.4.10 Stakeholder consultation

There are various stakeholders in the sustainable agribusiness landscape, each with distinct roles. With this in mind, potential stakeholders should be mapped along with the requisite information to be collected during stakeholder engagement and validation visits.

To ensure a holistic stakeholder consultation process, the main public and private stakeholders – farmers, growers, rural community, farmer associations, processors, value chain participants, ministerial department agencies, government, project developers and the private industry and women entrepreneurs, among others – should be engaged.

FIGURE 21 - Potential stakeholders for sustainable agribusiness development



This will serve to factor in their position in any major deliberations and inferences from the stakeholder process and demarcate the roles of local administration and government and specific roles of other development partners.

The stakeholder consultation process should be carried out to capture the deliberations and inferences from the process and suitably factor in stakeholders' views within this. A consultation strategy must be developed, planned and linked to a communication strategy, including an investor outreach programme. The specific roles of local administrations, government, civil society and other development partners should be identified.

The extensive interventions in local spatial structures that are required to establish IAFPs generally require the proactive engagement of political authorities at various levels – from city to provincial, regional and central at various ministerial levels (FAO, 2017). These stakeholders should jointly assess the administrative feasibility of IAFPs and the possibilities of positioning them into the broader spatial landscape. This is important to secure both administrative legitimacy and endorsement from rural stakeholders, particularly farming communities based in the intended zone of development. Municipalities are most commonly perceived as the public “champions” driving the development of agro-industrial parks. However, IAFPs

and other parks and zones can also be attached to a district or group of municipalities and even become a provincial-level initiative (FAO, 2017).

Farming communities across the globe have apprehensions and reservations on land acquisition, regulatory reforms, natural resources management, and entry of corporations into the agricultural sector. Stakeholder meetings, deliberations and feedback are, therefore, important for the proposed project to achieve investment goals, and ensure inclusive and appropriate design of IAFP components. The stakeholder consultations, which are to be carried out for the development of IAFP, shall cover information tailored to local needs and be aligned with regional development visions.

A meticulous attempt should be made to identify the role of stakeholders in the development of the IAFP in a sustainable fashion by assessing the stakeholder management lifecycle. The target audience should be mapped, ensuring that no specific stakeholder groups remain overlooked. Stakeholders are to be identified through defining criteria which should include the position of the stakeholders, their potential influence in the IAFP development and operations, and their needs, wants and levels of expectation. A questionnaire should be developed in order to ensure the coverage of all the objectives of the IAFP.

### 3.4.11 Location and site analysis and selection

The location of IAFPs should strike a balance between proximity to raw materials, proximity to markets and proximity to qualified labour pools.

Firms rely on a steady supply of raw commodities and inputs and access to consumer markets, and therefore orient their co-location decisions based on these factors (FAO, 2017). Since IAFPs are agro-industrial based, they tend to be located near production zones in rural or peri-urban settings and existing agro-based clusters. More specifically, tenants specializing in the industrial processing of land-reliant animal and plant production (e.g. fibre, starch crops, cereals and livestock farming) generally locate in a rural or peri-urban environment, whereas firms dedicated to non-land-reliant agricultural activities, (greenhouse horticulture and protein production) may prefer to be located around ports and other transport hubs, capitalizing on the proximity to water, rail and road transportation services (FAO, 2017).

Key parameters should be used to identify and assess the suitability of land, with each parameter assigned

a weightage in the evaluation to finalize the land for development. The critical success factors influencing the land selection criteria are highlighted in Figure 22 below.

The land selection and suitability exercise should be developed and various parameters must be sought for the assessment of the identified location for the IAFP. Detailed analysis of the location in terms of access, connectivity, linkages, external infrastructure facility, opportunities, a core offering of the site, constraints and solutions, and social and environmental concerns is required. The identified location should correspond with the site selection criteria to arrive at a suitable location. For most prospective firms, accessibility to trade gateways is paramount, especially for air-based horticulture activities such as fresh fruit and vegetables or cut-flower exports which require proximity to airports. This should be foreseen in the location analysis of the IAFP's intended site. The decision of where to locate an IAFP can therefore be influenced by pre-existing firms, universities and research centres already located in a particular area.

Further to the completion of the land identification exercise, it would be imperative to prepare an indicative thematic map showing the areas and features, which could influence the development of the IAFP. This would also render support in providing details on the connectivity issues and infrastructure linkages which are vital for the business case and sustained operation of the proposed activities planned in the identified areas of the IAFP.

In relation to the procurement zone within and beyond the IAFP, detailed geographic information system (GIS) data should be collected focusing on the area of influence, including catchment areas and all the municipalities and towns.

#### BOX 12 - Study focus topics for potential IAFP area of influence

- Ownership status and title
- Administrative boundaries
- Presence of developed or built-up urban areas
- Settlements, residential areas and public rights of way within the influence zone
- Land-use zoning classifications
- Potential industrial usage and usable area; development cost
- Existing factories nearby
- Transport corridors: national highways, major roads and minor roads, railway lines, light rail and subways, airports and airfields, sea and river ports, quays and jetties
- General topography and grading (for example, slope) of land under consideration
- Hydrology - rivers, lakes, streams and water bodies
- Location of water sources (intake wells, boreholes, reservoirs, water distribution networks)
- Meteorological characteristics (including average rainfall, wind directions and speeds)
- Presence of agricultural land, wetlands, mangroves, protected lands, national parks and forest areas
- Educational and recreation facilities
- Location of power sources (substations, transmission lines, power distribution grids, gas pipelines, gas "city gates", and others).

FIGURE 22 - Factors influencing land selection



### 3.5 PHASE 2: FEASIBILITY STUDIES AND TOOLS

Once a business case clears a decision hurdle to move forwards, a site-specific full feasibility study is developed. This phase undertakes a series of interrelated technical studies, resulting in an IAFP masterplan, an environmental and social impact assessment, a financial analysis (complete with project cost estimations and revenue streams), a development strategy, a governance system and private sector participation model, and an implementation schedule with phasing recommendations and engineering design considerations. This time is also an opportunity time to validate the ground truth of key assumptions from the

pre-feasibility phase, such as market identification and demand projections.

The outcome of the feasibility and technical studies will define the design and implementation modalities of the programme that will cover the project objectives.

The feasibility report should be discussed through a stakeholders' workshop at the national and provincial levels, after which the finalization of designs must take into consideration the comments and suggestions raised by the stakeholders.

**BOX 13 - Key elements of the feasibility phase**

**Business plan:** including the definition of the IAFP site and its location, its logistical positioning, its overall value proposition for users, its competitive market positioning and factors for differentiation, its proposed services and amenities, any investment incentives to be provided by law, as well as its basic land and services pricing strategy for IAFP users. It also involves preparing a conceptual masterplan and zoning plan, subdivision plan, utility plan, amenities and specialized infrastructure plan.

**Technical assessment and plans:** which describe the site's physical context, the project's geo-technical specifications, its resulting engineering and architectural plans, and the transportation management plans.

**Analysis of investor market potential:** including identification of the sectors likely to drive investment and occupancy within the IAFP; competitors and the degree of competition; and critical investment and production trends in the target sectors. In addition, projected volumes and ramp-up timeframes for investment; the sales projections (including for exports) and the prospective markets, and the resulting land take-up and absorption projections affecting the project's revenue modelling. It also involves identifying promotional vectors for the marketing campaign, potential market threats and the various ways to overcome them.

**Financial modelling and projection:** entails the projection of funding needed, revenue streams, return on investment calculations, sources of capital and the proposed financial structuring model.

**Economic impact study:** including overall value chain competitiveness; projected investment levels and their breakdown (by sector and origin), induced employment and fiscal impacts; impacts on country policies on poverty reduction, food security and rural transformation; public expenditure requirements (including through subsidies and other forms of financial support); trade impacts; and overall economic rate of return and economic value addition modelling.

**Service delivery model and corporate and legal structure:** including details of the nature of the corporate vehicle that will be used to develop and operate the IAFP, the extent of participation from the public and private sectors in it, and their respective roles and responsibilities in terms of the design, financing, ownership, development and operation of the project. The basic constituent elements involved (that being, design, build, finance, own and operate) can be shared in many different ways between project sponsors.

**Environmental and social impact assessments:** including a full description and analysis of the site's socio-environmental context, with all the associated risks and anticipated impacts, to plan and programme mitigation measures aimed at averting environmental degradation and protecting the interests of the population affected by the IAFP development. This dimension of the feasibility studies assesses the project's effects on the ecosystem, the people, the properties, the heritage sites and social services in the host and adjacent communities, and proposes associated management and, where appropriate, rehabilitation or compensation plans. Detailed infrastructure design and zoning: including the detailed engineering designs and master plans, inclusive of industrial, environmental, social and physical infrastructure.

Source: Author elaboration of UNIDO (2019)

### 3.5.1 Master planning

#### Principles of master planning

The master plan should cover most of the following elements to ensure successful design and outcomes. It should lay out the long-term vision and broad planning framework, with international site competitiveness in mind, and consider the specific needs of target industries. Design focus should also extend to integrated environmental management, use of renewable energy sources and energy conservation

utilities and be inclusive of social infrastructure, and exercise flexibility in designing the built environment to promote synergies of co-location, circularity and industrial symbiosis (see Chapter 5 – Planning for Inclusive and Sustainable IAFPs). Lastly, the master plan should outline strategies to enhance physical connectivity to adjacent communities and regions (including the network of RTCs and CCs) and the phasing of the project.

The IAFP should function as an integrated package, having the necessary facilities and service activities with enough provision for future growth and expansion. This includes the preparation of land and ready-built structures with general and specialized agro-infrastructure facilities. The planning exercise should consider the geographical, demographic, raw material resources, economic, and social characteristics of the region for positioning the proposed IAFP, and it is in this context that the master planning of the project assumes its significance. Master planning should account for the agricultural base in the targeted region and the potential procurement zones for the IAFP. It is important to develop the master plan to accommodate both the area requirements of tenants and users and other identified development requirements of the proposed IAFP.

The planning objectives and principles required to transform the IAFP into a fully integrated and functional facility that both promotes the industrial image of the country and develops confidence for investors are explored, as follows:

- Laying down broad policies and directions for growth
- Proposing a set of planning standards
- Designating broad land use distribution of the whole site
- Evolving land use mix—industrial plots for the identified target sectors, focus crops and other crops, social amenities, general infrastructure, specialized and specific infrastructure, roads, open and green space
- Positioning the project to accommodate various types of target subsectors and industries and to ensure compatibility

- Providing an integrated infrastructure system network to support the development
- Developing requirements of various public utilities
- Evolving phasing of the project
- Complying with various planning norms and guidelines.

The planning for the IAFP should be in line with the broad objectives of establishing an excellent business environment targeted principally at the agricultural and allied sectors. Each zone within the IAFP should be dedicated to a particular value chain and be a self-sufficient unit as regards the aspects of facilities, the ability to attract investors and revenue generation. The goal is to create a dynamic, vibrant, and bustling investment area to attract investors and foster entrepreneurship and innovation. From the planning perspective, the IAFP should be a package of several land uses. The industrial activities are prime activities, and several other activity zones enhance the efficiency of production. These include linking infrastructure, marketing infrastructure, research and development services, community facilities, and green spaces.

Social and commercial amenities to be planned in the IAFP will provide convenience to visitors as well as to the working population. Landscaping and greenery designed as part of IAFP development will house the project in a lush green environment. The major issues that need to be tackled while planning the IAFP for successful implementation and sustained operations are elaborated in Box 14 below.

**BOX 14 - Major issues in IAFP master planning**

**Land use and layout:** the exercise includes appropriate division of the whole area into several identified activity centres of different sizes. Development of the layout with a complete understanding of the phasing programme is critical. Integration of the financial aspects with the physical planning aspects is among the most important factors for sustained implementation.

**Constraints and core offering of the site:** the planning has to consider all the site-specific constraints and appropriate mitigation measures to overcome the limitations. Similarly, the planning has to fully leverage the core and additional offering of the site.

**Tackling unavailability of housing for the workforce:** the exercise should include conceptualizing an integrated township with multi-format development, facilitating a substantial work-live-play concept, suitable to the size and concept of the IAFP. The master plan should discuss the lack of enforcement or control of land use and growth of unapproved housing and layout. It should also consider plans for services and amenities.

**Uneven distribution and concentration of industrial growth pockets:** a structured industrial zoning should consider raw materials, effluent generation, pollution level category, and product distribution. Accordingly, these considerations govern the planning of zones and subzones in the IAFP.

**Shortage of skilled and trained workforce:** the IAFP should house training centres, skill development and employability improvement centres.

**Conservation of groundwater and surface water resources:** the activities include sustainable infrastructure planning, incorporation of eco-friendly concepts and environmental sustainability, water conservation schemes, environmental infrastructure, waste treatment, recycling and reuse options in the IAFP.

**Transportation:** the master plan should look at the transport linkages connecting supply chains to markets. The IAFP should have regional and national linkages aligning with supply chain needs, connectivity to adjoining districts and provinces, and distribution to markets. Planning a well-developed logistics hub for both raw material and the finished product to cater to the transport systems is a significant intervention.

**Poor quality of roads and traffic congestion:** the IAFP development plan should identify the constraints and intervention suggestions such as an appropriate road network, including the approach roads, road congestion removal by the provision of grade separators and hinterland connectivity, augmentation and widening of existing roads.

**Energy:** the master plan should estimate the wattage needed to power the operations of the IAFP components and plan for extending sufficient electrification to APCs as well as RTCs and CCs. Insufficient power is often highlighted as a constraint in many developing countries, in rural areas in particular, which affects not only productivity, but also causes product losses due to the highly perishable nature of agro-industrial raw materials.

**Environmental management:** bearing in mind various aspects such as adherence to pollution control norms and standards control over goods, storage, and the handling of industrial waste, a common waste treatment facility assumes importance while planning.

### 3.5.2 Zoning within APC Hub - infrastructure and facilities design

IAFP zoning involves demarcating the whole area into various zones considering the compatibility among the identified sectors of the IAFP and their ability to share the common infrastructure and facilities. The zoning design shall have smooth pedestrian circulation by simplifying the movement patterns and allowing

inter-zone movement. Raw material availability and pollution levels of the industries have a bearing on the identification of industrial opportunities, sizing of units and proper demarcation of zones. It is important to consider the following parameters for effectively positioning the zones:

**TABLE 5 - Parameters for effective zoning**

BOUNDARY SHAPE	PHYSICAL SITE FEATURES	AREA AVAILABILITY	VISIBILITY
Compatibility issues	Environmental considerations	Accessibility	
Surrounding areas	Microclimatic conditions	Transportation issues	

The master plan should capture zone-wide usage requirements. Allotment of the area for each zone depends on parcellation, orientation, shape and size. Figure 23 below illustrates a systematic approach containing strategies for IAFP zone planning.

including the Agroprocessing Centre (APC), RTCs and CCs. APCs have the greatest amount of planning complexity, however, due to their industrial nature, size and multipurpose scope. IAFPs should provide a well-balanced use of land covering industrial, commercial, social, and residential zones. Figure 24 describes considerations for IAFP zoning, product mix and facility configuration.

**Zoning, product mix and facility configuration:** Considerations for zonal planning for all components of the IAFP should be included in master planning,

**FIGURE 23 - Systematic approach and strategies to IAFP zone planning**

<b>Policies and directions for industrial growth</b>	<ul style="list-style-type: none"> <li>Creation of conducive industrial smart hub to foster industrialization as a key objective along with agro-processing and agribusiness and use all modern concepts to promote and sustain infrastructure and agro-industrial investments.</li> </ul>
<b>Planning principles and objectives</b>	<ul style="list-style-type: none"> <li>Conceptualized as a “sustainable and smart industrial township”, the project has multiple land combinations: prepared and ready-built factory for industries, amenities and social areas, commercial areas, utilities and common services, supporting activities like research and development, training, and education.</li> </ul>
<b>Other considerations</b>	<ul style="list-style-type: none"> <li>Planning for effective land use and evolving optimized layout</li> <li>Conceptualizing holistic and modular planning of infrastructure, services and amenities</li> <li>Planning as a functional eco-industrial processing zone with effective utilization of resources</li> <li>Incorporating environmental infrastructure and checks and balances especially when operating in a cluster format</li> <li>Sustainability elements in planning stage itself while ensuring financial affordability from the point of occupant units and overall financial viability of project.</li> </ul>

**FIGURE 24 - Description of IAFP zoning, product mix, and facility configuration**

#### INDUSTRIAL ZONE FOR TARGET PRODUCTS

Target sector, focus processing units (anchor and other target units), target sector and focus ancillary units, other products processing units (anchor and other target units), other products ancillary units, service providers and value addition centres, and others.

#### SPECIALIZED INFRASTRUCTURE ZONE

Boiler, chiller and compressor, multi-chamber cold storage, centralized processing centre, grading and packing halls, common service centres, primary processing centres, quarantine facilities, research and development centre, and others.

#### MULTI-FACILITY COMPLEX, UTILITIES

- > Common effluent treatment plant, sewage treatment plant, water treatment plant, solid waste management, compressor, chiller and boiler networks, gas distribution, sewer network, communication network, street lighting, wastewater network, electrical substation, and others
- > Logistics (loading and unloading yards, packaging halls, transportation hubs, cargo handling centres, raw material collection and storage halls, finished goods storage, packing and labelling, procurement centre, and others), quality control labs
- > Institutional (fuel station, retail space, customs and security, weighbridge, canteen, fire station, and others).

#### RESIDENTIAL AND AMENITIES ZONE

Multi-formatted housing, place of worship, school, creche, public amenities, playground, polyclinic, retail space, and others.

#### GREENERY AND WALKWAYS

Green belt along the boundary, lawns and parks, tree plantation along the proposed roads, internal walkways, and others.



The categorization of the target sectors for processing zones and specialized infrastructure zones needs to account for the pollution levels of the industries in operation. Based on the analysis of the wind rose diagram of the area, the positioning of the sectors should avoid cross-contamination owing to the predominant wind direction between the zones. The planning of green buffers between zones should provide both physical barriers and reduce the possible spread of pollution.

The planning exercise has to be carried out in a modular way to allow for changes during the implementation stage.

Further, flexibility should be provided in the master plan to facilitate merging or subdividing the land parcels to suit investor requirements. The planning of internal road alignment should respect the natural contour profile of the site, resorting to minimum site grading. The road network should aim to avoid conflicts between pedestrian and vehicular traffic.

The activity should include a decision on the location of the utilities based on the contour profile of the site. Public amenity buildings should be located strategically to provide easy and convenient access to the working and visiting population. Also, this ensures that unauthorized entry of the visiting population to the core processing area of the IAFP is restricted.

### Sizing of various developmental components

The size of the IAFP is as important as its location; sizing of developmental components constitutes an important activity in the planning stage for any IAFP development and the acceptable considerations for sizing should be framed. APCs that are too small hinder achieving economies of scale and may prevent future growth, while ACPs that are too large may risk sparse occupation and high overhead costs (FAO, 2017). Large parks significantly alter land use and natural resources in the area, which can sow discord with the

### 3.5.3 Environmental and social impact assessment and mitigation plan

An environmental and social impact assessment is critical to assess the suitability of the proposed project location from an environmental impact and sustainability perspective. An ESIA must underpin

local population. In essence, size matters, and needs to align with various factors including market demand for serviced industrial land, needs and specifications of targeted value chains and their ability to attract forward, backward and horizontal ancillary firms to the park, and the political economy of the country as well as the local stakeholders. Decentralization of certain activities to RTCs and CCs should be maximized to bring value-addition closer to rural areas and minimize migration pressures and disruption of social networks, where possible and operationally desirable.

Generally, the rationale for APC, RTC and CC sizing should factor:

- Size of the economy
- The number and types of organizations and enterprises targeted for location within the APC RTC and CCs and the specialization of activities within the area of influence as well as among target organizations and ancillary activities
- Not extensively oversized, but consider modularity of scaling over time
- Providing local employment and preventing migration of the workforce from neighbouring States
- Harnessing the regional skill sets and resources, and preventing extensive transportation of raw materials
- Maximizing and leveraging available land opportunities
- Gestation time.

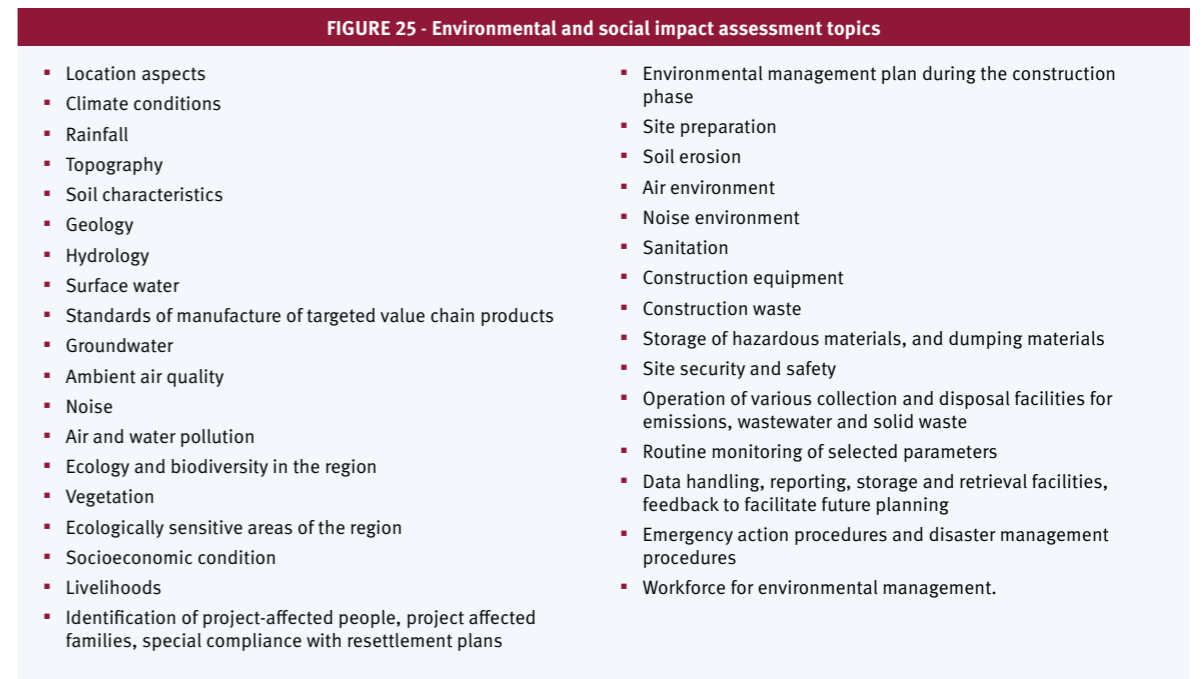
The sizing of all the components should be supported by appropriate net marketable demand calculations and other accepted rationales for sizing. The planning norms for land requirements of each component should be compared with the norms of the country as well as international standards before the provision and distribution of planning elements. Also, raw material availability and pollution levels of the industries have a bearing on the identification of industrial opportunities, sizing of units and proper demarcation of zones.

the site master planning, and predict and evaluate a project's impact on the ecosystem and the biophysical and human environment, as well as propose any required project impact mitigation plans. ESIA

should, in addition, lay the basis for continuing assessment of socioeconomic and environmental impacts throughout the project's lifespan, including during: pre-construction activities (for example, relocation of people displaced due to the project, and others); construction activities (for example, land clearing and site preparation, infrastructure construction, labour migration, and similar activities); and post-construction operational activities (for example, industrial operations, waste management, vehicle and pedestrian traffic, labour migration, and

others). Many development finance institutions have policies, guidelines and tools to effectively integrate environmental and social considerations into their operations that can help IAFP developers in preparing these assessments and plans.<sup>9</sup>

The ESIA must comprehensively cover topics summarized in Figure 25, and cover all components of the IAFP design, including the APC and its network of RTCs and CCs.



The findings from the ESIA will inform the development of an environmental management plan, to be completed as part of the planning process. The environmental management plan includes mitigation measures aimed at averting environmental degradation and protecting the interests of the population affected by the IAFP development. It ensures that resources are used with maximum efficiency and that each of the adverse impacts, identified and evaluated as significant during the ESIA, be prevented, attenuated, or where required compensated. Possible mitigation measures include:

- Changing project sites, routes, production technology, raw materials, disposal methods, engineering designs, safety requirements

- Introducing pollution control measures, recycling and conservation of resources, waste treatment, monitoring, phased implementation, personnel training, special social services or community awareness and education
- Devising compensatory measures for restoration of damaged resources, monetary compensations for project-affected persons, or off-site programmes to enhance some other aspects of the environment or quality of the site for the community.

<sup>9</sup> For example, the World Bank ESIA guidance at <https://openknowledge.worldbank.org/handle/10986/29477>.

The environmental management plan needs to be implemented by setting up an environmental monitoring cell which will be responsible for the implementation of the plan and all environment-

related activities at the IAFP. The environmental management plan is continuously implemented during the construction phase as well as after the IAFP development becomes operational.

### 3.5.4 Engineering design considerations

**Detailed design and engineering:** preparation of the master plan will require detailed architectural drawings, including with area statement of floor plates for the proposed buildings for common amenities. Designs should cover base enabling infrastructure, core infrastructure, industrial infrastructure and social infrastructure (see details under categories of IAFP infrastructure). More specifically, this should cover allocation and sizing of built-up areas for various activities and common facilities, road networks, stormwater drainage network with recharge facilities, comprehensive water supply system, sewerage system along with sewage treatment plant and recycling of treated wastewater for green and landscaped areas, electrical distribution centre along with locations and capacities of transformers, landscaping plan, solid waste management system, access control in the form of entry and exit, security, appropriate fire hydrant systems, and others; are to be considered during the detailed design and engineering stage. Segregated internal zones such as the following are typical in an IAFP context: industrial zones for targeted sectors; amenities zones, including, information centres,

training centres, research and development facilities, clinics, administrative buildings, fire stations, and others; special infrastructure areas, such as certification laboratories, quarantine services, market intelligence unit, and others; logistics zones; utility zones, including for sewage treatment plants, solid waste collection centres, electrical substations, common effluent treatment plants and others; residential areas; and green zones.

**Infrastructure design considerations and requirements:** good infrastructure for agro-enterprises along with transportation and agricultural corridors are critical to facilitate trade from businesses clustered in IAFPs. Infrastructure requirements also extend to the proximity of modular units near premier technical institutions and the specialized infrastructure and services available in these complementary sites. The IAFP essentially creates the critical infrastructure to fill the gaps (and facilitate growth) in the agricultural supply chain from farm to end consumer. The industrial, environmental, physical and social infrastructure provisions of integrated IAFPs are mapped in Figure 26.

FIGURE 26 - Major infrastructure categories for IAFPs

**Industrial infrastructure:** integrated development of agricultural and allied sector hub with backward and forward linkages and other industry-specific infrastructure; logistics and agricultural marketing hubs; cold chain air cargo infrastructure; agro-industrial knowledge hubs, education hubs and research hubs. Attractive to prospective occupants with reduced capital outlays for agro-industrial production.

**Environmental infrastructure:** development of municipal solid waste collection, transport and treatment facilities; industrial waste management system – hazardous and non-hazardous – collection, transport and landfill; water infrastructure – source, development, treatment and recycling; environmental management plan.

**Physical infrastructure:** IAFPs are to be configured with state-of-the-art functional and affordable infrastructure. This includes integrated transportation; road connectivity between production zone and processing zone (feeder roads); power infrastructure and renewable energy, including large-scale solar power generation facilities and other renewable modes.

**Social infrastructure:** residential, commercial, institutional, social and tourism development for a holistic agro-industrial investment and business environment. Basic amenities such as accommodation (guest house, service apartment); ATM and bank; automobile refuelling station; creche; cafeteria and restaurant; educational facilities; hospital; entertainment facilities and retail services.

Source: Author elaboration of UNIDO (2019)

**Identification of infrastructure requirements:** IAFPs range in sophistication, depending on the targeted value chains, from minimal physical infrastructure provision (roads and public amenities) to wide-ranging soft infrastructure such as: common and specialized facilities, and support services such as financial services, training, technical guidance, information services, joint research facilities, and business support services. Stakeholder consultation and industry demand assessments are important sources of knowledge informing infrastructure requirements.

IAFPs may also offer residential and commercial areas with developed plots and buildings, power, telecommunications, water, sanitation and other civic amenities such as hospital, sewerage and drainage facilities, security, and others.

In some cases, science and technology estates are linked to IAFPs with the intention of diffusing innovation and expertise to technologically-advanced industries and emphasize high-level support services, such as marketing, technical consulting through networking with local research and development institutions, and financial and transaction advisory services. Connectivity and inclusivity of science and technology zones may require unique engineering designs.

**Green and eco-industrialization considerations:** there has been a notable shift in the industrial development and business model globally. Industrial based projects are increasingly adopting eco-friendly, green and sustainable strategies and business practices. Some of the benefits of adopting these greener initiatives are elaborated in Figure 27.

FIGURE 27 - Considerations for green and eco industrialization



The benefits of eco-IAFPs go well beyond the conventional commercial benefits. They are also strategic: reducing exposure to risk, increasing competitiveness and business development, strengthening production continuity and reputation with key stakeholders.



Brings economies of scale of operation both for the infrastructure development and for the occupied units through symbiotic cooperation.



Incorporates key themes of industrial ecology and promotes industrial ecology regarding the exchange of by-products and cascades of energy use between occupied units.



Ensures the generation of industrial symbiosis network, the flow of knowledge and technology and bridges the widening gap between academia and industry. This spills over into professional training and sustainable skills development.



Establishes a robust platform to boost scientific and technological advancement, thereby enabling researchers and scientists to meet the international standards on green industrialization and sustainability.



Includes smart solutions and applications, using ICT tools.

A strong foundation of sustainability concepts drives the development of IAFPs, and the planning exercise should build on these principles in the conceptualization stage through to engineering design. Greater discussion on sustainable design and operation of IAFPs is captured in chapter 5 and chapter 8 respectively. Briefly, the sustainable elements that are to be conceived in the master plan include:

- Site planning and management
- Sustainable transport
- Water conservation
- Energy efficiency
- Materials and resource management
- Waste minimization technologies
- Scientific treatment of waste and energy recovery possibilities to reduce power consumption
- Use of eco-friendly materials

- Recyclable materials
- Avoidance of toxic chemicals
- Usage of environmentally friendly products
- Health and well-being
- Green education.

The provision of eco-infrastructure facilities and sustainable design for IAFP development should follow compliance with standards for each country, industry, and relevant international standard. Table 6 lists various eco-design standards. Refer to chapter 5 for additional guidance on planning for inclusive and sustainable IAFPs.

**TABLE 6 - Country and international eco-designs standards**

<ul style="list-style-type: none"> <li>▪ British Standards</li> <li>▪ European Standards</li> <li>▪ Applicable national and regional standards</li> <li>▪ International Building Code (IBC) (latest edition)</li> <li>▪ Leadership in Energy and Environmental Design (LEED) principles</li> <li>▪ International Mechanical Code (IMC) (latest edition)</li> <li>▪ International Energy Conservation Code (IECC) (latest edition)</li> <li>▪ American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)</li> <li>▪ American National Standards Institute (ANSI)</li> <li>▪ Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)</li> <li>▪ American Society for Testing and Materials (ASTM)</li> <li>▪ International Organization for Standardization</li> <li>▪ World Bank Environmental and Social Framework (2016)</li> <li>▪ Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals in International Trade (February 2004)</li> <li>▪ Convention on the Conservation of Migratory Species of Wild Animals, (November 1983)</li> </ul>	<ul style="list-style-type: none"> <li>▪ UNIDO (AI/2017/04) – UNIDO Environmental and Social Safeguards Policies and Procedures</li> <li>▪ Vienna Convention for the Protection of the Ozone Layer (September 1988) and the Montreal Protocol for Control of Substances that Deplete the Ozone Layer (1987)</li> <li>▪ Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (May 1992)</li> <li>▪ Convention on International Trade in Endangered Species of Wild Fauna and Flora (July 1975)</li> <li>▪ Convention on Biological Diversity (December 1993)</li> <li>▪ United Nation Framework Convention on Climate Change (1994)</li> <li>▪ United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought or Desertification, Particularly in Africa (1996)</li> <li>▪ Stockholm Convention on Persistent Organic Pollutants (May 2004)</li> <li>▪ World Health Organization (WHO), Health and Safety Component of EIA, 1987</li> <li>▪ Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, (October 1990).</li> </ul>
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### 3.5.5 Financial modelling - project cost estimation and revenue streams

The financial modelling step involves projection of funding needed, including anticipated project capital and operational expenditures, projected revenue streams and return on investment calculations, as primarily captured through net present value, internal rate of return and discount rate. The financial model should contain an analysis of available sources of capital and the project's proposed financial structuring model, as well as the financial sustainability and financial stakeholder risk-sharing mechanism. IAFPs can be financed through direct or indirect public sector

investment, including through direct allocation of national budget or indirect investment through public enterprises, commercial debt financing or equity. Although the primary project offtake or revenue stream is derived from plot and facilities rental (or land sale) income collected from the users, various other agro-industrial park value-added services can also prove interesting as supplementary revenue streams. Chapter 4 discusses financial structuring of IAFPs in greater detail.

### 3.5.6 Project management and monitoring plan

To realize the vision of the IAFP and implement the project within the envisaged period, a conscious effort is required. The project should involve coordination with various agencies. Development of the implementation schedule must be ensured. The implementation schedule should dwell in detail on activities covering investment decision, selection of strategic partners and co-developers, selection of construction and operations and maintenance contractors, finalizing partnership arrangements with various agencies, financial closure, concession agreement, tendering and award of the contract, statutory approval, external linkages and connectivity, design and detailed engineering, execution, organization, marketing of space.

The exercise should also include identification of major development activities, associated timelines, and the implementation schedule from the perspective of the IAFP project implementation unit, and the selected IAFP developer, and implicated public line ministries and other co-development partners. As part of the implementation plan, the key interventions required by various agencies involved in the development process for achieving the desired objective should be included.

The monitoring mechanism shall include identification of key elements for ensuring success from a management structure perspective, statutory standards to be maintained, and adherence to sustainability

concepts. Further, the activities should include an in-depth analysis of various bidding and contract structures and recommendations of appropriate location-specific project and contract structure along with merit and demerit analysis. The activities should also include monitoring of concessionaire performance, delivery standards, statutory and regulatory compliance, and measures for monitoring marketing, benchmarking performance, and stipulating performance standards.

In addition, the following activities are to be ensured:

- Activity time schedule for:
  - › IAFP common infrastructure;
  - › IAFP connectivity and external infrastructure;
  - › RTC common development and specialized agro-infrastructure including RTCs and aggregation centres;
- Agricultural commodities production
- Micro-level action plan
- Implementation plan and phasing
- Statutory approval and linkages
- Development of balanced scorecard
- Measures for assessing the performance
- Inter-agency coordination activities and mechanisms.

### 3.5.7 Risk mapping

IAFPs have a series of risks associated with their development and operations, spanning political, institutional, land acquisition, environmental, social, construction, operational, and financial risks, among others. Risk allocation between the Government and the private sector is not always well understood by project planners, particularly on the government side. Risk mapping informs contract development and negotiations, ensuring there is common understanding of how risk is allocated and will be priced, mitigated and managed by each relevant party. A project's individual circumstances and its jurisdiction will influence the appropriate contractual risk allocation and there may be additional risks that need to be considered.

A matrix of risks is typically associated with planning, constructing and operating IAFPs. These risks tend to be allocated between the Government and the private party through different arrangements. Risk mapping

is also informed by the type of project contract and scope of considerations. There are three potential risk categories often associated with the setting up of IAFPs, especially at the planning phase, namely political risk, institutional coordination risk, and capacity risk (Global Infrastructure Hub, 2019). Political risks could cut across all phases of the development spectrum for IAFPs and arise mostly due to changes in government policies, especially in countries where political systems are still too weak to enable continuity of policies and programmes. A change in government may result in the removal of domestic champions of policies, programmes and funding required to set up IAFPs at the planning and fundraising phase. Institutional coordination risks arise from a lack of a multilevel process of information dissemination and absence of intersectoral commitment to achieve national goal. Capacity risks affect the allocation and safeguarding of sufficient staffing, specialized expertise, and financial resources dedicated to the IAFP planning phase.



In general, the Government typically bears the risk of acquiring the required land interests for the project, whether through compulsory acquisition or expropriation or other powers, because it has the power to do so whereas the private entity does not. The Government is generally responsible for providing a clean accessible site, with no restrictive land title issues or encumbrances. The risk that the land is not suitable is typically shared as the Government may be able to secure the availability of the land, but its suitability may be dependent on the private party's design and construction plan. In principle, the Government will be responsible for ensuring that the private party can access the site during construction (including, for example, agreeing interface with any other contractors, where relevant).

The social risks associated with the project may have an impact on adjacent properties and project-affected people (including public protest and unrest). These risks can be broadly categorized into community and business; resettlement; heritage and indigenous land and people; and industrial action. Ultimately, the Government is responsible for policy relating to the social impact of the provision of infrastructure. The Government will bear this risk except to the extent that the private party is responsible for implementing any social management measures. Consultation informs mitigation measures and may reduce the risk of opposition if measures are properly incorporated in the strategy and tender requirements. The Government should adopt internationally recognized social and environmental standards and practices for the project to manage social risk, especially if international financing options are desirable. Active stakeholder engagement led by the Government throughout the project cycle will be critical to avoid litigation, achieve key milestones on time and ensure it is delivering infrastructure that serves its public purpose. Resettlement of whole communities by the Government is more likely in less developed markets and countries where informal housing and businesses may be more prevalent. As with land-use rights involving indigenous groups, any other social impact risks involving such groups will usually be the responsibility of the Government, but

the private party will bear the risk of complying with relevant legislation and contractual obligations.

The private party assumes the risk of labour disputes and strike action adversely affecting the project except to the extent such action falls into the category of political risk – the Government may bear the risk or share the risk (as a *force majeure* or relief event) for strikes and other widespread events of labour unrest. For example, nationwide and sector strikes are usually government risks, but strikes at the private party's facilities will be a private party risk.

Many finance parties adhere to the Equator Principle, making a commitment to ensure that the projects they finance and advise on are developed in a manner that is both socially responsible and reflects sound environmental management practices. Environmental risks are associated with pre-existing conditions; obtaining consents; compliance with laws; conditions caused by the project; external events; and climate change. With increased global environmental public policy scrutiny, the Government and the private party must develop sound environmental and social risk management plans before IAFP construction begins. Many finance parties adhere to the Equator Principle<sup>10</sup>, making a commitment to ensure that the projects they finance and advise on are developed in a manner that is both socially responsible and reflects sound environmental management practices, which are described in the Equator Principles. The private party typically bears the risk of obtaining all environmental licences, detailed permits and environmental authorizations required for the IAFP project after contract signature.

Climate change has become a critical factor for consideration in project development and the Government should consider the impact of climate risk events on the infrastructure (both one-off external weather events and more gradual effects, such as rising sea levels or temperatures).

It may be appropriate to treat certain events as *force majeure* events if they occur beyond certain thresholds

10) A set of globally recognized, voluntary guidelines established to assess and manage social and environmental risk in project financing, especially in the emerging markets. Available at [http://www.equator-principles.com/documents/Equator\\_Principles.pdf](http://www.equator-principles.com/documents/Equator_Principles.pdf)

(for example, temperatures outside certain ranges). Design resilience is also an important mitigating factor, for example, for projects with seasonal weather such as monsoon or where earthquakes are common.

Risks are present at the design, construction and operating stages of IAFP development. Generally, the Government may undertake the design of the IAFP under a separate request for proposal or in the case of a PPP to transfer the design and associated risk to the private entity.

In either case, the Government will provide detailed and descriptive specifications with respect to suitability of design in a way which satisfies the performance specifications and ensures compliance with applicable legal requirements, good industry practice standards, energy efficiency standards and, where applicable, minimum quality standards. Construction risks can arise in the form of costs exceeding modelled costs; completion delays; project management; interface; quality standards compliance; health and safety; defects; intellectual property rights compliance; industrial action and vandalism. Operating risks refer to the risk of events affecting performance or increasing costs beyond modelled costs; performance standards and price; availability of resources; intellectual property rights compliance; health and safety; compliance with maintenance standards; industrial action; and vandalism.

Demand risks refer to the risk of returns from the sale or rental of park plots and facilities being different to forecast levels and the consequences for revenue and costs. In a concession model or direct contract to a facility manager, the private party will typically bear the risks. This includes sourcing tenants and generating rental revenue and other fees, although the Government may provide subsidies or guarantees, as well as marketing support and other tax and financial incentives to attract tenants (see chapter 7 – “Investment attraction and facilitation”, and chapter 9 – “Policy, legal and institutional framework”).

Disruptive technology risk is drawing increasing attention in all markets and in relation to technological changes relating to environmental protection. Disruptive technologies may have both upside and downside effects on a project, as well as efficiency or social and environmental benefits. Responsibility for disruptive technology risk depends on a project’s circumstances. This area may require its own treatment in the contract (for example, through specific treatment under the contractual variations mechanism or through other specific contractual obligations). The private party’s obligation is to meet the output specification. If it fails to do so owing to obsolescence of equipment or materials, it is likely to suffer payment deductions and, above a particular threshold, may be at risk of termination. In this case, it bears the risk of

potentially having to replace relevant technological solutions. On the other hand, if it is performing above that threshold, the Government cannot require it to replace technology simply because more efficient technological solutions are available unless there is an agreed contractual mechanism for doing so. To deal with this, the Government may consider imposing obligations on the private party to adopt or integrate with new technologies or to allow for other foreseeable developments, such as smart water metering or energy through rooftop solar panels or allowing electric vehicles only in the IAFP.

The Government bears the risk of specific political actions having a material adverse effect on the private

party’s ability to perform its contractual obligations, or on its rights or financial status. The Government is responsible for costs and delays and is typically at risk of termination for prolonged material adverse government action events. These risks typically include: deliberate acts of State such as outright nationalization or expropriation in relation to the project; a moratorium on international payments and foreign exchange restrictions; certain governmental acts (such as not granting essential approvals where the private party is not at fault, or failing to ensure utility connection to the project); and politically-motivated events such as national strikes.



# 4

## Resource Mobilization and Financing

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## 4.1 OVERVIEW

The financing of Integrated Agro-Food Parks (IAFPs) requires access to financial institutions and to reliable sources of long-term capital (also known as “patient capital”) and investment. Financing opportunities and challenges exist for developing markets and emerging economies. Mechanisms need to be created to overcome these obstacles to mobilize sustained financial resources from diverse portfolios.

Funding is required at all stages of IAFP development, from the initial planning phases to the implementation operational phases. The nature of the required financing and beneficiaries varies at each stage. At the planning stage, project preparatory funds or grants will be required for the pre-feasibility and feasibility studies, master planning, environmental and social impact assessments and other policy and strategy studies. The IAFP champion (whether it be the Government, contracting authority or a private entity) is the beneficiary of such funds in the planning phases. At the implementation phase, there is a need for long-term patient capital, required primarily for infrastructure development in the park and the rural transformation centres (RTCs). The financing may come in the form of a long-term loan or equity to the Government, private entity or the public-private partnership entity. Lastly, in the operational phase, tenant firms and occupants (irrespective of size), and operation, maintenance and service companies in the park will normally require funds for capital expenditure and operational costs. These funds can be sourced by tenant firms from local banks such as country-specific development banks (for example, the Development Bank of Southern Africa, the Bank of Industry in Nigeria, to name a few), commercial banks and microfinance institutions (especially for micro and small-sized enterprises).

IAFPs are capital-intensive projects and typically take at least ten years to be fully established, requiring long-term capital which is often not easily available (Walter, McCartan-Demie and Kebede, 2021). The IAFP model offers the opportunity to concentrate scarce resources to provide priority firms and sectors with high-quality public infrastructure and services. The public nature of

the various components of hard and soft infrastructure required to develop and sustain IAFP calls for strong collaboration and financial commitment from public entities. Sufficient financing of these components is a prerequisite to attracting private investment for long-term business operations in and around IAFP zones. This chapter disaggregates the public and private nature of each of these components and suggests different funding sources and financial structuring to achieve development objectives.

In the early stages of IAFP development and planning, large-scale public funds typically need to be mobilized to either finance the entire project cycle; co-finance the project via a public-private partnership; or de-risk or guarantee private financing arrangements. Project preparatory funds or grants required at the planning phase can be sourced from multilateral development banks (MDBs), trust funds or funding from bilateral institutions. These funds are to be directed to the park’s processing facilities, (RTCs) and consolidation or collection centres (CCs).

This chapter provides a taxonomy of financing sources to fund the project preparatory, implementation and operational phases of IAFP. It also offers stakeholder strategies and best practices for IAFP financing and specifically considers the following:

- The long-term financial outlook of IAFP and the need for patient capital
- The financing modalities of off-site and on-site hard and soft infrastructure for IAFP, RTCs and CCs)
- How IAFP can access finance through a range of public, private and mixed models, drawing on the experiences of industrial parks
- The practical experiences of development finance institutions and multilateral development banks financing agro-industrial park and zone projects
- How IAFP can offer financial solutions catered to agro-allied companies and SMEs by facilitating greater access to financial institutions.

FIGURE 28 - IAFP development, Phase 3

### PHASE 3

#### RESOURCE MOBILIZATION AND FINANCE

##### Funding needs:

- Policy design
- Pre-feasibility studies, demand assessment and business case development
- Feasibility studies, ESIA and detailed engineering plans
- Continued multi-stakeholder coordination
- Off-site and on-site basic and connective infrastructure
- Phased construction of on-site infrastructure
- Environmental mitigation plan
- Supply chain linkages and farmer support
- Operations and maintenance
- Investment promotion and aftercare services
- Regulatory functions
- Monitoring and performance evaluation.

##### Key decisions:

- Investment model (private, public, public-private partnership)
- Roles and responsibilities of key entities
- Risk exposure among parties
- Financial modelling of cost and revenue streams; financial sustainability
- Alignment of funding sources with funding needs.

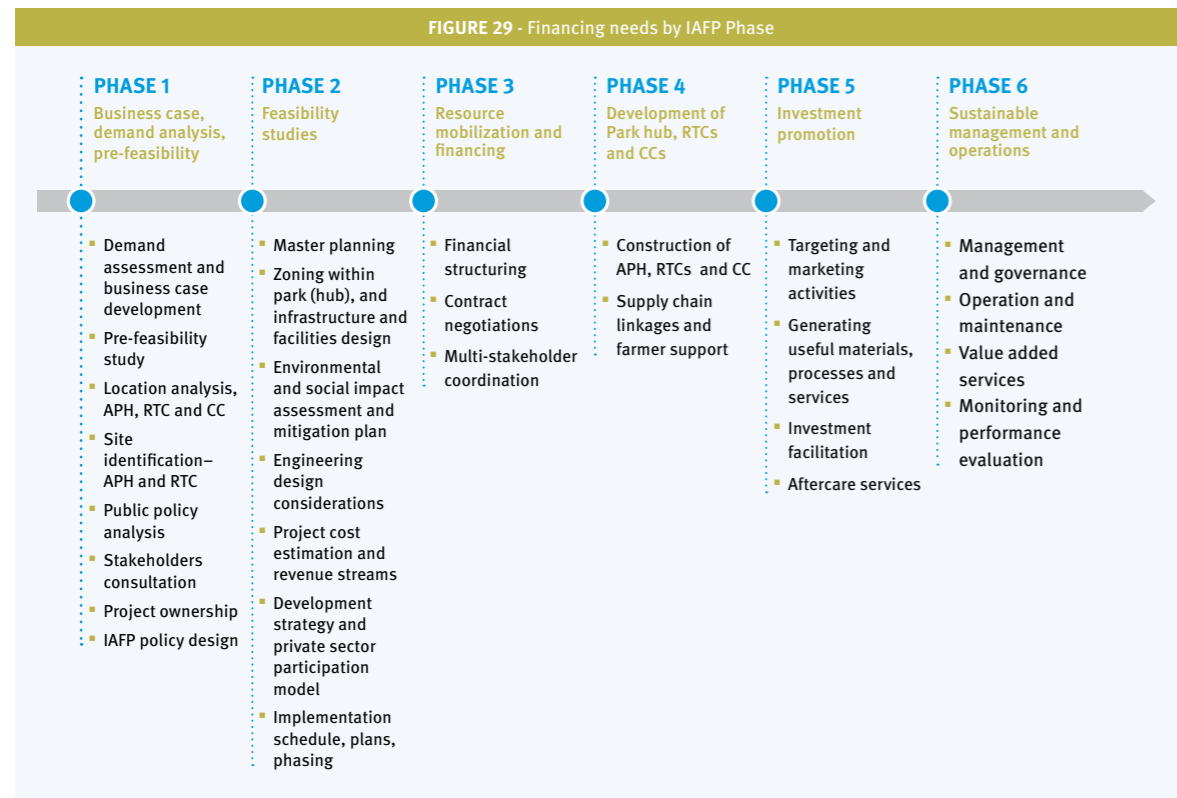
## 4.2 MOBILIZING LONG-TERM FINANCE AND INVESTMENT SOURCES

Across the extensive stages of IAFP development and operations, a steady inflow of capital is required to fund scoping and positioning studies, feasibility studies including master planning and environmental

Funding is required to sustain an integrated multi-stakeholder model existing on national, subnational and local levels across 10-20 years (on average). The long-term development strategy of industrial parks and IAFP is typically divided into three or four phases.

and social impact assessments and their subsequent mitigation plans, construction of horizontal and vertical infrastructure, and operational working capital (see Figure 29). Funding is required to sustain an integrated multi-stakeholder model existing on national, subnational and local levels across 10-20

years (on average) (Nogales and Isahakyan, 2017). The long-term development strategy of industrial parks and IAFP is typically divided into three or four – sometimes up to seven – phases, over a 30–40-year overall project development timeline (PWC, 2018: 21). On average, there are 5–10-year intervals between the developments of each successive phase of site occupancy, and each phase of build typically takes between 12 and 30 months (PWC, 2018: 21). Phasing can be used as a means to reduce cash flow challenges as an IAFP developer needs to balance the upfront cash for capital expenditure with cash in through sales and revenues, especially if the park employs a private or PPP development model.



**BOX 15 - Importance of securing patient capital and investment for IAFP**

**The importance of securing patient capital and investment for IAFPs**

International experience shows that it can take over 10 years to design, develop and occupy an IAFP. In the first phase of development, State and financing through development finance institutions is typically needed to set up common infrastructure and to offer an attractive package to pioneer investors, and once an AIP starts to become a profitable venture (typically after five years) and has a functioning integrated system, a new wave of investors tends to trickle in. There is an investment domino effect whereby an anchor firm’s investment can help to pull in other tenants and MSMEs. Many projects, however, can be delayed or derailed due to financing constraints.



Source: Walter, McCartan-Demie and Kebede (2021)

A major priority of host Governments and supporting co-financiers throughout this timeline should be to attract a diverse portfolio of funding resources, because when IAFPs and their tenants become dependent on a single source of finance, that source can dry up and undermine the sustainability of the entire project cycle (Walter, McCartan-Demie and Kebede, 2021). Another top priority is to channel this diverse portfolio of funds to financially and technically support IAFP operators

and project implementation units to deliver high-quality infrastructure and services connecting IAFPs to RTCs and CCs that are embedded within the wider economy (see Table 7). This signals a move away from the overreliance on fiscal incentives as the primary means to attract investments and tenant firms, toward the delivery of key services and infrastructure (Walter, McCartan-Demie and Kebede, 2021).

**TABLE 7 - Examples of IAFP cost and funding sources**

AGRO FOOD PARK	COST	FUNDING SOURCE	TIMELINE
<b>GSEZ Nkok, Gabon (1162 ha)</b>	EURO 103 million (\$112 million)	<ul style="list-style-type: none"> <li>Joint venture between Olam International, the Government of Gabon and Africa Finance Corporation.</li> <li>Afreximbank and BGFI Bank Gabon are co-mandated lead arrangers financing a €72 million syndicated term loan facility.</li> <li>Funded through a debt to equity of 70:30.</li> </ul>	<ul style="list-style-type: none"> <li>Phase I commenced 2010.</li> <li>Phase II funded from the proceeds of land sales; rental income from land leases; revenues from the provision of estate management and support services such as, water, power, sewerage, ICT and associated services; and revenue from logs supplied to the tenants of GSEZ.</li> </ul>
<b>Integrated agro-industrial parks (IAIPs), Ethiopia (Site size ranges 210 – 260 ha)</b>	\$1.2 billion	<ul style="list-style-type: none"> <li>Portfolio is made up of co-financing and parallel co-financing arrangements from the following stakeholders: Government of Ethiopia, AfDB, Korean Exim Bank, Big Win Philanthropy, UNIDO, European Union, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and multiple bilateral donors (Denmark, Italy and Norway).</li> </ul>	<ul style="list-style-type: none"> <li>Commenced 2009.</li> <li>Four pilot parks developed (Bure, Yirgalem, Bulbula and Baeker).</li> <li>Three parks are operational 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).</li> </ul>
<b>Mega food parks (MFP), India (Average size: 20 ha)</b>	\$10 million to \$20 million (on average \$15.7 million for initial costs)	<ul style="list-style-type: none"> <li>Scheme works on a 50–50–50 model. The Ministry of Food Processing Industries gives a grant of up to Rs. 500 million (approximately \$6 million) to build an MFP with a minimum land area of 50 acres and a 50 per cent contribution to the project cost from the MFP developer.</li> </ul>	<ul style="list-style-type: none"> <li>Launched in 2008 under the Ministry of Food Processing Industries.</li> <li>Fifty-four MFPs have been approved by the ministry, with 22 MFPs currently in operation.</li> </ul>

Source: Authors’ compilation based on UNIDO (2016), Ministry of Food Processing Industries, India (2021), Afreximbank (2020), and AfDB (2021a)



### 4.2.1 Finance for on-site and off-site infrastructure prerequisites

Infrastructure requirements for an APH, RTCs and CCs can be grouped into three main parts. These include off-site, external or connectivity infrastructure; on-site, common infrastructure; and specialized infrastructure. These may form the basis for attracting different types of investment and finance. Off-site, external and connectivity infrastructure broadly covers roads, rail, airports, seaports, power, and telecommunications. This logistics infrastructure usually forms the basic criteria for assessing the strategic locational advantages of IAFP sites. Off-site infrastructure, however, such as railways and roads, tends to not be covered by IAFP initial financing; rather, this is something considered during location and site selection to avoid high costs being taken up by park developers and investors. Cost estimations of IAFPs therefore do not cover this type of infrastructure. The host Government is expected to provide transport networks and access to production basins and markets as part of the overall business enabling environment to attract investors. There is an expectation that the park has locational advantages since the international competitiveness of the park will depend on the guarantee of reliable access to inputs (imported and local or regional raw materials), and outputs can be transported from IAFPs to domestic and global markets via reliable road, rail, water and air freight connectivity. The most cost-effective way of integrating parks and zones is to make funds available to sufficiently co-locate within pre-existing (or planned) accessible transport gateways, to be explored during the pre-feasibility and feasibility stages (Farole, 2011).

On-site, common infrastructure includes roads, energy, ICT infrastructure, water, waste management infrastructure, sewage infrastructure and common buildings provided within the physical IAFP sites. Specialized infrastructure is a subset of on-site, common infrastructure, and may include a wide range of vertical infrastructure, depending on the scope of the IAFP. These include a research and development hub, innovation centre, training centre and knowledge hub. Also included would be warehouses, packing and labelling, grading and sorting, and quality assurance and quality control laboratory facilities. Ideally, it is also beneficial to have other social infrastructure located within and around the IAFP such as residential buildings, sports facilities, schools, clinics and

hospitals and other lifestyle-enhancing facilities, depending on the nature, size and location of the park. These also provide added advantages in attracting private sector investments and tenants to the IAFP by reducing initial costs taken up by the park operator and tenants in order to attract workers.

Financing of external infrastructure usually falls within the purview of the Government (public financing). There is also room for a PPP arrangement, however, for external infrastructure. It is usually expected that the Government should also finance the on-site, common infrastructure to facilitate private sector investments, particularly in host countries that lack such infrastructure or have other weaknesses in the enabling environment that pose binding constraints to firms who want to operate in the private sector.

IAFPs require financing for the construction and extension of on-site and off-site infrastructure, including power and other utilities, internal roads, access roads, common facilities, and utility connections.

In countries with a strong private sector and business enabling environment, it is possible to engage a private sector entity to develop and market the IAFP internal infrastructure through a purely private or PPP arrangement. This is also closely regulated by a competent government regulatory body, such as an industrial parks agency or economic zone authority. In this case, the regulatory body is expected to be autonomous and independent.

IAFPs require financing for the construction and extension of on-site and off-site infrastructure, including power and other utilities, internal roads, access roads, common facilities, and utility connections. They also require financing for private firms investing in the IAFP and for management and operations. There are several sources of financing for IAFPs, and infrastructure, management and operations are typically financed through a range of public, public-private partnerships and private participants as shown in Table 8.

External and off-site infrastructure is usually financed either entirely from public sources or through public-private partnerships, owing to the need for long-term,

TABLE 8 - IAFP financing options

REQUIREMENT	PUBLIC OR PRIVATE	COMMON STRUCTURES	EXAMPLES
External off-site infrastructure	Public or public-private	Outright public ownership; PPPs	AfDB; Afreximbank; China Exim bank; Government or regional government entities; commercial banks.
IAFP on-site infrastructure	Public, public-private, or private	Outright public ownership; PPPs; private companies with public and private shareholders	Private capital; commercial lending; development finance institutions; government led through a special purpose vehicle.
IAFP operations and management	Public, public-private, or private	Private companies with public and private shareholders	Private capital; government (regional); revenue generation from leases and sales and service provision (through an SPV).
Firms operating in IAFPs	Private	Private corporations	Self-financing including foreign direct investment, debt financing and private capital.

Source: UNIDO (2016)

substantial and concessional financing (Tyson, 2018). The financing of IAFP infrastructure can, however, also increase the public debt burden and requires public sector competency in constructing and managing infrastructure. This is especially true of external off-site infrastructure which is usually a major investment that requires coordination with public policy and broad national infrastructure planning and is typically financed either entirely by public sources through the Government or through PPPs. In contrast, financing of on-site infrastructure, management and operations within the IAFP tends to have more mixed financing options, especially private financing or through PPP arrangements.

Public financing for the construction and operations of on-site and off-site infrastructure can have significant

advantages, namely, the ability of the public sector to raise substantial and concessional financing and to provide patient capital which can sustain the long periods required to bring infrastructure to an operational phase (Tyson, 2018). Lessons learned from experience of agricultural growth poles, in Africa, for example, suggest that a basic level of on-site infrastructure and external connectivity to catchment areas and markets are necessary prerequisites for on-site private capital mobilization (Haile, forthcoming). This can, however, also increase the debt burden in the public sector and can require competency in constructing and managing infrastructure that may be difficult to establish within public institutions.

### 4.2.2 Financing soft infrastructure in IAFPs

Social infrastructure and amenities located within and around the IAFP, such as residential buildings, sports facilities, schools, clinics and hospitals and other lifestyle enhancing facilities, can provide a relatively good quality of life for IAFP workers and help to attract investors and tenant firms in the long term by reducing binding constraints faced by both firms (high capital output on maintenance of the workforce) and workers (access to wage goods: food, housing and utilities)

(Walter, McCartan-Demie and Kebede, 2021). Financing social infrastructure forms a key part of the IAFP labour strategy to secure domestic labour supply and to attract skilled and unskilled labour from other parts of the country, by reducing the proportion of wages that workers need to spend on housing and social services while also improving gender labour relations within the parks by offering childcare facilities to what is often a disproportionately female workforce (AfDB, 2018).

In the integrated agro-industrial parks of Ethiopia and the agropoles of Morocco, residential complexes, hospitals and recreational facilities surrounding the parks are helping to shape secondary cities as attractive hotspots and generating new demands for allied-agro services and social services, particularly among seasonal economic migrants who otherwise might have been drawn to overcrowded cities where job scarcity is already high (Walter, McCartan-Demie and Kebede, 2021; OECD, 2020; AfDB, 2021a). Lack of worker accommodation can undermine recruitment and retention of the workforce and create impede the introduction of a conducive investment climate. Financing social amenities needs to be both integrative and sensitive to the needs of the community in question as social infrastructure only adds value when it takes into account the particular context and culture of local communities.

Funding allocated for on-farm, agro-industrial and vocational skills development is another key component during the operational phases of IAFPs. Technical training centres are often directly integrated into the integrated system of the park or the rural catchment zone.

This tends to be a feature of agro-food parks in advanced economic contexts: for example, the Netherlands and Denmark have built an industry-specific ecosystem model for agricultural and food businesses which includes research and development and educational facilities on site and industry-university linkages with specialized research institutions at the forefront of food production and technology. In emerging economies, IAFP financing also includes subcomponents for skills, training and

education systems. Ethiopian IAFPs are supported by the Promotion of Sustainable Ethiopian Agro-industrial Development (PROSEAD) multi-donor initiative, which invests in: appropriate on-farm and off-farm skills training for youth; labour-intensive agroprocessing industries and value chain service providers that generate employment; and credit and technical support for small and medium-sized enterprise development and start-ups, by youth, particularly in the allied agricultural and non-farm rural sectors (European Union, 2018).

One of the advantages of donor funding is that it can be targeted towards soft infrastructure in particular. For example, the GIZ Ethio-German Sustainable Training and Education Programme finances the coordination of technical and vocational education and training and labour market-based curriculum in agro-processing and promoting decent jobs in IAIP catchment zones (GIZ, 2019). The Morocco agropole model also integrates resources to fund the Qualipolis – research and development facilities at Mrknès, ensuring quality and food standards – and the Zoopolis – dedicated spaces at Casablanca, for skills promotion and certified professional agro-industrial training. Cluster associations are another example of soft infrastructure located within the IAFP. For example, the Meknès agropole facilitates inter-firm cooperation and knowledge transfer coordinated through the ‘Agrinova’ cluster association comprised of paying members. Business to business meetings are held for the tenants located in the agropole and partnerships are established between agro-industrial companies, professional associations, research training institutions and public authorities (AfDB, 2015; AfDB, 2021a).

### 4.3 TAXONOMY OF INSTRUMENTS TO FINANCE IAFP PROJECTS

Once a project has been adequately structured, it moves to what is called the “project transacting” stage, which entails procurement and financial close. This section examines some major financing modalities for IAFPs and covers a range of different sources of capital and revenue (public, private and mixed financing such

as PPP, co-financing and parallel financing) that may be used to support the development and maintenance of the parks. While other financial sources exist, in particular in relation to broader infrastructure projects and industrial parks, this section covers the main sources typically deployed for agro-food park initiatives.

TABLE 9 - Advantages and disadvantages of IAFP financing instruments		
FINANCING INSTRUMENT	ADVANTAGES	DISADVANTAGES
<b>Public sector financing</b>	<ul style="list-style-type: none"> <li>Sovereign debt is highly competitive in terms of the headline interest rates and terms on offer to Governments.</li> <li>The public sector can access sources to service public sector debt financing very cheaply. Governments can turn to capital markets (though more expensive) at lower rates than its private sector counterparts.</li> <li>Sovereign bonds are a useful instrument for signaling a demonstration effect for international investors.</li> </ul>	<ul style="list-style-type: none"> <li>Sovereign financing hosts significant sovereign risks related to debt distress and repayment terms, and debt-for-equity swaps in major infrastructure assets.</li> <li>Sovereign bonds can come with significant risk and additional cost for Governments, such as short repayment terms and significantly higher costs compared to multilateral concessional lending.</li> </ul>
<b>Private sector financing</b>	<ul style="list-style-type: none"> <li>Relative distance from political factors, for example in park location choice.</li> <li>Stronger commercial incentives to deliver genuinely valuable services to tenant firms.</li> <li>A general preference for smaller, more manageable parks or zones, flexibility and gradual growth approaches.</li> <li>Stronger capacity in IAFP park management than most low-income country Governments can mobilize internally.</li> </ul>	<ul style="list-style-type: none"> <li>Can face lengthy investment competition processes and bureaucratic obstacles pertaining to the way in which the private investor is able to coordinate administratively with the State.</li> <li>Adverse political conditions, as well as commercial risks may discourage private investors and lead to uncertainty about the business case of the IAFP.</li> </ul>
<b>Mixed financing (PPPs)</b>	<ul style="list-style-type: none"> <li>PPPs help to diversify the risk across the public and private financing arms of the IAFP.</li> <li>Private financing can be leveraged during the preparatory and operational phases to build and manage specialized infrastructure and facilities within the IAFP site whereas public financing can be best deployed for off-site infrastructure such as utilities and transport connections or through government-provided land.</li> <li>PPP financing encompasses a whole-life approach, accounting for whole-life costs and whole-life benefits to maximize the efficiency of service delivery. This is the core rationale for using PPPs for the delivery of public services.</li> <li>The special purpose vehicle is a key feature of PPPs. It legally binds the commingled funds, ownership interests, and clearly outlines the respective roles and responsibilities of public and private partners.</li> </ul>	<ul style="list-style-type: none"> <li>PPP-based projects typically add a further 9–18 months to the timeline for park development when compared to purely public or purely private development models, owing to the need for an intermediary step of structuring the project development vehicle and then procuring the master-developer, with greater emphasis on due diligence and value for money from the private sector.</li> </ul>

Source: PWC (2018)

#### 4.3.1 Public sector financing

Governments and their related agencies are expected to be the drivers of IAFPs and need to provide the enabling environment to secure investments that can sustain the project cycle. Where an IAFP is (very rarely) fully owned by the Government, it may employ its own resources to finance the venture. However, full government ownership of IAFPs is not recommended even in

countries where State-owned enterprises currently exist. Governments should benchmark planned costs for IAFPs against comparable development costs from the region through a cost ladder comparison which accounts for IAFPs with similar scope, complexity and deal structure (PWC, 2018:5).

Sovereign Governments have access to a range of lenders, including multilateral development banks MDBs such as the World Bank and the export-import banks of China, Africa and India, among others, and private capital markets. Sovereign debt is highly competitive in terms of the headline interest rates and terms on offer to Governments, and the public sector can access sources to service public sector debt financing very cheaply (PWC, 2018: 49). There may, however, be policy implications discouraging further sovereign borrowing to finance the development of IAFPs. Despite its low headline interest fees, sovereign financing hosts significant sovereign risks related to debt distress and repayment terms, and debt-for-equity swaps in major infrastructure assets. This has driven growth in PPP demand for IAFPs (and more generally industrial parks) and private sector developers who bring in their own (higher-cost) capital are welcomed because it avoids the need for further sovereign borrowing and limits the Government’s debt exposure (PWC, 2018: 52).

Governments may choose to raise funds for IAFPs through a government bond(also called sovereign bond). A sovereign bond is a debt security issued by a national Government to raise money for financing government programmes, paying down old debt, paying interest on current debt, and any other government spending needs. Sovereign bonds can be denominated in a foreign currency or the Government’s domestic currency. This is an instrument of indebtedness issued by a national Government to support government spending. It generally includes a commitment to pay

**Major challenges: public sector financial management of IAFPs**

Parks purely financed, 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 (Monga, 2011). When solely managed by the Government, IAFP projects can falter as a result of technical and managerial capacity shortages, especially in the realm of public sector financing. The Government is expected to provide some basic on-site and external connectivity infrastructure to facilitate the establishment of the IAFP, and is expected to fund such infrastructure through

periodic interest, called coupon payments, and to repay the face value on the maturity date. Governments can use these loans to fund new initiatives or infrastructure and to secure the required tenor and pricing, while also retaining a certain amount of flexibility on deployment of funds in an IAFP project portfolio (PWC, 2018: 53). Sovereign bonds may be useful in driving better public financial management and signaling a demonstration effect for international investors. They can come with significant risk, however, and additional costs for Governments, such as short repayment terms and significantly higher costs compared to multilateral concessional lending. The main constraint to sovereign borrowing is not the cost of capital, but rather the debt capacity of respective countries (PWC, 2018: 50).

Although more expensive, Governments can turn to capital markets for debt finance, and achieve considerably lower rates than their private sector counterparts. Governments may also choose to fund IAFPs through a sovereign wealth fund. A sovereign wealth fund, sovereign investment fund, or social wealth fund is a State-owned investment fund that invests globally in real and financial assets such as stocks, bonds, real estate, precious metals, or in alternative investments such as private equity funds or hedge funds. For the industrial parks in Ethiopia, the Government raised finance by issuing a sovereign bond on the international capital market, with a total of \$1 billion raised through the sale of Eurobonds in 2014, and 75 per cent of the bond is estimated to have been allocated to industrial zones and parks (PWC, 2018: 53).

public financing from its own earnings, funds, revenue mobilization or through borrowing. The major sources of government earnings come from taxes, rates, licence fees, surplus of public sector units, fines and penalties, gifts and grants and borrowing from multilateral and bilateral organizations. Many projects, however, lack the advanced human resources needed for managing large infrastructure development projects and can under-deliver on the services and infrastructural facilities promised to prospective tenants as part of the investment attraction package (Norman, 2020).

Limited design procurement and project management capabilities in the public sector can delay the completion of infrastructure and services for a park or special economic zone and public project preparation or technical assistance aspects should be implemented prior to financing infrastructure components (World Bank, 2017). A project implementation unit can be a solution to mobilizing the human capital required

to drive the momentum of the project cycle and a special purpose vehicle can help to mobilize financial resources. Dedicated delivery units, however, such as the project implementation unit, need to be sufficiently embedded within the Government’s key ministries that are involved in the IAFP initiative, and closely coordinated with the SPV (if created) to avoid duplication of mandates and division of labour.

**4.3.2 Supranational financial institutions**

Supranational financial institutions comprise multilateral development banks (MDBs) and development finance institutions. Table 10 shows some examples of supranational financial institutions

operating in emerging economies (especially in Africa) and funding agro-industrial parks, industrial zones and other agro-industrial activities.

TABLE 10 - MDBs financing IAFPs			
MDBs AND DEVELOPMENT FINANCE INSTITUTIONS	REGIONAL FOCUS	PROJECTS AND FINANCING STRUCTURE	FINANCING SCOPE AND CONDITIONS
<b>African Development Bank</b>	Africa	Funds the special agro-industrial processing zones (SAPZ) flagship programme covering over 20 countries. Financing structure made up of co-financing with different financing bodies. Total AfDB funding to SAPZ (as at the end of 2021) is over \$750 million dollars in 11 countries and spanning 23 agro-industrial sites. Additional co-financing from several partners is more than \$650 million in the same period.	<ul style="list-style-type: none"> <li>AfDB development assistance is channeled through various instruments under AfDB, the African Development Fund and trust fund windows to African national and subnational governments, specialized agencies and the private sector as several sectors as delineated by the AfDB High 5 Agenda. The instruments include loans, grants, equity, guarantees and special funds.</li> </ul>
<b>Africa Export-Import Bank (Afreximbank)</b>	Africa	Funds the development of industrial parks and export processing zones. GSEZ Nkok (ARISE IIP) was a brownfield transaction, based on a financing mix of 30 per cent equity capital and 70 percent debt capital. Phase I showed a clear financial track record across 7 years of operations, delivering consistent profits since 2011. Based on this track record, Afreximbank and BGFI Bank Gabon are co-mandated lead arrangers for a €72 million syndicated term loan facility for Phase II of GSEZ Nkok. This is financing the expansion of the existing integrated timber, processed wood and furniture industrial park located in Nkok, Gabon.	<ul style="list-style-type: none"> <li>African national and subnational governments, certain specialized agencies, financial institutions and large corporations seeking funding for trade-linked development initiatives that fit with the mandate of the bank and meet the lending requirements qualify for Afreximbank funding instruments. These range from short-term facilities or instruments to longer-term type interventions such as project finance or advisory services.</li> <li>The GSEZ Nkok project complied with the Afreximbank mandate of promoting value added exports of processed timber, wood products and furniture as well as facilitating the development of trade-enabling infrastructure, in line with the objectives of its industrial parks and export processing zones, a strategic initiative under the bank’s “IMPACT 2021: Africa transformed” strategic plan.</li> </ul>

<b>Africa Finance Corporation</b>	Africa	Africa Finance Corporation, a pan-African multilateral development finance institution, has increased its shareholding in ARISE Ports and Logistics (GSEZ is a PPP between ARISE IIP and the government of Gabon.) from 21 per cent to 26 per cent (an additional investment of €48 million).	<ul style="list-style-type: none"> <li>Provides finance across the entire capital structure of a company or project.</li> <li>Funds greenfield developments, brownfield expansions, early stage capital, acquisitions, refinancing or working capital.</li> <li>Investments need to align with the mandate of AFC, and cover high-quality infrastructure assets that provide essential services in the core infrastructure sectors of: power, natural resources, heavy industry, transport, and telecommunications.</li> </ul>
<b>Arab Bank for Economic Development in Africa (BADEA)</b>	Africa	BADEA funds the Productivity Enhancement Support for the Integrated Agro-Industrial Parks and Youth Employment project in Ethiopia. This is a public sector stand-alone investment project implemented through parallel co-financing from BADEA and the AfDB African Development Fund and a counterpart contribution from the Government of Ethiopia. The BADEA direct contributions are made up of a \$30 million ordinary loan and \$20 million concessional loan.	<ul style="list-style-type: none"> <li>Borrowers must participate in financing economic development in African countries.</li> <li>Projects must stimulate financing contributions of Arab capital to African development and help to provide technical assistance.</li> <li>Tenders bidding for project finance tend to be limited to Arab, African or Arab-African companies but international specialist companies can be considered.</li> </ul>
<b>Export Import Bank of China (Exim Bank of China)</b>	Worldwide	Financed the China Animal Husbandry Group (CAHG) capital increase in Mataura Valley Milk Limited, New Zealand, and its subsequent investment in plant construction. CAHG invested \$180 million. CAHG applied for a loan from China Eximbank for additional capital and project development, covering 70 per cent of the total investment about \$34.7 million.	<ul style="list-style-type: none"> <li>Loans for overseas investment in fixed assets and equity projects involving overseas enterprises are granted to borrowers through capital increase, merger and acquisition and equity participation.</li> <li>Borrowers are typically Chinese firms and enterprises.</li> <li>Loans need to be tied to improving the competitiveness of Chinese firms in the international market.</li> </ul>
<b>Islamic Development Bank (IsDB)</b>	Funds are not limited to particular regions or religious affiliation	Financed \$150.52 million for IsDB support for Phase I of the special agro-industrial processing zone (SAPZ) in Nigeria (2021–2025). The AfDB, the Africa Growing Together Fund, a \$2 billion facility sponsored by the People’s Bank of China, the Green Climate Fund and the International Fund for Agricultural Development will provide parallel co-financing. The Government of Nigeria is providing domestic co-financing. Funding covers all activities in Federal Capital Territory, Kano and Kwara amounting to \$55.40 million, \$41.90 million and \$53.22 million, respectively.	<ul style="list-style-type: none"> <li>Funding is targeted at social and fiscal infrastructure, with emphasis on regional connectivity.</li> <li>Financing is aligned with social and environmental sustainability and consistent with Islamic principles.</li> </ul>

Source: Afreximbank (2020), AfDB (2021b), China Exim Bank (2022), China Animal Husbandry Group (n.d) and Islamic Development Bank (2021)

A common denominator for most multilateral financial institutions is that they provide financing through debt, equity, and risk mitigation instruments, for both sovereign and non-sovereign stakeholders. When funds are borrowed from multilateral organizations

by a Government for investments in programmes and projects of national government or sovereign interest, it is considered to be through the sovereign window. The private sector would usually borrow from the multilateral organizations through the non-sovereign

window. Multilateral financing institutions can provide funding to both national Governments to undertake infrastructure development for IAFPs and to private sector entities for certain investments that have a developmental benefit such as the construction of specialized infrastructure, logistics, business services, and others in the IAFPs. Sovereign instruments include among others:

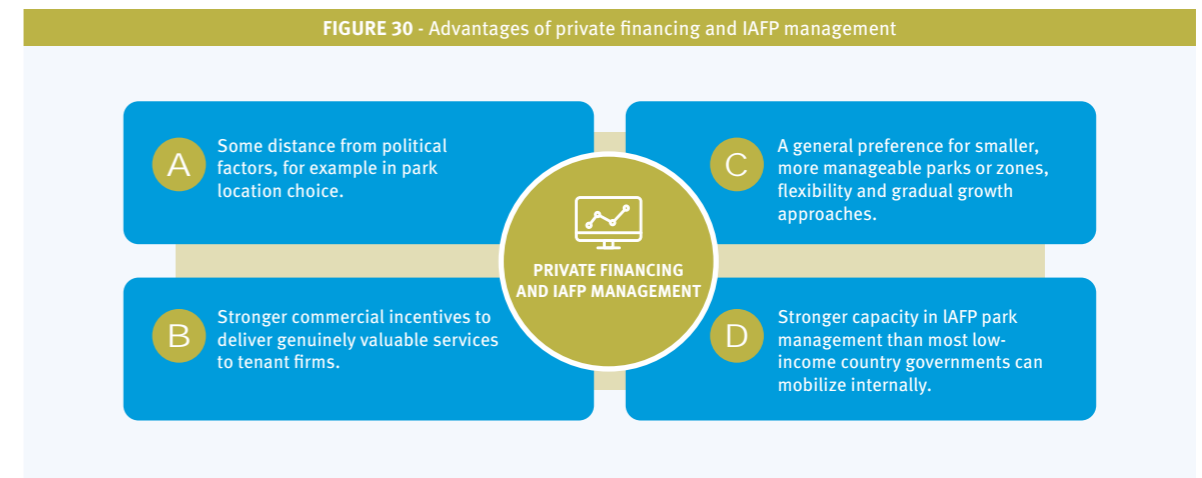
- Grants, subject to eligibility of the regional member country, Member State or shareholder under the credit policy of the bank
- Loans, including on concessional terms or a mix of commercial and concessional terms
- Guarantees from the national government perspective that falls under public financing.

### 4.3.3 Private sector financing

Private sector finance offers some key advantages, namely that the private investor assumes the risk – as well as the return – without any effect on public debt levels (Tyson, 2018). Key sources of private finance include domestic and international commercial banks, capital markets, private equity and venture capital, and include domestic and foreign direct investment. Such sources have the key advantages of combining liquidity and risk appetite as well as significant expertise. Private financing is, however, often relatively high-cost, reflecting potential risks.

The private entity will usually finance additional investments from its equity. Equity is the value attributable to the ownership of a business. The barriers to private sector investment in IAFPs can be high. This is because of the private sector’s comparatively high costs of finance, in developing and emerging markets in particular. Governments may consider use of the following: pre-development of parks, loan guarantees, joint venture arrangements, and flexible zoning rules to support private park developers to create commercially viable IAFPs (PWC, 2018:5).

Financing instruments typically take the form of loans, equity and project financing.



Source: Farole (2011)

Another form of private sector-based financing is that of private-private co-financing, whereby the private IAFP operator and the tenant companies pool their resources once the technical and production infrastructure is in place (Walter, McCartan-Demie and Kebede, 2021: 29;

FAO, 2017). This is distinct from a PPP arrangement, where public (and donor) funds can be used to guarantee or de-risk private investment in IAFP infrastructure and facilities (Ravensbergen and others, 2013). The main

advantages of purely private financing are related to the investors' freedom to make agile business decisions that may be more restricted under a PPP model. The disadvantages, however, include lengthy investment competition processes and bureaucratic obstacles pertaining to the way in which the private investor is able to coordinate administratively with the State, adverse political conditions, as well as commercial risks that may discourage private investors that lead to uncertainty about the solidity of the business case (failure to sell shares of the park) (FAO, 2017: 162).

From the non-sovereign window, the private sector can also source funds for investment in IAFP operations from special facilities of international and regional multilateral financing organizations such as the World Bank and the International Finance Corporation, AfDB, the Africa Export-Import Bank, the Export-Import Bank of China and the Export-Import Bank of Korea. These multilateral financial institutions provide financing to private sector entities through:

- Loans on non-concessional terms and without the requirement of a sovereign guarantee, including parallel and A/B loan syndications<sup>11</sup> and local currency loans
- Lines of credit to private financial institutions for on-lending and refinancing of loans
- Guarantees, including partial risk guarantees and partial credit guarantees
- Combination of commercial and concessional financing, leveraging concessional funds from development partners, Governments, philanthropic organizations, thematic funds and others
- Risk management products, including interest rate swaps, currency swaps, and interest rate caps and collars
- Equity and quasi-equity participation.

#### 4.3.4 Bilateral Financing

Bilateral financing institutions also provide funding for IAFPs. A bilateral development bank is a financial institution set up by one individual country to finance development projects in a developing country and its emerging market. These tend to include national investment banks and development banks such as the Development Bank of Southern Africa, KfW—the German development bank arm of the KfW Group, and export-import banks (of countries such as China, India, Republic of Korea and so forth). Bilateral financing

tends to be used to fund specific components of the IAFP project cycle, and is often used in conjunction with other funding partners through a mixed or co-financing model. For example, the GIZ sustainable training and education programme is part of the multi-donor support package (including funding from KfW) for Ethiopia, to fund vocational agro-industrial colleges in IAIP rural catchment zones to cater to a curriculum covering agro-industrial niche specializations such as dairy and avocado oil processing (GIZ, 2019).

#### 4.3.5 Mixed Financing Models

Financial sources are diverse, mixed in nature and also in terms of co-financing arrangements. IAFP projects may receive a degree of financial assistance from the Government in terms of federal and State government grants and equity funds, as well as through the provision of land and certain infrastructure, such as on-site and connective infrastructure. Operational costs,

for operations and management of the IAFP itself, as well as enterprises located within IAFPs, may be covered by a mix of private sector participation – comprising foreign direct investment (FDI), entirely or in partnership with businesses, domestic investors, and through PPP ownership arrangements involving equity participation by both parties.

#### BOX 16 - Hub-and-spoke model for park financing, constructing and management

Under the hub-and-spoke model, several investment vehicles pool their assets together by contributing to one central investment vehicle, although each remains individually managed. The central investment vehicle (the integrated agro-food park) is the hub, while the smaller investment vehicles (such as the rural transformation centres that feed raw materials and semi-processed products to the park, and the distribution and cold chain network that connects them) are referred to as spokes (Aggarwal, 2014). This model provides integrated infrastructure facilities for agricultural and food processing units along the value chain and helps to leverage public financing incentives for these industries, making it a preferred model by entrepreneurs in agro-allied sectors (FAO, 2017).

IAFP developers, especially when led by the public sector, might secure better value for money by drawing up contracts with so-called “shed options” which set a pre-agreed price for the construction of standardized sheds at the time of the letting of the contract, and enables the Government to draw down the option to have them built only as and when it proves necessary (PWC, 2018: 34). This helps to limit the risks associated with pre-building sheds which are not adapted to the needs of all prospective tenants. Shed options allow the developer to avoid committing to unnecessary costs in advance and safeguards tenants against the construction firm from charging high prices through contract variations that were not made transparent from the outset (PWC, 2018:34).

For example, in the Ethiopian IAIPs, while there is an emphasis on a “plug and play” financing and infrastructure model combining low-cost land provision, dedicated utilities, and a streamlined regulatory environment, this has taken shape in flexible financing and construction arrangements across the four pilot IAIPs based on the amount of funding allocated to regions. The Yirgalem IAIP undertook a site and service model –providing only internal infrastructure, administration and training buildings. Plots were then demarcated for companies on which to build their factories with their own funding. In Bulbula IAIP, the entire park was built with public money and tenants are able to rent pre-built factory sheds and start processing with their own machinery.

Source: Walter, McCartan-Demie and Kebede (2021)

The most popular option for overcoming IAFP financing constraints is to combine public and private capital through a PPP model (Walter, McCartan-Demie and Kebede, 2021; Monga, 2011; FAO, 2017; Tyson, 2018). PPPs can take the form of build, operate, transfer models; performance-based management contracts; turnkey (modified design–build) contracts; and hub-and-spoke models (Datamation, 2018; Tyson, 2018). For example, the India MFP scheme moved away from a publicly owned model to a PPP that focused on private investment attraction and foreign knowledge sharing, with the Government retaining only a 26 per cent stake (FAO, 2017).

Co-financing occurs when two or more financing institutions agree to fund different activities within a project.

Co-financing can be done in parallel or in joint financing. Parallel financing is where each financing institution agrees to fund certain activities of one project (such as the IAFP), using their resources independently and under their respective institutional processes and procedures. Joint co-financing is where the funding institutions agree to fund certain activities of the project using the procedures and processes of one of the financing institutions.

There are examples of co-financing arrangements for IAFPs such as the technical cooperation and co-financing package worth approximately \$1.2 billion for the integrated agro-industrial parks in Ethiopia, coordinated by the Government of Ethiopia, AfDB, European Union, United Nations Industrial Development Organization (UNIDO),

11) The A/B Loan product allows commercial lenders to partner with MDB in lending operations and broader development mission.

the Export-Import Bank of Korea, Government of Germany and the Italian Agency for Development Cooperation.<sup>12</sup> In this context, it is important to identify an anchor investor to mobilize the funds necessary for the establishment of the park. In some cases, the anchor investors would establish their own operations within the park, prepare the plots and assume the role of promoter. A professional developer or operator can also be recruited to develop and potentially operate the park in a professional manner and will be responsible for identifying and securing anchor firms and complementary firms to establish operations within the IAFP.

At times, an anchor donor can also help to mobilize limited financial resources through a co-financing arrangement. For example, in the early stages of the IAIP initiative in Ethiopia, the Italian Agency for Development Cooperation catalysed a multi-donor buy-in, leveraging support from the Italian Embassy and the Italian Trade Institute, and working through UNIDO as so-called “discovery donors” to promote the IAIPs among other development finance institutions

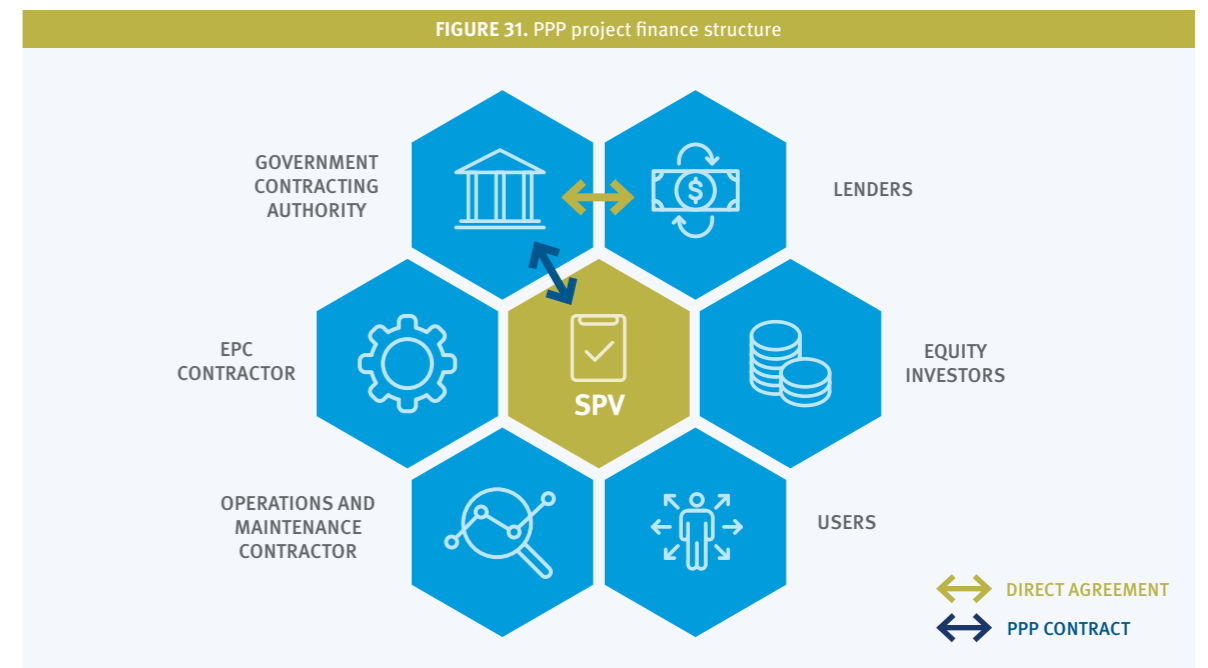
### Public-private partnerships and IAFPs

An emerging area in the development and financing of IAFPs is the public-private partnership (PPP) approach. It is “emerging” in the sense that, while various developed economies have successfully used this model, many developing countries, in particular in sub-Saharan Africa, have yet to adopt policies towards the use of PPPs for project development. A PPP is: “a long-term contract between a government entity and a private enterprise for the delivery of public infrastructure and services, with risks allocated between the two parties based on their respective capacities to manage each risk, and with the private party's investment at risk to its performance” (UNCTAD, n.d.). PPPs tend to be the most common form of private financing of infrastructure for agro-industrial zones and parks (Tyson, 2018).

A PPP in the IAFP development context denotes a contractual arrangement between the Government or regional government-owned entity on one side and a private sector entity on the other, for the

such as the European Investment Bank (EIB) and the European Union (Walter, McCartan-Demie and Kebede, 2021: 57). Co-financing arrangements of the Ethiopian IAIPs also benefited from the Development Assistance Group, which is the highest-level forum for partners’ coordination in Ethiopia and the framework upon which policy dialogue with the Government of Ethiopia surrounding financing of IAIPs is undertaken. It consists of over 30 multinational and bilateral development partners and seeks to enhance the delivery and effectiveness of development assistance. An example of parallel co-financing can be seen in the recent policy adoption by Nigeria of special agro-industrial processing zones (SAPZ), which will target value chains covering cocoa, rice, cassava, beef and dairy livestock, fisheries, tomato, maize, sesame, soybean and ginger. Financing for phase one is made up of parallel co-financing from AfDB, the Islamic Development Bank and the International Fund for Agricultural Development, together with contributions from Nigerian federal and State governments, both in cash and in kind.

provision of developed industrial plots, ready-built facilities, general infrastructure and specialized agro-infrastructure (see Figure 31). The PPP agreement defines and grants specific rights to the private sector to build and operate the IAFP for a fixed period of time, an allocating risk between the private sector and government or regional government (UNIDO, 2016). Transferring responsibility to the private sector to mobilize finance for IAFP infrastructure is one of the major differences between PPPs and traditional procurement.<sup>13</sup> Where this is the case, the private party to the PPP is responsible for identifying investors and developing the finance structure for the project (PPP Knowledge Lab, n.d.). During this phase, it is important to specify in advance, during procurement and contract negotiations, the international and national standards which will be used, including for site preparation, factory shell construction, wastewater management and other utility facilities, and the mechanisms – contractual, financial and governance – to handle inevitable contract variations



Source: Authors' own compilation

Key: PPP – Public-private partnership; EPC – Engineering, procurement and construction; SPV – Special purpose vehicle

subsequent to the initial agreement with private contractors (PWC, 2018: 21).

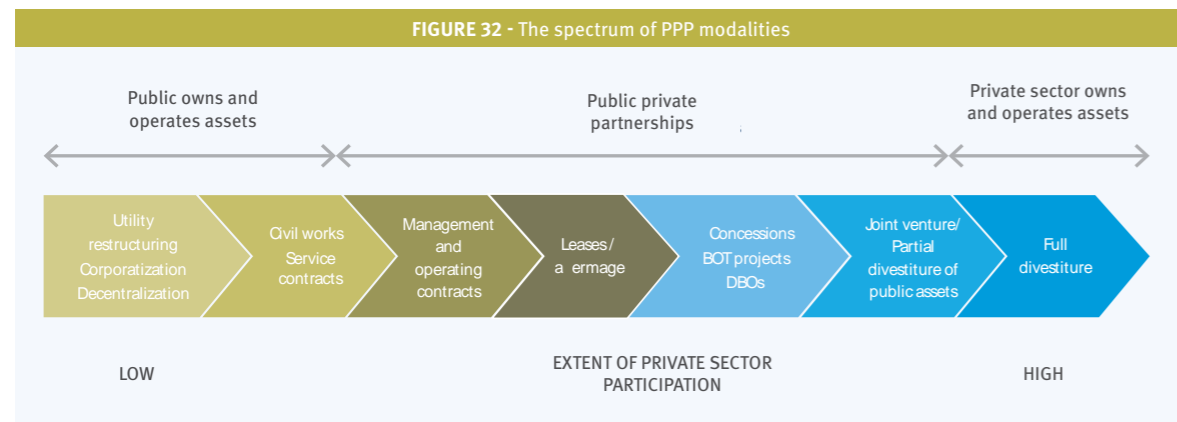
In the PPP option (or the option of a fully private IAFP), a special purpose vehicle (SPV) is created by the private party or specific project company to legally bind the commingled funds, ownership interests, and the respective roles and responsibilities of public and private partners. The SPV raises finance through a combination of equity – provided by the project company's shareholders – and debt provided by banks, or through bonds or other financial instruments (PPP Knowledge Lab, n.d.). The finance structure of the PPP is therefore a combination of equity and debt, and contractual relationships between the equity holders and lenders (see Figure 31). Clear roles and responsibilities are outlined in an SPV that typically allocates IAFP development, promotion and day-to-day operations and maintenance responsibilities to a competitively selected private entity that would, in turn, receive performance-linked payments that conform (or are benchmarked) to specified and pre-determined performance standards. The private party can be paid by collecting fees from service users, by the Government, or by a combination of the two, with payment typically

contingent upon performance. For a PPP, the Government (or its designated representatives), would invite and select, through a bidding process, the strategic partners – a developer or consortium of developers – with adequate financial and managerial capability to invest, develop, market and operate the IAIP to international standards. (Further details may also be found in chapter 9 – Policy, legal and institutional framework for IAFPs).

The selection of the strategic private partner is critical to the success of the IAFP, as the cost and quality of service to occupant units over a long period depend on the performance of the private partner. For example, the SPV formed to operate the Ethiopia-Hunan Adama Industrial Park is composed of 40 per cent Ethiopian Industrial Park Development Corporation (IPDC), 51 per cent Hunan Province, and 9 per cent CGCOC Group (a Chinese construction company) equity participation (PWC, 2018: 54). Through the use of public-led SPVs, Governments may both access and supply equity investment. Public sector equity stakes effectively de-risk debt finance for private sector lenders in the capital structure and Governments usually use sovereign guarantee instruments to enhance its creditworthiness, and to spur investment attraction (even

12) An alternative source of financing for the Ethiopia industrial parks has been provided by its development partners under the Ethiopia Jobs Compact to support the creation of jobs for refugees in Ethiopia. A co-financing package totalling \$500 million from the European Investment Bank, the World Bank, the Department for International Development of the United Kingdom of Great Britain and Northern Ireland and other European Union member States, contributed to the construction of three industrial parks and associated infrastructure as well as training, housing and support to help refugees settle into new communities (EIB, 2016).

13) See Farquharson and others (2011), chapter 5, on PPP financing in emerging markets and for detailed guidelines on attracting private sector finance in PPPs.



Source: World Bank PPP Legal Resource Centre (n.d.)  
Key: BOT – build, operate, transfer; DBO – design, build, operate

if with relatively small equity stakes) (PWC, 2018: 52–53). Debt is supplied to a project finance vehicle but in the event of default, the vehicle’s lenders have recourse to the sovereign treasury. The relevant factor here is not who is the legal owner of the asset, but who holds the economic rights to exploit that asset, and the SPV may therefore use an asset as collateral or use the flow of funds generated by the operation of the asset (PPP Knowledge Lab, n.d.).

There are different financing modalities that fall under the PPP model (see Figure 32).<sup>14</sup> These tend to be categorized in terms of the functions transferred to the private party. Concessions, “build, operate and transfer” (BOT) projects, and “design, build and operate” (DBO) projects are all PPP models that are output focused. BOT and DBO projects

encompass significant design and construction, and also long-term operations, for both greenfield and brownfield projects — involving refurbishment and extension (World Bank, n.d.). A “design, build, finance, operate and maintain” contract allocates all those functions to the private party. By contrast, a BOT contract focuses on the legal ownership and control of the assets. The BOT contract typically involves private financing of the infrastructure and facilities within the site combined with public financing of off-site infrastructure such as utilities and transport connections. This is sometimes accompanied by government-provided land ownership or concessions to secure development rights, or by either BOT or other management agreements (Tyson, 2018). Under this model, the Government can retain a substantive stake

**BOX 17 - India mega food parks scheme**

**INDIA MEGA FOOD PARKS SCHEME**  
Fifty-four mega food parks (MFPs) have been approved by the Ministry of Food Processing Industries, with 22 such parks currently in operation (Satyasai and Singh, 2021; Priyadarshini and Abhilash, 2021). The MFP scheme moved away from a public-owned model to a PPP one that focused on private investment attraction and foreign knowledge sharing, with the Government retaining only a 26 per cent stake in MFPs (Nogales and Isahakyan, 2017). The Government of India recognizes a range of PPPs: user-free based build, operate, transfer models, performance-based management contracts, and turnkey (modified design-build) contracts (Datamation, 2018). Currently, the scheme works on a 50–50–50 model, where the Ministry gives a grant of up to Rs. 500 million – (approximately \$6 million) to build an MFP with a minimum land area of 50 acres and a 50 per cent contribution to the project cost from the MFP developer (ICRIER, 2015). The initial costs of MFPs range from \$10 million to \$20 million (with an average of \$15.7 million), however, a large funding gap has limited the MFP scheme and this has partly contributed to the weak integration of smaller firms in the overall value chain (Locus Economica, 2020).

14) For an in-depth overview of the different PPP modalities see World Bank Public-Private Partnership Resource Centre: <https://ppp.worldbank.org/public-private-partnership/agreements/concessions-bots-dbos>.

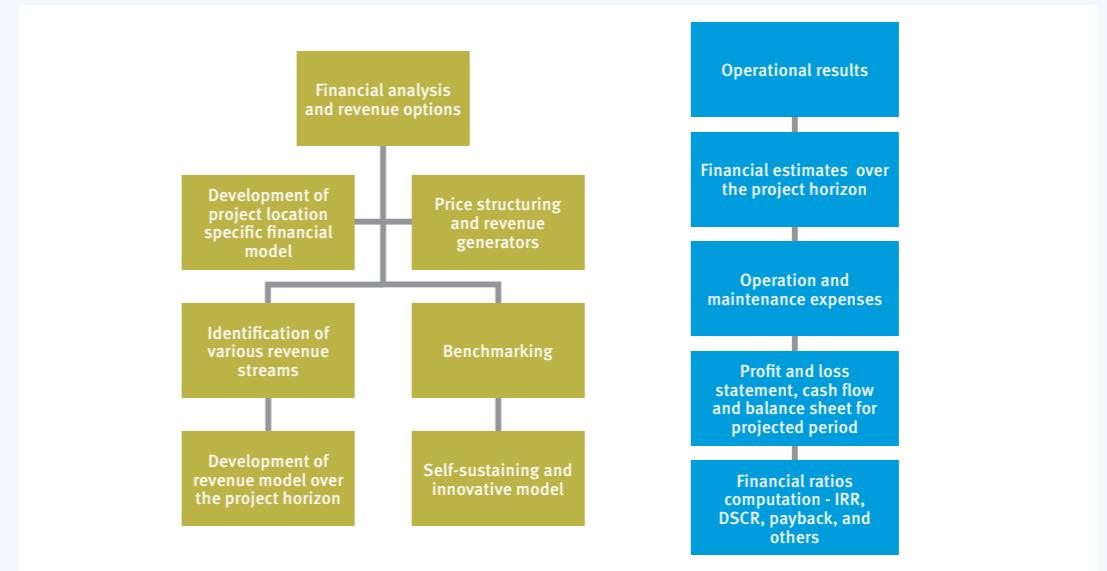
in the capital structure and leverage a long-term title to the underlying land of a park to ensure that the positive financial performance of the park also is enjoyed by the Government. PPP-based projects typically add a further 9–18 months to the timeline for park development when compared to purely public or private development models owing to the need for an intermediary step of structuring

the project development vehicle and then procuring the master-developer, with appropriate emphasis on due diligence and value for money (PWC, 2018: 21). This additional time, however, needed to properly structure a PPP, is less significant when compared to other primary causes of delay associated with the wider inefficiencies in the business-enabling environment.

**BOX 18 - Mixed financing details of the integrated agro-industrial parks of Ethiopia**

**Mixed financing details of the integrated agro-industrial parks of Ethiopia**  
Financial resources constituted one of the key inputs in achieving the goals of establishing the four IAIPs in Ethiopia. A financial model (see the diagram below) for the development and operation of the IAIPs was developed and an overview of means of finance was provided. Financial estimates accounted for revenue projections, operational expenses, sources of funding, financing costs and taxation over the project horizon.

The IAIP programme was initially financed through a grant from the Government of Italy for feasibility studies, engineering design and other technical studies such as value chain analyses. Since then, it has been funded by several components and participants. In the initial preparatory phases, the IAIPs were financed through equity and a term loan, and in the subsequent phases through internal accrual. Equity and a term loan will vary depending on the park and investors’ business plans. The term loan can be raised against the land, infrastructure, buildings and other fixed assets and will be secured as the first charge. For the development in subsequent phases, the capital expenditure is met through internal accrual.



The major components involved in the cost of operation are utility costs, technical and managerial personnel salaries, repairs and maintenance, general operational expenses, other overheads and administrative expenses. The main source of power is through external power supply from the national grid; in addition, standby captive power generation units are also provided. The cost of power, water and fuel is considered in the overall costs of operation.

During the construction period, funds are available as term loans and equity capital. In subsequent years, the cash inflow is from the profits from operation and is utilized for increased working capital requirements, payment of tax and repayment of the long-term loan. The surplus remains as cash bank balance and is deployed for meeting the capital expenditure of subsequent phases.

Source: UNIDO (2016)

## 4.4 PRACTICAL EXPERIENCE OF DEVELOPMENT FINANCE INSTITUTIONS AND MULTILATERAL DEVELOPMENT BANKS

There are a number of financing and technical arrangements in which MDBs and development finance institutions are engaged to help develop and invest in the IAFP model in their respective Member States. These financing regimes may differ in nature and equity arrangements depending on the bank and institution in question, and cover a broad range of needs, including land acquisition and site development, infrastructure, factory shells and technical assistance.

Development finance institution and MDB funding is commonly used for off-site and last-mile infrastructure in and around AIPs (Walter, McCartan-Demie and Kebede, 2021). MDBs and development finance institutions can lend to the private sector for large projects in the range of \$10 million to \$100 million at more affordable rates, and have more risk appetite than commercial banks (PWC, 2018: 54). Development finance institutions, however, tend to require conditionalities and guarantees to indicate reduced market risk. These may include certain benchmarks such as a secured anchor tenant in the park or a percentage of the park committed to by tenants, and therefore this type institution might be more suitable as a refinancing source of capital, or to finance an expansion to an existing park (PWC, 2018:54). The Japan International Cooperation Agency \$132 million policy-based official development assistance loan to the Morocco agropoles, administered through the AfDB Accelerated Co-Financing Facility for Africa, is a good example of this (AfDB, 2015). MDBs, such as AfDB, act as an intermediary arm between African borrowers and non-regional member lenders. For example, the \$2 billion financing agreement between the Government of Ethiopia and China for the electrification of the IAIPs also was delivered through the AfDB financing facility (AfDB, 2018a).

Below are some practical case studies from three major development finance institutions and MDBs, demonstrating the financial support and facilitating role that these institutions play in mobilizing, managing and

dispensing funds for IAFPs. AfDB has special lending facilities such as the concessional financing windows, the Africa Development Fund and the Accelerated Co-financing Facility for Africa’ both supporting IAFPs (special agro-industrial zones) in regional member countries. It engages in co-financing arrangements on a multilateral and bilateral basis and also lends to private sector stakeholders through its non-sovereign operations window. In addition, Afreximbank has played a key financing role in agro-industrial export development, with co-financing arrangements in agro-based SEZs with major agribusiness private sector players in Africa. A wide range of overseas investment projects, including overseas loans in agro-industries

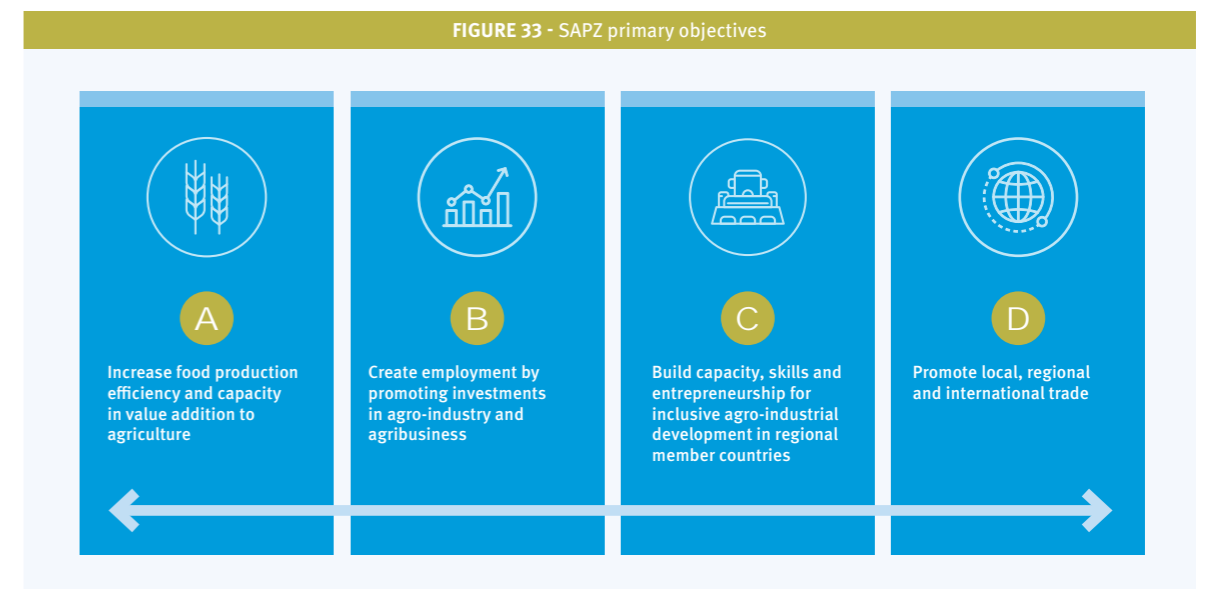
Development finance institution and MDB funding is commonly used for off-site and last-mile infrastructure in and around AIPs. MDBs and development finance institutions can lend to the private sector for large projects.

and industrial parks, have also been administered through the Export-Import Bank of China. Loans for overseas investment in fixed assets are granted to borrowers for the implementation of overseas investment projects in agro-industries. Lastly, there is a range of coordination mechanisms and partnerships among MDBs and development finance institutions that jointly finance initiatives related to industrialization, and industrial parks and agro-industrial parks in particular. For example, the Afreximbank and the Export-Import Bank of China signed a cooperation agreement to create a \$1 billion China-Africa investment and industrialization programme to facilitate the construction and creation of industrial parks and special economic zones on the continent (Afreximbank, 2016). This has financially supported initiatives in light manufacturing and primary processing of raw materials and commodities.

### 4.4.1 Case of the African Development Bank

The African Development Bank Group currently supports the development of special agro-industrial processing zones (SAPZs) in its regional member countries. The SAPZ is a flagship policy instrument of the Feed Africa Strategy of the Bank, focusing on expanding employment in regional member countries by encouraging agro-industrial investments and trade. The primary objectives of the SAPZ as envisaged by the Bank are summarized in Figure 33.

The zones focus on agroprocessing activities in areas with high levels of agricultural potential and enable farmers, agricultural producers, processors, aggregators, and distributors to cluster and coordinate, to lower transaction costs and share business development services to boost productivity and competitiveness.



Source: AfDB (2021a)

The AfDB SAPZ aligns with consensus among leading global and regional multilateral development institutions dealing with agricultural issues in Africa, such as FAO (FAO, 2017; FAO and AfDB, 2019), UNIDO (UNIDO, 2019), the World Institute for Development Economics Research (UNU-WIDER) (Newman and Page, 2017), and the International Food Policy Research Institute (Fukase and Martin, 2017) that agro-industrialization is an appropriate strategy to tackle the lag in agricultural productivity and related challenges in order to develop and strengthen value chain activities in Africa.

From an operational perspective, AfDB encourages a government-enabled, and private sector-led SAPZ model.

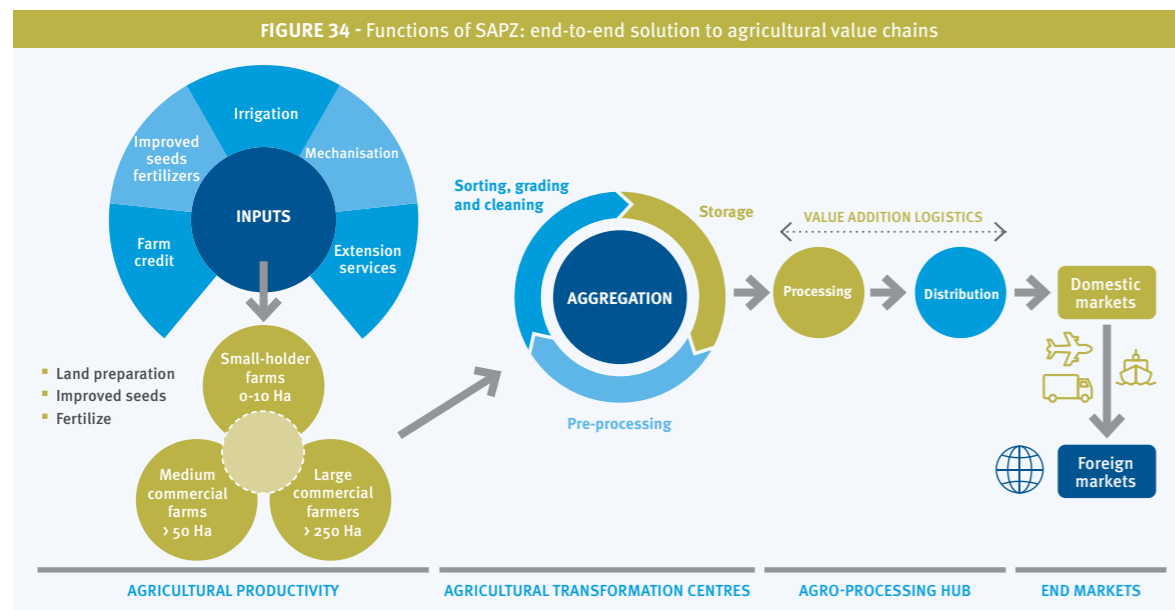
The objective is to support regional member countries in providing economic infrastructure to rural areas of high agricultural potential, to attract investments from private agro-industrialists and entrepreneurs, and contribute to the economic and social development of rural areas. Presently, the Bank is working with 20 African countries on SAPZ development. As at the end of 2021, the Bank had provided over \$750 million to 11 of these countries for the development of 23 agro-industrial zones. These countries include Côte d'Ivoire, Ethiopia, Liberia, Mozambique, Nigeria and Senegal, to mention a few, while business development, design, and preparation of SAPZ initiatives are ongoing in several other countries. The initial



experiences of AfDB development of SAPZs in Africa is documented in a recent (2021) AfDB research study entitled: *Development Perspectives on Special Agro-Industrial Processing Zones (SAPZs) in Africa: Lessons from Experiences*.

Similar to the IAFP model, the SAPZ integrated system consists of an agroprocessing hub (park), several agricultural (or rural) transformation centres and several

aggregation centres located within farming communities around the ATCs. For each agroprocessing hub, several ATCs are strategically located within the catchment area to serve as aggregation points for the accumulation of products (fresh and semi-processed commodities) from the agricultural production zone to supply the agroprocessing hub for further value addition before being transported to the domestic market or foreign markets (as illustrated in Figure 34).



Source: AfDB (2021c)

The SAPZ integrated system also provides an ideal platform for mainstreaming several other initiatives and business models into the agricultural sector especially in sub-Saharan countries. These initiatives include climate-smart agriculture, which is an integrated approach to managing landscapes, covering crops, livestock, forestry and fisheries, and including the introduction of improved agricultural technology and inputs; digital solutions to agriculture and agribusiness; reducing post-harvest losses; improving nutrition; enhancing land use; and building the capacity of youth and women in modern agribusiness enterprises. Some of the main productive challenges to the development of SAPZ in regional member countries in Africa include the difficulties in establishing linkages with producers

to create robust supply chains to generate a sufficient quantity and quality of inputs for agroprocessing. The structural obstacles include: debt sustainability risks, weak business environment, political constraints such as changing political leadership and lack of institutional memory, security challenges and emerging humanitarian crisis in some project areas, along with bureaucratic delays and capacity constraints at the government level (AfDB, 2021b).

In financing and implementing SAPZs with regional member countries in Africa, AfDB collaborates with other international organizations such as UNIDO and FAO; multilateral financing institutions such as the European Investment Bank, European Union, World Bank,

International Fund for Agricultural Development, Islamic Development Bank, Afreximbank, Arab Bank for Economic Development in Africa, West African Development Bank, Africa Finance Corporation; bilateral financing institutions such as the United States Agency for International Development, the Japan International Corporation Agency, the Export-Import Bank of Korea, Belgian Development Cooperation; the environment funds such as the Global Environment Facility and the Global Climate Fund; and international NGOs such as Saemaul Globalization

Foundation, in the respective countries. For example, AfDB supported Ethiopia to strengthen its agro-industrialization agenda by focusing on IAIPs and helped rally large-scale co-financing from other development finance institutions and donors to support the implementation of IAIPs. This includes an amount of \$50 million and €10.1 million, respectively, from the Export-Import Bank of Korea and the European Union for the IAIP-support project (approved in 2018) and \$50 million from the Arab Bank for Economic Development in Africa (AfDB, 2021c).

#### 4.4.2 Case of the Africa Export-Import Bank

The Africa Export-Import Bank (Afreximbank) is a pan-African trade finance institution established to facilitate, promote and expand intra and extra-African trade. As part of this facilitation, the Bank is mandated to provide financing to promote and finance the export of non-traditional African goods and services. Under its fifth Strategic Plan (2017–2021) (Plan V), Afreximbank has identified industrialization and export development

as the key pillars to help deliver on its mandate. It is in this context that the Bank has developed the Industrialization and Export Development Strategy, based on three pillars: “Catalyse”, “Produce” and “Trade” (Figure 35), with the primary objective of stimulating consistent expansion and diversification of African production and trade, to reduce dependence on commodity exports and exposure to volatility.



Source: Afreximbank (2020)

**BOX 19 - "GSEZ NKOK" – ARISE IIP: Government leadership and public-private partnership****The Gabon Special Economic Zone (GSEZ Nkok) – ARISE IIP: Government leadership and public private partnership**

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

Agro-industrial initiatives were prioritized to deal with the country's unsustainable dependence on the oil industry and its associated exogenous risks. The timber sector was identified as a priority and one of the main pillars of the country's development, with the ambition for Gabon to become a world leader for the supply of value-added tropical timber products.

The Gabon Special Economic Zone S.A. (GSEZ Nkok) was established as a PPP, in collaboration with the Government to unlock Gabon's full potential in the timber industry. GSEZ Nkok was legally created through a special purpose vehicle that was established in 2010 to build and operate an integrated SEZ primarily focused on timber processing and furniture-related businesses.

GSEZ Nkok invited Afreximbank and BGF Bank Gabon to act as co-mandated lead arrangers to raise a €72 million syndicated term loan facility to finance the expansion of the existing integrated timber, processed wood and furniture industrial park located in Nkok, Gabon.

Sources: ARISE IIP, 2020; AfDB, 2021a

Afreximbank has made a deliberate choice to promote, facilitate and develop industrial parks and export processing zones in order to increase value addition, broaden market access and promote export development to support the structural transformation of the economies of its member States. In this regard, the Bank is involved in the development and financing of key industrial park projects across the continent, including the Gabon Special Economic Zone described in box 19.

GSEZ Nkok offers 40,000 m<sup>2</sup> of industrial sheds which are sized between 500 and 1,000 m<sup>2</sup> with space to accommodate manufacturers in the timber processing and furniture industry. The rest of the SEZ area consists of shared infrastructure such as: common machine room facility centre, 3,000 m<sup>3</sup> per month kiln dryers, showrooms spread over 9,000 m<sup>2</sup>, 2,000 m<sup>2</sup> packing and 4,000 m<sup>2</sup> logistics facility, international marketing service platform, fire station, ICT, water and effluent treatment plants, roads, and power. The project site is located 30 km from Libreville at Nkok, Gabon, and is well connected by road, river and rail to the Port of Owendo, the primary international export and import gateway of Gabon. The location has logistics capacity in place through railway links to facilitate the transportation of logs from the forests in the hinterland to the project site.

The SEZ has attracted 141 investors, in large part thanks 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 3 million ha of forests allocated to zone-based processors (ARISE, 2019). Access to capital for smaller firms has been facilitated through several micro, small and medium-sized enterprise financing mechanisms, such as the Gabon Sovereign Investment Fund, the Okoumé Capital Fund, COFINA and the National Social Assistance Fund (Walter, McCartan-Demie and Kebede, 2021: 21).

A furniture cluster and partner school are also operating to support development of local artisan skills, supported by the *École Nationale Supérieure des Arts Décoratifs* of France (Olam International, 2016). GSEZ Nkok has had commercial success, with 67 per cent of the industrial zone sold and full commercialization achieved prior to 2020, and has experienced a strong financial performance, with cumulative profits of \$16 million since 2011. Its output now contributes 14 per cent of the annual export earnings of Gabon. The cost of GSEZ Nkok (€103 million), which was funded through a debt to equity of 70:30, to complete phase II and the facility, was repaid from proceeds of land sales; rental income from land leases; revenues from the provision of estate management and support services such as, water, power, sewer, ICT and associated services; and revenues from logs supplied to the tenants of GSEZ (ARISE IIP, 2019).

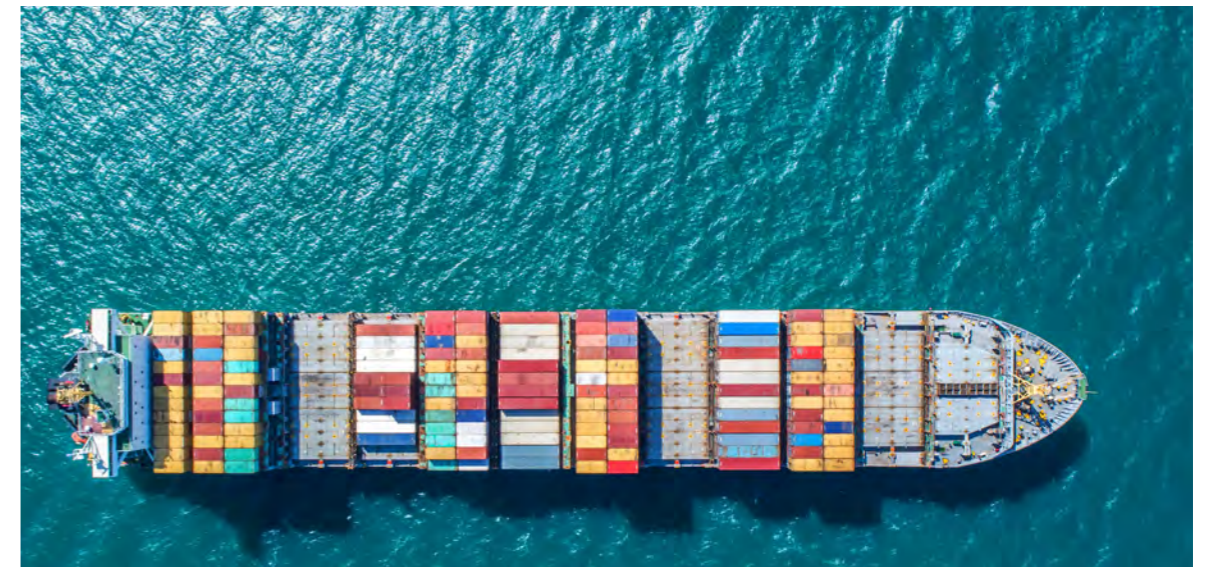
**4.4.3 Case of the Export-Import Bank of China**

The Export-Import Bank of China supports a wide range of overseas investment projects including agro-industrial parks through overseas investment loans. Among them, loans for overseas investment in fixed assets are granted to borrowers for the implementation of overseas investment projects which have been approved by or filed with competent authorities both at home and abroad. The above loans are used for fixed-asset investment, equity investment, payments of interest incurred during construction, or as initial working capital (including working capital required before the project formally operates or achieves its design capacity). The loans for overseas investment in fixed assets support projects of overseas resource development and equity investment projects involving overseas enterprises' capital increase, merger and acquisitions, and equity participation, which helps these enterprises, (typically owned and operated by Chinese entrepreneurs) improve competitiveness in the international market.

Overseas investment loans are the local and foreign-currency loans provided by the Export-Import Bank of China to meet the funding needs of various overseas investment projects of domestic and overseas Chinese enterprises, including advance loans for fees, fixed-asset

loans and working capital loans for overseas investment. Besides overseas investment loans, this bank also provides a variety of financial products, including but not limited to loans for overseas contracted projects, loans for international economic cooperation to support enterprises' cross-border investment and foreign cooperation.

The Export-Import Bank of China has successfully supported a number of overseas agro-industrial investment projects, such as the financing of the capital increase of the China Animal Husbandry Group in Matura Valley Milk Limited of New Zealand and its subsequent investment in plant construction (Box 20). The China Animal Husbandry Group project is a Chinese State-owned enterprise engaged in modern agricultural and animal farming industry with a comprehensive range of business activities, including manufacturing and operations, trading and customer services, research and development, and financing management. The project financing administered by the Export-Import Bank of China for the China Animal Husbandry Group could be applied in the future to other Chinese enterprises seeking to finance different components of overseas integrated agro-industrial food parks including agro-industrial enterprises and tenants located within the parks, and in the surrounding RTCs and CCs.



**BOX 20 - China Animal Husbandry Group (CAHG) capital increase in New Zealand Matura Valley Milk Limited (MVM)****China Animal Husbandry Group (CAHG) capital increase in New Zealand Matura Valley Milk Limited (MVM)**

In order to introduce high-quality milk sources and advanced dairy processing technology from overseas, China Animal Husbandry Group (CAHG) increased its capital in Matura Valley Milk (MVM), and subsequently invested in the construction of milk powder and dairy plants. The objective is to promote the modernization of animal husbandry industry of China and strengthen its core competitiveness.

This greenfield project built a milk powder plant for the production of whole milk powder and skim milk powder in Gore, Southland, New Zealand. The original shareholders have purchased construction sites and have gone through various examination procedures, obtained licences and intellectual property rights within 6 years. The plant covers a construction area of 26.21 ha. After reaching designed capacity, the factory will be able to process 334 million litres of fresh milk and produce 57,000 tons of whole milk powder and skim milk powder each year. The main products of the factory are whole milk powder, skimmed milk powder and high-end infant formula dairy products.

CAHG took the overseas merger and acquisition as an opportunity to make up for the shortcomings in the dairy industry in China, to enhance its comprehensive strength in the field of animal husbandry, help absorb possible production surplus in New Zealand, and inject momentum into the local market.

The total investment of the project is \$180 million, of which \$111 million is a construction loan supported by other commercial banks, and \$NZ100 million is an equity contribution. CAHG will hold 71.8 per cent of MVM's shares while the rest is held by local minority shareholders. CAHG applied for a loan from the Export-Import Bank of China for additional capital and project development, covering 70 per cent of the total investment (about \$34.7 million). The remaining 30 per cent will be raised independently by CAHG.

Source: China Eximbank (2020)

**4.5 FINANCING MECHANISMS FOR IAFP OPERATIONS**

The presence of agro-allied firms or supporting functions are important for IAFP, providing key ancillary inputs and services to agroprocessors. As commercial value chains become more integrated, there are greater benefits from specialization and an increasingly important role for agro-industry-allied companies. Examples of such companies include those specialized in sales, input supply, packaging, and distribution and transport. By offering incentives in the form of financial assistance and training, the IAFPs promote specialization and growth in such businesses, generating important off-farm employment. For many agro-industrial firms and MSMEs, access to affordable and appropriate finance is a major binding constraint, and an IAFP “will not move the needle for these firms” unless it widens access to finance interventions (Walter, McCartan-Demie and Kebede, 2021; (CASA, 2021).

Lack of capital is currently the biggest challenge for many of these agro-allied companies and access to finance is a key constraint for both larger and SME tenants. Financial services for small-scale food processors to innovate or expand are only beginning to emerge and credit from specialized banks remains minimal. Financial institutions offering solutions cater specifically to agro-allied companies through direct soft loans to enterprises whose proposed investment in the IAFP will contribute to agro-industrial upgrading, technology transfer and innovation. These dedicated financial services can offer firms access to indirect soft loans administered through selected commercial banks. Large-scale anchor firms present in the IAFPs may also help advance funds or provide purchase guarantees, offering another opportunity for financial access, and also transfer operational equipment to smaller-scale firms, as they themselves upgrade technological inputs to more so-

phisticated models. The quality of business practices and performance records are often the key constraint to gaining access to sustained finance, rather than the availability of finance itself (Walter, McCartan-Demie and Kebede, 2021). Financing mechanisms also need to tailor support to the needs of domestic agro-allied firms and incentivize their economic competitiveness against foreign firms

based in IAFPs, which often have better access to capital reserves and foreign exchange. Domestic firms 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

**4.6 FINANCIAL SUPPORT TO MSMEs**

In line with its mandate for inclusive development, UNIDO strongly encourages the accommodation of micro, small and medium-sized enterprises in the design and implementation of the IAFP. In developing economies, this category of entrepreneurs has several challenges, one of which is access to finance and includes a lack of financial expertise. For this category of entrepreneurs, the associated difficulties relate to the lack of collateral, proven track records, and proper business plans, and the need to show good sales turnover. On the other hand, financial institutions find it costly to provide loans to micro and small entrepreneurs. As the size of the loan for micro enterprises is small, the administrative cost of the loan increases. Hence, from the perspective of commercial financing institutions, smaller businesses are riskier than larger businesses. These challenges, with several others, are very well discussed in literature (International Finance Corporation, 2017; Yoshino and Taghizadeh-Hesary, 2016).

Several institutions, however, including MDBs, regional and national financial institutions and micro finance institutions, have introduced several solutions to cater for MSMEs. These financial support solutions are also accessible to agro-allied companies and MSMEs in the IAFP. At the MDB level, this may include targeted MSME lines of credit dedicated and ring-fenced for this category of businesses with a longer tenor than is otherwise locally available, to support MSMEs for investment, growth diversification and export. Examples of line of credit models include the World Bank-funded MSME Growth, Innovation and Inclusive Finance Project in India and the Development Finance Project with the Development Bank of Nigeria. Usually, MDBs would combine SME finance for the underserved such as start-

ups with a technical assistance component to build capacity (otherwise known as business development support) through a government entity or through micro finance institutions. Often this is combined with innovation in SME financing such as e-lending platforms, supply chain financing, or a combination of business development support and financing, for example Gapi in Mozambique.

There are also partial credit guarantee schemes where support by MDBs can be provided to design and capitalize such facilities. This may include early-stage innovation financing which provides equity and debt or quasi debt to start-ups or high growth firms which may not be able to access bank financing. The partial credit guarantee supports the provision of credit guarantees by enabling the provider of partial credit guarantees in the local financial system to scale up its existing MSME guarantee products and introduce new guarantee products geared towards the very small enterprises.

Another mechanism that is gaining increasing uptake as a tool for financing MSMEs is the risk-sharing facility. A risk-sharing facility is a financial mechanism that guarantees a portion of a portfolio of newly originated loans, up to a maximum portfolio amount during a given ramp-up period (usually two to three years) through a bilateral loss sharing agreement. It can be set up by government agencies (such as central banks) or a multilateral financial institution (such as the World Bank Group IFC, regional development banks, or foreign government agencies, including GIZ or the French Development Agency, and others), or both, and extend portfolio guarantees to an originator of assets (a

financial intermediary such as a bank, finance company or microfinance institution) for a given amount of newly-generated assets (loans) to an underserved market (for instance, women-led MSMEs). Third party

guarantors such as multilateral development banks or bilateral agencies can join the RSF and typically offer grants or concessional capital to cover a small portion of the portfolio risks.

AfDB is solely responsible. The Project will support these SMEs to become recognized by financial institutions and provide affordable financing through an on-lending mechanism managed by the Development Bank of Ethiopia, which has regional offices to coordinate its lending and monitoring operations across the country. The

business development service provider will also support the agricultural entrepreneurs for a period of three years and an online marketing platform will also be developed for digital marketing and payments.

FIGURE 36 - Risk sharing facility



Source: Alliance for Financial Inclusion (2021)

Development finance institutions and central banks have also set up financing schemes to provide concessional loans and grants to MSMEs involved in agriculture and based in and around IAFPs. The 2 billion Bank of Industry fund of Nigeria to support SMEs in its seven SAPZs is an example of new financing channels being made available to smaller firms in order to attract them into agro-industrial parks. In India, the Ministry of Food Processing Industries created a subsidy and food processing fund of \$300 million through the National Bank for Agriculture and Rural Development which extends credit to MFPs and food processing firms located in the MFPs (Singla, 2016; Satyasai and Singh, 2021).

The recently approved sustainable credit scheme, under the \$113 million Productivity Enhancement Support to the IAIPs and Youth Employment programme of Ethiopia, includes a microcredit scheme set up to support youth-run SMEs to benefit from the IAIPs. This was a policy

response to the low numbers of domestic smaller-sized firms being able to pass the investor screening process. AfDB, working in tandem with the Arab Bank for Economic Development in Africa, ring-fenced funding for MSMEs and developed micro-credit financing initiatives to help SMEs access capital to operate within the IAIPs. Productivity Enhancement Support to the IAIPs and Youth Employment is a public sector stand-alone investment project implemented through parallel co-financing, financed by an African Development Fund grant and the Arab Bank for Economic Development in Africa. The Government's contribution is equivalent to 7.1 per cent of the total project cost, going mostly on project coordination and management and for some infrastructure components. The initiative includes a sustainable credit scheme in partnership with the Development Bank of Ethiopia dedicated to financing the development of SME and youth entrepreneurship in agriculture, for which



# Planning for Inclusive and Sustainable IAFPs

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## 5.1. OVERVIEW

The chapter introduces environmental and social considerations for the development and operations of integrated agro-food parks that influence their environmental footprint and sustainability. Key sustainability considerations for hard and soft infrastructure, practices and business models are highlighted. UNIDO supports the promotion of eco-industrial park principles<sup>15</sup> for the development of sustainable IAFPs, which incorporate both eco-design and social inclusion dimensions.

Sustainable development of the agricultural and allied sectors is essential for achieving desired long-term objectives such as food security, value addition, growth in exports, creating jobs for the growing numbers of young people, and creating value chains where the country or region has comparative advantages. Further, the development of the agricultural sector is important for attracting FDI, supporting the development of the local content agroprocessing industry, human resource development, establishing standards for certification of safety and quality, and changing the perception about agriculture as a business initiative instead of a mere developmental project.

Clusters of industries (taking the physical form of IAFPs in this context), are defined as geographically proximate sets of interrelated enterprises and institutions often linked to larger enterprises, with a range of commonalities and complementarities among them, and are a popular instrument towards rapid, sustainable industrialization. IAFPs promote economies of scale and efficient utilization of raw materials which also contribute to the generation of employment and alleviation of poverty in the region. The agricultural clusters, however, organized around the IAFP model of an agroprocessing hub (APH) and a network of rural producers, make heavy use of natural resources and leave a large geographical footprint, requiring careful planning and operations in manners that are respectful of natural systems to continue to provide productive agronomic and ecosystem services.

Industrial ecology is a field of study focused on the stages of the production processes of goods and services from nature, trying to mimic a natural system by conserving and reusing resources. It studies the interaction of agro-industrial development with an environmental, social, and industrial system of different scales and aims at increasing business success, preserving the environment, and respecting the local community. A specific area of industrial ecology is industrial symbiosis, which creates a competitive advantage through the physical exchange, reuse and repurposing of industrial by-products, materials, energy and water of closely located firms. The main concept of industrial symbiosis can be viewed as the transformation of the wastes or by-products from the activity of a firm, into inputs of another using the connection between them. Industrial symbiosis and industrial networking are common phenomena in eco-industrial clusters. Industrial symbiosis focuses on the cooperative management of resource flows through firms' networks. Considering industrial symbiosis as a subset of industrial ecology examines the sustainability of material and energy flows and cycles through industrial systems. It encompasses studies on eco-industrial parks and industrial ecosystems.

IAFPs promote economies of scale and efficient utilization of raw materials which also contribute to the generation of employment and alleviation of poverty in the region.

Industrial symbiosis is often synonymous with the term “circular economy” which is a regenerative system in which resource input and waste, emissions and energy losses are minimized. Circular economies eliminate waste and replace it with a circular flow of materials and energy based on waste reduction, reuse, recycling, repair, refurbishing and remanufacturing practices. This approach has many benefits, including achieving environmental sustainability, improving business competitiveness, generating employment, increasing green investment, and establishing inclusive governance. From an industrial competitiveness

perspective, the main drivers for eco-industrial parks are (UNIDO, 2019a; UNIDO 2019b):

- Reducing operating costs and improving productivity
- Greening supply and value chains
- Mitigating climate change
- Improving resource supply security, management and efficiencies (including materials, water, energy)
- Reducing business risks, by recognizing that environmental and social risks are economic risks
- Attending to environmental and social topics relevant to the local community and the Government to ensure long term licence to operate industrial parks.

The economy of scale is an important feature in cluster operations as well. Besides sharing common technical infrastructure in a cluster environment, that many SMEs may not be able to afford individually, many clusters can have common facility centres for assisting the occupant units or cluster members in procedures related to securing finance and complying with industry standards and government regulations. Symbiotic collaboration between firms and industries yields financial and environmental benefits through the exchange of complementary resources. Companies can also share utilities such as energy, water, and wastewater treatment, and services such as transportation, landscaping, and waste collection. Further, in the cluster approach, there can be the ready availability of business development services such as identifying markets, accessing technology, aggregating common purchases, linking up with planners and designers, and facilitating subcontracting, training, and connecting with research and development organizations.

The concept of eco-industrial parks is the by-product of two powerful ideas: sustainability and industrial ecology. Eco-industrial parks draw analogies from natural ecosystems to human industrial systems, with the most important viewpoints being closing the material flows and energy cascading.

Eco-industrial parks enhance relationships between different sectors – including urban local bodies, businesses and the local community – and optimize the sustainable use of resources. Initiatives to reduce waste, recycle waste and reduce pollution and traffic congestion are likely to be top of the agenda for those involved in

managing more sustainable IAFPs. A well-managed eco-industrial park is likely to provide good quality recycling facilities, offer efficient industry, and be responsive to community needs.

The above considerations and concepts are important for IAFP development since modern-day businesses tend to affect the environment negatively in varied ways depending on the nature of operation. An integral part of an IAFP should, however, incorporate inclusive and sustainable industrial development processes for effective functioning. The four pillars of such development are: creating shared prosperity, advancing economic competitiveness, safeguarding the environment, and strengthening knowledge and institutions (UNIDO, 2022).

Furthermore, designing for IAFP sustainability should be aligned with the Sustainable Development Goals, the following in particular:

- **Goal 6:** Ensure availability and sustainable management of water and sanitation for all
- **Goal 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- **Goal 9:** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- **Goal 11:** Make cities and human settlements inclusive, safe, resilient and sustainable
- **Goal 12:** Ensure sustainable consumption and production patterns
- **Goal 13:** Take urgent action to combat climate change and its impacts.

The existing international industrial park guidelines developed by UNIDO (2019a) together with other key partners seek to promote the development of competitive, inclusive and sustainable industrial parks through a comprehensive reference framework; their specific objectives are to: support industrial park decision-making; improve industrial park efficiency; enhance industrial park competitiveness; promote industrial park sustainability; and ensure industrial park inclusiveness. There are well-vetted guidance documents that should accompany any industrial park development process (Box 21). Governments often have their own regulations as well that must be complied with.

15) The International Framework for Eco-Industrial Parks, jointly developed by UNIDO, the World Bank Group and GIZ, provides guidance to policymakers and practitioners on the critical elements that will help both Governments and the private sector to work together in establishing economically, socially and environmentally sustainable eco-industrial parks. Access the publication here: <https://hub.unido.org/eco-industrial-parks-publications>

**BOX 21 - Unido guidance documents for the development of sustainable industrial parks**



- UNIDO Guidance Documents for the development of sustainable industrial parks.
- UNIDO, GIZ and WBG (2021). *An International Framework for Eco-Industrial Parks, Version 2.0*
  - UNIDO (2019a). *International Guidelines for Industrial Parks*
  - UNIDO (2019b). *A Practitioner's Handbook for Eco-Industrial Parks: Toolbox*
  - UNIDO (2018a). *Leveraging A New Generation of Industrial Parks and Zones for Inclusive and Sustainable Development: Strategic Framework*
  - UNIDO (1997). *Industrial Estates: Principles and Practice*
  - UNIDO (1978). *Guidelines for the establishment of industrial estates in developing countries*

**5.2. ECO-INDUSTRIAL PARK CONCEPTS – ENVIRONMENTAL, SOCIAL AND ECONOMIC SUSTAINABILITY**

According to UNIDO, in the general context, an industrial park is an area allocated for industrial development. Industrial parks are main drivers of industrialization and prosperity and can foster rapid economic development within the country; encourage transfer and adaptation of technology; and lead to a wider dissemination of knowledge and skills among the local population of the country. An eco-industrial park is defined as an earmarked area for industrial use at a suitable site that ensures sustainability through the integration of social, economic and environmental quality aspects into its sizing, planning, operations, management and decommissioning. To become an eco-industrial park, an industrial park must demonstrate higher standards of environmental and social responsibility, resource efficient production methods and reuse of waste energy and waste materials.

Eco-industrial parks integrate economic opportunities and improved eco-systems, as well as innovative avenues for business incorporating both the aspect of economic growth as well as environmental and social well-being. This is particularly important for countries with developing and transitional economies as they are often highly vulnerable to climate change impacts, particularly on weather volatility, pest infestations and other stresses and shocks to agricultural production. Consumer preferences for more sustainable production and industrial methods are increasingly placing pressure on companies and park management entities

to improve sustainable management along their entire operations, extending back to their supply chains. Accordingly, UNIDO supports mainstreaming and upscaling eco-industrial parks in these countries, and in doing so, promotes inclusive and sustainable industrial development.

Eco-industrial parks should ensure implementation of good social management practices, including decent work, social and community infrastructure, and good relations with the local communities. This includes aspects of gender equality, security and crime prevention and human resources development.

The main economic benefits are direct and indirect employment creation; cost savings resulting from reductions in waste generation and disposal, and in resource and energy consumption; and increased competitiveness. Some eco-industrial parks report higher foreign direct investment in their parks. Indirect benefits are often more difficult to quantify but are important for the long-term economic sustainability of the park and the tenant companies. These can include indirect employment creation through skills upgrading and training, technology transfer, positive image, demonstration effect arising from application of best practices, sustainable natural resources management, and regional development. Environmental benefits from eco-industrial parks are very diverse and include reduction of pollution levels, more efficient use of

resources (including raw materials, water, energy), preservation and protection of biodiversity and nature, and reduction, reuse and recycling of wastes. In addition, improved management of chemicals and hazardous substances in an eco-industrial park can lead to significant environmental benefits.

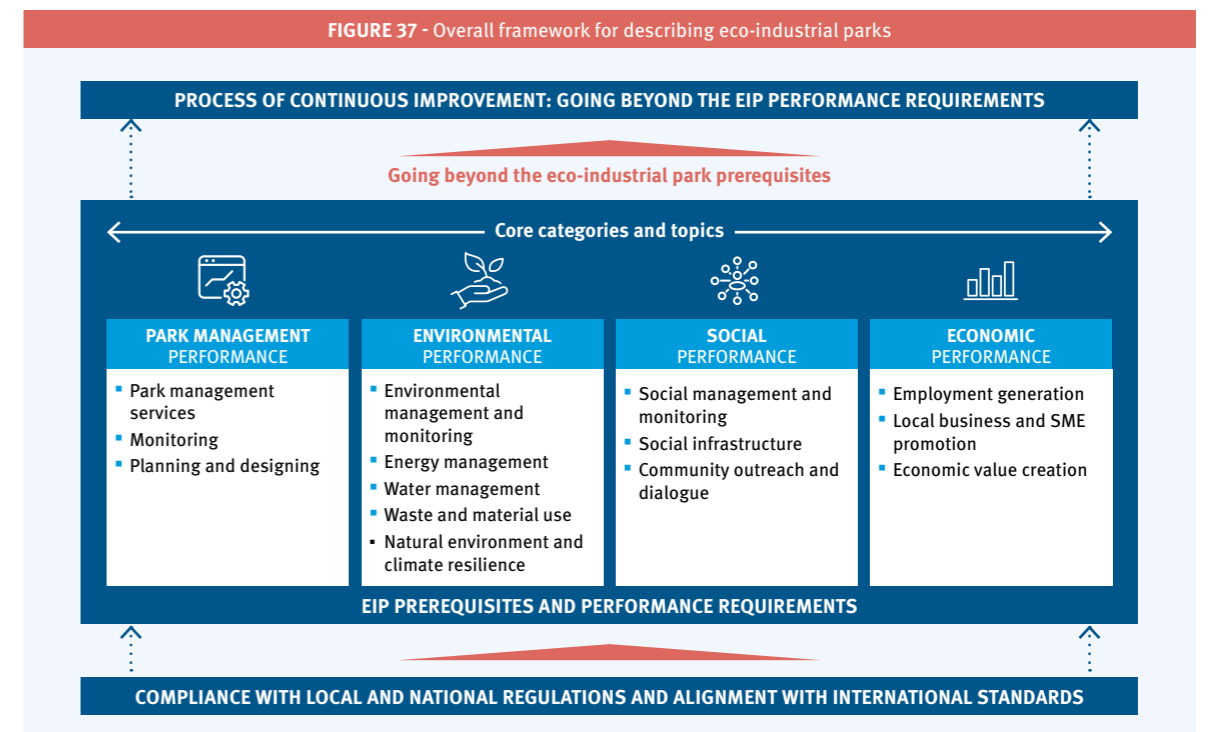
From a private sector perspective, the key environmental drivers of eco-industrial parks and inclusive and sustainable IAFPs are:

- Environmental protection and resource efficiency
- The presence of relevant policy mechanisms (for example, taxes and market mechanisms such as carbon pricing)
- Greening the supply chain and alleviating resource constraints, which can lead to improved resource management and resource conservation
- Ensuring infrastructure is resilient to higher resource costs and adapts to climate change risks
- Responding to environmental and social concerns from consumers
- Increased demand to improve efficiency and growth

- Reducing environmental footprint
- Climate change commitments at the global and national levels.

Approaches to eco-industrial Parks and sustainable IAFP development differ based on whether the location requires a greenfield or brownfield intervention. In the case of a brownfield intervention, activities include assessing the existing infrastructure and companies in place and suggesting a way forward for upscaling of the location to meet eco-industrial park principles. On the other hand, in the case of greenfield interventions, the activities carried out for positioning the eco-industrial park or an IAFP include location identification exercise, suitability considerations, financial feasibility, master planning, environmental and social impact assessment, and similar activities.

An industrial park can become an eco-industrial park by making efforts to comply with the criteria jointly defined by UNIDO, the World Bank Group and GIZ in the International Framework for Eco-Industrial Parks. The Framework addresses all dimensions of sustainability as shown in the graph below.



Source: UNIDO, World Bank Group and GIZ

### 5.3. INCLUSIVE DEVELOPMENT CONCEPTS FOR SUSTAINABLE IAFP DEVELOPMENT

Inclusive development is about improving the quality of life of all members of the society. To be specific, the concept of inclusive sustainable development covers three different yet interrelated dimensions of industrial development, namely economic dimension, a social dimension and participative dimension.

The economic dimension of inclusive sustainable development encompasses providing both capacity and opportunities for poor and low-income households, in particular, to benefit from the economic growth process in such a way that their average incomes grow at a higher rate than the growth of average incomes in the sector as a whole. The economic dimension also includes measures to reduce intra- and inter-sectoral income inequalities to reasonable levels.

The social dimension of inclusive development encompasses supporting the social development of the poor and low-income households and underprivileged groups, minimizing inequalities in various social

indicators, promoting women's empowerment and gender equality, and providing economic opportunities for vulnerable groups.

Key social drivers of sustainable IAFPs include:

- Better working and labour conditions
- Creation of local jobs and opportunities for future employability
- Better security and crime prevention
- Provision of social infrastructure to workers and community
- Support to local community well-being and community outreach
- Provision of vocational training
- Improved occupational health and safety
- Transition to more sustainable land use
- Enabling community cohesion
- Reduced migration pressures.



Source: stock.adobe.com

The participative dimension of inclusive development encompasses enhancing opportunities for micro, small and medium-sized enterprises, the poor and low-income people, women and ethnic minorities, in particular, to participate in the process equally and effectively.

The IAFP concept should aim to incorporate all three dimensions of inclusive development. The IAFP should be able to provide capacity and opportunities for the surrounding communities so that they are able to benefit from the overall economic growth of the country by increasing their average household incomes. It is expected that the IAFP will enhance market access for agricultural and agro-based commodities, products and agro-allied services for the surrounding rural communities that will have a cascade effect on members of these communities through more employment opportunities, business opportunities and income opportunities.

With regard to the participative dimension of inclusive development, the IAFP programme is also mandated to facilitate better participation at all levels of the Government. The programme primarily offers various socioeconomic benefits and opportunities for the communities through which the community members would get the benefit, and in turn, they will have a better say in the participative process within their respective localities.

Inclusive and environmentally sustainable IAFPs can, when appropriately implemented, be an effective policy instrument to promote industrialization and the structural transformation it brings.

While they primarily serve to overcome high production and transaction costs stemming from lack of infrastructure, along with the focused complementary interventions their industrial agglomeration facilitates, IAFPs can also help to reduce information asymmetries, facilitate access to finance, and help to strengthen regulatory institutions. By delivering these public goods and the accompanying policy interventions to support investment, industrial parks have been a catalyst in facilitating industrial development and distribution of benefits to a wide group of stakeholders. In addition to the provision of productive and connective

hard infrastructure, the major soft infrastructure interventions of IAFPs that promote inclusivity and sustainability include:

- **Training and capacity-building of the population within production basins:** Training opportunities in communities with the objective of enhancing their knowledge, skills and abilities so that members of the community can earn more money and improve their living standards. Some of these training initiatives are in the areas of cultivation aspects, post-harvest handling, packaging and branding, product performance, animal feed management, and others. In this regard, rural transformation centres (RTCs) for training, agricultural input services, agricultural equipment services, advisory and capacity-building will also be an integral part of IAFP systems as a means to improve supply chain management, promote inclusivity of IAFP economic opportunities and benefits, and improve production practices to be more environmentally sustainable.
- **Market information centre:** Proposed as a one-stop information centre that combines information and services offered by various ministries and government agencies, this centre would provide information on the agro-food business development, price watch, market trends, market demand in terms of products and quality, and others.
- **Agro-food products preservation and pre-processing:** Networks of RTCs and consolidation centres may promote the development of food processing enterprises in strategically located rural areas with the objective of improving agro-food product quality for local and overseas markets. This would support agro-based MSME industry development through product aggregation, value-added activities and improvement of income for farming communities. Agroprocessing hub will host agglomerations of lead aggregation and processing firms that will connect production with retail outlets and distribution networks. Vocational training for improved post-harvest handling and processing practices may benefit operations at this level, contributing to skills and technology upgrading.
- **Food safety, quality and certification services:** Regulatory services would be co-located within IAFPs to provide timely and cost-efficient laboratory testing and food safety certifications. Where



needed, technical advisory services for food safety and assurance may be provided – especially for small and medium-sized industries – to assist with the production of safe food by employing hygiene practices during processing and food handling.

- **Financial services:** Limited access to financial services is a significant constraint to agricultural and

agribusiness growth. IAFPs will facilitate improved access to financial services to producers and MSMEs provided by financial institutions and government agencies. Specialized financial products and digital technology may be required to meet the needs of various stakeholders, in particular disparate smallholder farmers.

### 5.4. MAJOR SUSTAINABILITY CONSIDERATIONS FOR AGRO-FOOD PARKS

The design and planning stage is the most crucial point at which to identify sustainable elements. As described in chapter 3, environmental and social impact assessments must underpin site master planning and predict and evaluate a project’s environmental and social impacts on the ecosystem and bio-physical and human environment, as well as propose any required project impact mitigation plans. ESIA should, in addition, lay the basis for continuing assessment of socioeconomic and environmental impacts throughout the project’s lifespan, including during pre-construction activities (such as relocation of people displaced because of the project, and others); construction activities (for example, land clearing and site preparation, infrastructure construction, and others); and post-construction operational activities (including maintenance and others). Many development finance Institutions have policies, guidelines and tools to effectively integrate environmental and social considerations into their operations that can help IAFP developers in preparing these assessments and plans. The IAFP should consider national-level interventions required for ESIA and international ESIA policies and guidelines (see Table 6).

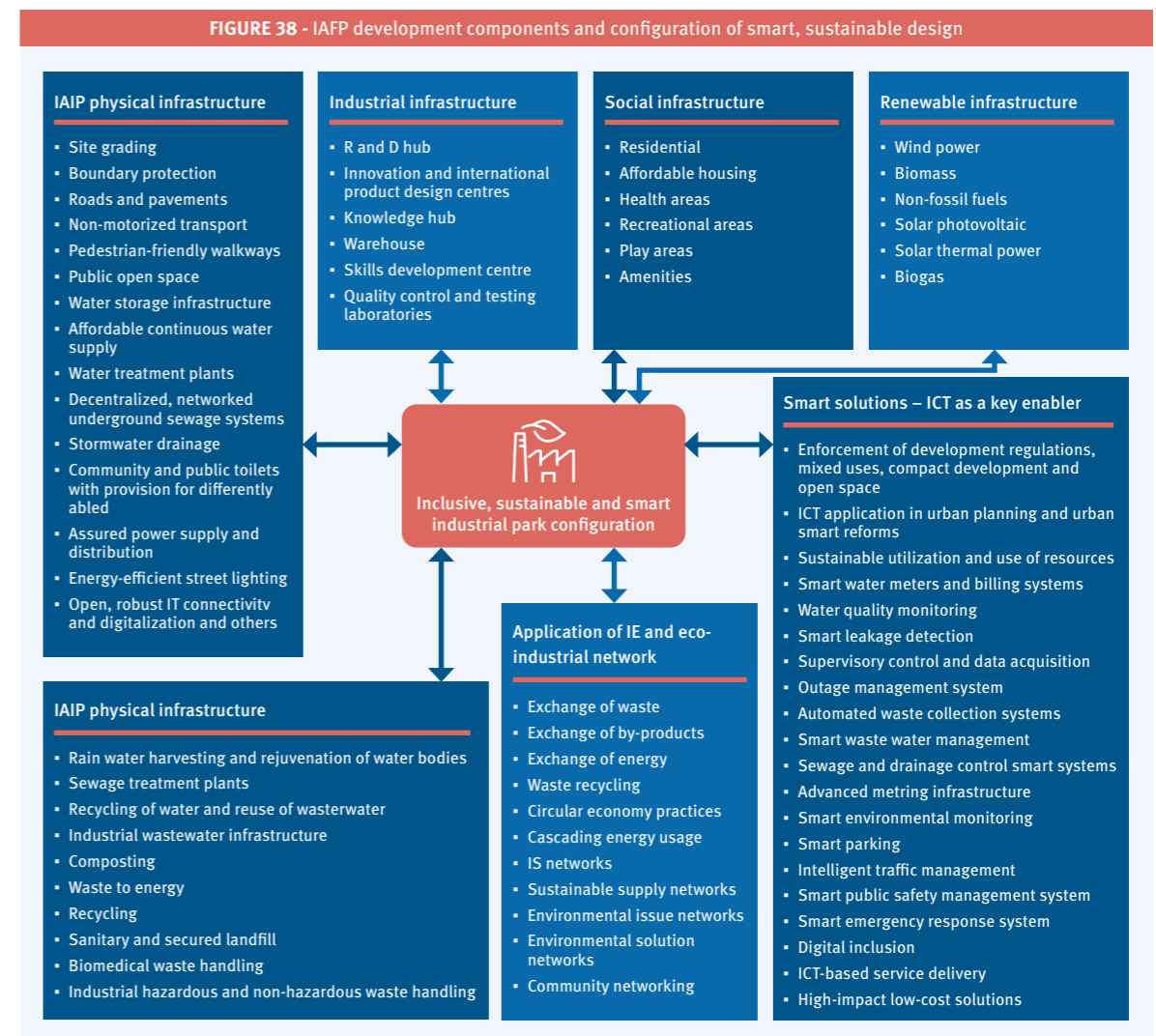
An environmental management plan, prepared either as an integrated element of the ESIA or as a separate document, should set out the measures required to maximize the project’s benefits as well as to minimize or remedy any adverse impacts or externalities. It ensures that the environmental and social impacts

and risks identified in the ESIA process are effectively managed.

Eco-industrial park concepts can minimize negative social and environmental impacts and strengthen environmental management plans. Sustainable solutions can be applied to every IAFP component, from basic infrastructure, to specialized privately owned facilities, to waste recycling techniques, to fostering inclusive business networks. Figure 37 maps eco-design components with consideration for smart,<sup>16</sup> sustainable, eco-friendly design of IAFPs. The figure is organized around the following design components: physical infrastructure; environmental infrastructure; specialized industrial infrastructure; social infrastructure; renewable energy; smart ICT solutions; and application of industrial efficiency and eco-industrial network. Some of these design components (and subcomponents) are considered as part of the standard IAFP planning process, but eco-industrial solutions often go a step further to aim to maximize environmental benefits and social well-being rather than just minimize negative impacts.

For existing (brownfield) parks, additional analysis is needed to understand occupant interest and willingness to adopt eco-industrial practices as well as estimate the potential costs and benefits of retrofitting eco-friendly solutions. With respect to the application of circular economy, industrial ecology principles, and smart solutions, the following activities should be

16) “Smart” in the industrial park context refers to the use of technology to promote the efficient use of resources and waste minimization.



Source: UNIDO

carried out with respect to the IAFP development to ensure environmental sustainability:

- Study of existing occupant units, raw material requirements, utility requirements, emissions, and by-products
- Analysis of concept-based drivers for eco-industrial park; occupant units business and industrial; competitive perspective; economic, environmental, social drivers; and policies and other regulations
- Analysis of the possibility of application of industrial ecology among the existing occupant units
- Analysis of cost savings resulting from reductions

in waste disposal and resource and energy consumption, and increased competitiveness

- Estimate of reduction of pollution levels, more efficient use of resources (such as raw materials, water, energy), preservation and protection of biodiversity and nature, and reduction, reuse, and recycling of wastes
- Analysis of issues involved in implementing key themes of industrial ecology, exchange of waste, by-products, and cascades of energy use between occupied unit
- Analysis of flow of knowledge and technology between occupant units

- Evaluation of energy cascading approaches and utilization of industrial by-products as feedstock for processes by other co-located occupant companies in line with the industrial symbiosis principles
  - Analysis of the barriers and challenges in retrofitting existing industrial infrastructure in place (in the case of a brownfield intervention) to eco-industrial park and analysis of the success factors for retrofitted eco-industrial park from the perspective of circular economy and industrial ecology. Key considerations would involve:
    - › The proximity of companies located in the eco-industrial park
    - › Matching exchanges of materials and energy between occupant units and leveraging synergy
    - › Diversity of stakeholders within the eco-industrial park
    - › Ensuring continuity of flows and sustained operations
    - › Economic viability for occupant units and eco-industrial park developer
    - › Sharing economic gains equally, in a transparent manner
    - › Direct expenses payable by the occupant units remaining low
    - › Existing institutional platforms and eco-industrial system
    - › Enhanced environmental awareness among the occupant units located within the eco-industrial park
    - › Balance of power and interdependence relationships between partners
    - › Similarity of organizational culture of occupant units
    - › Availability of enough information and knowledge on the benefits of the eco-industrial park
    - › Realistic expectations of occupant units of the eco-industrial park
    - › Active participation and commitment of the eco-industrial park developer and occupant units
    - › Continuing interest and trust
    - › The vision of the eco-industrial park and positioning
    - › Having a proactive champion
    - › Having an anchor tenant capable of triggering material and energy exchanges
  - › Other fiscal support to eco-industrial park developer and occupant units, especially during the initial phase
  - › Contracts and informal control mechanism and adherence to agreed terms
  - › Legal support for quick dispute resolution.
- A strong sustainability foundation must drive the design and development of an IAFP, and construction therein, and be built into its conceptualization based on the following principles and their various applications (UNIDO, 2018):
- **Sustainable site development:** controlling soil erosion and sedimentation, minimizing disturbances and restoring green cover, and others
  - **Sustainable transportation:** interconnected internal pedestrian and public transportation networks, reducing combustion engine-driven vehicle dependency, and associated fuel consumption and vehicular emissions, and others
  - **Water conservation:** rainwater harvesting, landscaping to ensure minimum water consumption, irrigation systems, wastewater treatment and reuse, submetering to improve water performance and thereby save drinking water, and others
  - **Energy efficiency:** reducing heat islands, encouraging the use of renewable technologies and submetering to improve energy performance, and others
  - **Sustainable material and resource management:** use of locally-available building materials, use of eco-friendly materials, avoidance of toxic chemicals, and others
  - **Health and well-being:** health and well-being facilities, park design catering to differently-abled and senior citizens, and others
  - **Green education and public consultations:** involving local communities and NGOs, to increase park residents' awareness levels and encourage the implementation of eco-friendly practices; and waste management: utilization of waste minimization technologies, segregation and management of waste, and others.
- Annex 2 captures sustainability and smart initiatives that can be incorporated for the development of an IAFP which dovetails into the detailed considerations at every level of intervention that would be envisaged.

## 5.5. PERSPECTIVES AND CHALLENGES FOR SUSTAINABLE IAFP DEVELOPMENT

Developed countries are more likely to have eco-industrial parks and innovation districts (for example, Singapore, Switzerland, the United States of America and others) than developing countries. There are a number of factors that contribute to this reality. First, there is a general lack of experience, awareness, and supporting regulations and their enforcement to support eco-industrial parks. Eco-industrial parks are best suited for companies that are environmentally mature, have existing institutional reforms or linkages and provide the appropriate internal environment for the stakeholders involved. Many good eco-practice elements exist in an ad hoc nature, but need to be brought together and implemented routinely in planning, development and management of industrial parks. Anchor firms, particularly those participating in global value chains, can provide the institutional knowledge and business climate to promote environmentally friendly technologies, supply chain improvements and inter-firm symbiosis.

Anchor firms, park managers and operators, and other stakeholders need to closely collaborate to establish trust, effective communication systems, and strong relationships. Process and continuous improvement-based approaches are useful frameworks for continued collaboration and improvement (UNIDO, 2019b).

Development partners can help to close knowledge gaps and capacity constraints by pairing international expertise with local knowledge. Countries may consider engaging development partners to advise on technical areas such as policy and regulatory frameworks, symbiotic business relationships, added economic value, awareness and information sharing; organizational and institutional set-ups; and technical factors. Suggested roles for development partners are outlined in [Box 22](#).



Source: stock.adobe.com

**BOX 22 - Suggested roles for development partners to support the inclusive and sustainable development of IAFPs****Policy and regulatory framework**

- Assisting in establishing national vision, objectives for industrial ecology, adapting relevant legislation, and national and region level regulations that are conducive to implementation of sustainable IAFPs
- Providing enabling and catalysing role through policy intervention in helping to identify opportunities and creating the appropriate conditions for inter-firm networking to take place
- Providing input on significant national and regional level barriers to the adoption of environmental and social standards in industrial operations
- Providing inputs on hard and soft targets for the development of sustainable IAFPs and evolving context-specific key performance indicators
- Providing input for developing command and control, and fiscal incentives for promoting sustainable IAFPs
- Engaging in national, regional, and international dialogue to source best practices, rather than duplicate existing practices.

**Symbiotic business relationships**

- Facilitating establishment of the essential symbiotic exchange relationships between occupant units participating in the project
- Facilitating collaboration and formation of business networks
- Facilitating the active participation and empowerment of stakeholders
- Assisting in revitalizing existing social networks which may help to encourage environmental networking by forming mutual trust
- Motivating trust in the competence and goodwill of other companies.

**Added economic value**

- Advisory services: evaluating economic feasibility, transaction advisory services for achieving technically sound PIESI and services through viable business models
- Investment: in developing industrial infrastructure, in occupant units interested in harnessing prevailing systems, that is, industrial ecology, exchange of materials and waste, cascading of energy, circular economy.

**Awareness and information-sharing**

- Identify action plan for stimulating development
- Assist in focusing on low-cost, high-benefit utility-sharing projects and simple exchanges (including evaluating investment opportunities)
- Educate and inform occupant units of the potential benefits that can be achieved through the participation of sustainable IAFP initiatives
- Evolve effective structures for continuous technical assistance
- Assist in maintaining transparent and efficient information exchange system
- Organizational and institutional arrangements and capacity-building
- Promote bilateral exchanges that fit within corporate organizational structure and overall management system of the sustainable IAFP;
- Promote highly cooperative organizational culture in the area
- Devise well-established corporate social responsibility or similar systems
- Assist various agencies in developing sustainable IAFP standardization materials.

**Technical support**

- To assist in developing standards and guidelines
- Document the existing energy, waste and materials exchanges existing among various occupant units and other companies
- Assist in developing context-specific technical know-how.

While design and construction of an IAFP can comply with many best practices of the eco-industrial park guiding principles, setbacks and failures can still happen. Common pitfalls include:

- **Dependence on a few industries:** an eco-industrial park that relies on one large company can jeopardize the project if the company leaves or looks elsewhere for its sourcing. A diverse system of industries with strong inter-sectoral cooperation is more sustainable.
- **Information asymmetries:** different industries have diverse priorities and are separate entities. Difficulties in information dissemination and communication can often arise, primarily related to incomplete or imperfect information.
- **Fluctuation:** So-called "loop-closing" (recycling of materials and energy) can be affected by fluctuations in the price of a given input or its substitute or by changes in technology or by the political climate; eco-industrial parks have to be large enough to be resilient to external shocks and adapt themselves and hence the economy of scale is essential.
- **Poor systems for monitoring and evaluation:** All the related IAFP stakeholders are to be fully equipped to handle the IAFP operations after the conceptualization of the project. The project shall ensure that proper dissemination of knowledge and capacity-building is carried out to support the operations.

- **Multipronged participation:** The participation to implement and facilitate the IAFP will include a number of stakeholders who are required to align their thoughts and actions for the successful delivery of results.
- **Economic and financial barriers:** At present there are comparatively many organizations that support sustainable development, but the IAFP shall ensure that proper marketing strategies are in place to inform the investors about the project and the environmental and social requirements. The efficient allocation of resource also is an important aspect for IAFP.
- **Innovation barriers:** The IAFP needs to continuously innovate to compete in the global marketplace and the needs of the markets are to be incorporated in plans, which can be achieved by collaboration with research institutes, universities, and others.
- **Social barriers:** Inclusive development must be ensured wherein the surrounding communities are positively affected by the IAFP development. Where there is limited knowledge about sustainable technologies among the communities, this should be mitigated through the awareness-raising, training and financial services components of the IAFP.



# 6

## Construction of Integrated Agro-Food Parks

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## 6.1 OVERVIEW

The construction of the IAFP commences after detailed engineering design is completed, environmental and construction permits have been issued and financing secured. Construction required for IAFP encompasses on-site and off-site infrastructure, ensuring connectivity between agroprocessing hub and production catchment areas, and rural transformation centres (RTCs) and end markets. A great deal of public infrastructure may be required to make it feasible to secure private financing for on-site development of agro-parks and enterprise co-location.

The phasing of such infrastructure likely favours the provision of basic public infrastructure and connectivity (such as roads, power, water, gas, telecommunications and waste treatment; other horizontal infrastructure) before private construction (vertical infrastructure) begins. Private businesses must be assured a certain level of access to basic infrastructure in order to ensure their investments in connecting the “last mile” will facilitate operations that can commence within a certain timeframe and therefore with an acceptable risk exposure.

A strong sustainability foundation must drive the design and development of an IAFP, and construction therein, and be built into its conceptualization based on the following principles and their various applications: sustainable site development, sustainable transportation, water conservation, energy efficiency, sustainable material and resource management, health and well-being, green education and public consultations, and (waste management (refer to chapter 5 – “Planning for inclusive and sustainable IAFPs” – for additional discussion on these points).

The present chapter provides guidance for the construction of horizontal and vertical infrastructure, including environmental and social considerations, modular technology, transportation networks, and project management and monitoring.

FIGURE 39 - IAFP development, Phase 4

### PHASE 4

#### DEVELOPMENT OF APH, RTCS AND CCS (CONSTRUCTION)

##### Considerations:

- Phasing the construction of horizontal and vertical infrastructure (off-site, on-site)
- Connectivity between APH, RTCS, CCs and market
- Green design considerations
- Compliance with Environmental and Social Impact Assessment
- Compliance with international standards and Development Control Regulations
- Modular construction approach
- Construction management and monitoring mechanisms; distinguish roles and responsibilities among responsible parties.

## 6.2 HORIZONTAL AND VERTICAL INFRASTRUCTURE DEVELOPMENT

The IAFP is required to have state-of-the-art design and engineering plans developed during the planning phase. Detailed engineering plans must adhere to both international and local codes for infrastructure development, based on the inclusive and sustainable industrial development model endorsed by UNIDO in 2013. During the planning and design stage, due consideration should be given to the development of horizontal and vertical infrastructure and attention must be paid to the maximum usage of available land through proper infrastructure planning. The objective typically translates into a compromise between fulfilling the desire to generate the maximum revenue out of a site, and the need to deliver projects on a faster timeline, which in turn helps developers and owners to take advantage of market opportunities and to generate revenue and returns on investment sooner. For this objective, it is essential to experiment with the type of construction required for the configured components.

IAFP construction involves the properly programmed and scheduled hiring of contractors, bulk earthworks, the construction of road and other transportation networks, and the installation of such services as power, water, gas, telecommunications and waste treatment, both within the IAFP boundaries and for any required so-called “last mile” connection spurs. Typically, the construction of horizontal infrastructure (such as roads, railways, electrical lines, pipelines, transmission facilities, water lines, sewers and fibre optics) precedes the development of vertical infrastructure (including commercial buildings and factory shells). Construction proposals shall cover ways to develop IAFPs in a phased manner to facilitate the flow of investment and to recalibrate the development, especially the vertical infrastructure, to meet market needs. In the initial phase, the general approach is to develop all horizontal infrastructure, with few essential ready-built industrial structures to facilitate visibility, fulfilling the perceived requirements and triggering SME industrial activities. Fully developed horizontal infrastructure facilities coupled with essential vertical infrastructure in the form of ready-built factories will better enable the marketing of the IAFP to target firms.

During subsequent phases, the development would encompass the building of additional ready-built industrial structures. Thus, the analysis of project development phasing and computation of investment requirements during each phase of development should be included.

In vertical construction, the decision of the construction methods is left to the developer or constructor; in horizontal construction, the methods are usually clearly defined. For more clarity and visualization of the project designs, the technology of 3D modelling can also be used to arrive at the requirements and mode of construction.

IAFPs promote economies of scale and efficient utilization of raw materials which also contribute to the generation of employment and alleviation of poverty in the region.

The 3D modelling can convey the requirements not only to a set of specialized labour but also is a common representation to help understand the project requirements, strategies and interventions. In addition, the IAFP developer should consider the use of web management systems to actively track the construction processes and progress.

As vertical construction is typically developer-driven, it is important to involve all stakeholders responsible for the implementation at an earlier stage itself for greater accountability. This allows the contractors and material suppliers to evaluate the design and provide comments regarding alternatives, and the ability for real-time implementation and completeness.

Construction activities have the potential to affect the environment and communities. Construction management strategies must therefore minimize the adverse impacts of the construction processes on the natural environment and ecosystem (in terms of habitat, soil, water, air, and others) and on people (in terms of noise, light, fumes, dust, and usage of local amenities), including by identifying and using the most efficient construction methods and materials available. The plan

should follow the development control regulations for the jurisdiction, which outline a set of rules that are designed to ensure proper and efficient development as well as the general welfare of the public. Strategies to reduce environmental and social impacts during construction include:

- Assessing the risk of the possible impacts resulting from construction
- Developing a construction management plan outlining the actions necessary to mitigate and manage potential construction risks
- Procuring sustainable building materials for use in construction (that is, those that have the least

environmental impact while still offering the highest technical specifications)

- Maximizing opportunities for reusing and recycling construction waste both on site and off site
- Maximizing the energy-saving potential of the IAFP by using energy-efficient materials and resource-efficient construction practices, including the construction of industrial buildings and installations capable of exchanging energy flows and of enhancing collective heating, ventilation and cooling
- Monitoring the implementation of the construction management plan.

### 6.3 CONSIDERATIONS FOR CONSTRUCTION OF HORIZONTAL AND VERTICAL INFRASTRUCTURE

#### 6.3.1 Major considerations

The design and data items should detail elements to be taken into consideration in construction. Some of these elements include:

- Identification of major construction materials
- Study on the sourcing of materials
- Estimated cost of key materials
- Construction approvals and permissions from the concerned authorities
- Construction constraints, including allowable construction methods, traffic considerations, environmental restrictions, climate restrictions, blasting limitations, and others
- Filling and drainage requirements, if any, taking into consideration the nature of the site
- In-depth knowledge of the broader environment in which the IAFP is set
- Availability of water, and understanding of the influencing factors
- Knowledge of the hydrological cycle parameters, if available, and understanding of their influence
- Guidelines on on-site excavation
- Damages and delays in development considerations
- Termination and suspension of contracts, *force majeure* clauses and other protection clauses

#### 6.3.2 Environmental considerations for construction

Adequate and effective environmental protection measures need to be adopted to minimize the impact of activities related to pre-construction, preparatory construction, machinery installation and commissioning, and induction of manpower. The impacts during the construction phase on the environment will be transient and are expected to reduce soon after the completion of construction activities.

Environmental impacts during the construction phase will mainly result from civil works such as site preparation comprising levelling, excavation work, plotting, construction of internal roads, construction of utilities (water treatment plant, sewage and effluent treatment plant, electrical substations, and so on), reinforced concrete foundation, buildings, and others; materials and machinery transportation, storage and handling of different kinds of flammable and hazardous materials, and others. In summary, potential adverse environmental and social impacts may occur as a result of the following factors during the construction phase:

- Site preparation
- Soil erosion
- Air pollution
- Noise pollution
- Sanitation
- Construction equipment
- Construction waste
- Storage of hazardous material and dumping materials
- Site security and safety

The construction phase impacts are temporary and localized phenomena, except for the permanent change in the local landscape and land-use patterns at the project area. The potential impacts require due consideration, however, and must be treated as important during project execution; and also detailed protocol procedures shall be implemented to prevent and mitigate adverse impacts and occupational hazards wherever applicable. The mitigation measures to control adverse impacts during the construction phase are listed below:

- Preparation of environmental assessment report based on the baseline parameters collected from secondary sources
- Qualitative assessment of commercial, social, economic, and environmental risks associated with the development
- Study of environmental issues, including solid waste handling, liquid waste treatment and management of air emissions
- Collection of data for environmental assessment would include climate and rainfall, soil characteristics, hydrology, ambient air quality, noise level, land use, surface and subsurface water quality, ecology and biodiversity of the region, socioeconomic conditions, endangered flora, and fauna and so on
- Social review and assessment with respect to the identification of project-affected people, resettlement and rehabilitation action plan, income restoration plan, livelihood creation, and others.

The findings and mitigation measures dealing with environmental and social impacts of the construction phase will be codified by the IAFP developers by the development of an environmental management plan. That plan is then used as guidance for the development and oversight of construction contractors during

and after the construction phase. Environmental management plan considerations that are applicable during the operation phase include:

- Operation of various collection and disposal facilities for emissions, wastewater and solid waste
- Routine monitoring of selected parameters
- Data handling, reporting, storage and retrieval facilities, feedback to facilitate future planning
- Emergency action procedures and disaster management procedures
- Workforce for environmental management.

The management and workforce of the IAFP and occupant units should ensure that they adhere to the environmental management plan while planning, constructing and operating the facilities mentioned in Table 11. The necessary undertaking should be provided on an annual basis to the designated authority mentioning the activities, and the interventions to be carried out.



Source: stock.adobe.com

TABLE 11 - Environmental considerations and checklist for construction activities

## 1 PLANNING PHASE

### Land degradation

- › Clearance for activities and infrastructure such as micro-dams, hillside terracing, soil bunds
- › Introduction of crop rotation management, use of fertilizers, tree planting and soil drainage
- › Control of bush burning and fires
- › Protection of roadsides by the planting of vegetation
- › Protection of the outlet of drainage canals and culverts to avoid clogging of river drains
- › Preparation of an efficient and sustainable maintenance plan.

### Water

- › Review, update and enforcement of pollution control legislation
- › Examination of wastewater treatment and rainwater and irrigation drainage considerations
- › Strengthening enforcement capacity
- › Developing and implementing rural water supply and sanitation policy
- › Locating subprojects at far or safe distances from water points and sources
- › Increasing public awareness.

### Biodiversity, natural habitats, and wetlands

- › Consideration of alternative locations and siting of subprojects
- › Reducing biomass use through the provision of alternative energy sources and construction materials (cooking stoves, photovoltaics)
- › Strengthening natural resource management capacity
- › Developing alternatives to slash and burn clearing, decreasing overgrazing
- › Promoting agroforestry
- › Wetlands management and small irrigation development
- › Protecting sensitive ecosystems such as forests and wetlands, preventing further encroachment in protected areas
- › Enforcing existing laws
- › Locating subprojects appropriately
- › Training of communities on sustainable uses of resources
- › Identifying certain species of trees and animals that must be protected
- › Excluding from the project site ecosystems that provide important habitats for protected species
- › Establishing buffer zones around protected parks and wetlands.

### People

- › No involuntary settlement is allowed if it is the result of land acquisition, or denial or restriction of access to economic resources such as trees and buildings used by members of communities
- › Provide social services in the areas of primary education, primary health care, water supply, microfinance, feeder roads, soil conservation and natural resources management
- › Basic and required training at State and local community levels. Ensure that these services are equitably distributed throughout the districts and that access is open to all ethnic groups irrespective of status
- › Ensure that vulnerable groups in subproject areas are included in project activities and benefit from decision-making and implementation
- › Provide employment opportunities during contracting of civil works, and similar opportunities.

## 2 CONSTRUCTION PHASE

- › Construction to proceed during the dry season only. Soil surfaces to be protected during construction
- › Adequate protection to be provided against livestock entry by fencing the site perimeters
- › Employ all unskilled labour from the local community and semi-skilled labour first from the local community when available therein
- › Source goods and services from local districts first, when available
- › Control and daily cleaning at construction sites
- › Provision of adequate waste disposal services including proper disposal of chemicals and other hazardous materials
- › Dust control by water, appropriate design, and siting of dust barriers, and restricting construction to certain times
- › Appropriate and suitable storage of building materials on site
- › Siting of latrines at safe distances from wells and other water points and using closed systems for sewage drainage
- › Restrict construction to certain hours
- › Minimize loss of natural vegetation during construction; find alternative sites, where necessary or advisable; consult and take various special measures for sensitive species
- › Restore vegetation upon completion; clean-up of construction sites
- › Ensure safety signs are installed, maintained and replaced when necessary (signage)
- › Ensure availability of clean potable water for use in latrines, canteens, and drinking
- › Use of appropriate building materials. No asbestos.

## 3 OPERATIONS AND MAINTENANCE PHASE

- › Use facilities and infrastructure as designed and as intended
- › Employ trained staff to operate and secure facilities
- › Log and report any damage done and repairs needed
- › Perform periodic monitoring of all aspects as contained in the subproject Environmental and Social Monitoring Plan
- › Prepare and adopt a suitable maintenance plan
- › Maintain the appropriate budget necessary to implement the maintenance plan
- › Implement the maintenance plan in two stages: for activities requiring day-to-to maintenance such as repairs to damage done, regular inspections and longer-term and periodic maintenance
- › Have suitably trained staff to carry out maintenance and provide access to necessary materials, goods and equipment.

### 6.4 MODULAR CONSTRUCTION APPROACH

A modular concept, in accordance with which modules are built off site and delivered to the construction site, must be recommended during every stage of

the assessment, design and development of an IAFP; and a user-friendly plan, designed to be compatible with highly modular construction methods, should

be drawn up and followed during the implementation stage. Appropriate modern methods of construction should be proposed, using locally manufactured inputs where possible. All infrastructure should be modular, functional, cost-effective and flexible to take gradual occupancy into account, as well as different sizes and types of businesses.

The modular construction approach is a recent development trend. It is useful for its promotion of efficiency. For example, structures can be constructed off-site in a convenient location, taking advantage of skilled labour, leading to time and cost reductions, before shifting them to the IAFP. Modular construction also takes advantage of modern equipment as it becomes available through continuous innovation – facilitating the introduction of state-of-the-art applications.

An increasing number of projects commissioned globally are adopting this method of modular construction, which results in a shorter timeframe for development with greater predictability of costs. This approach also has fewer environmental implications since the area of operations is planned efficiently and output is transported easily.

In an IAFP, it is important to identify all the required infrastructure for the components as well as decide upon the structure and mode of construction at an

early stage in the planning process. By deciding on the construction approach, the equivalent costs can be adjusted to meet the available budget. One of the potentially significant benefits of modular construction can be the location of the factory, which ideally should be near to the actual site selected for IAFP development. This benefit allows the project authorities to regularly check on the manufacturing process, conduct regular inspections, develop a good rapport with the manufacturers and more easily meet the project demands.

One of the main considerations for investment by the private sector includes the availability of ready-built facilities and the presence of essential social amenities such as residential and housing facilities, healthcare clinics, schools, and others, and these are the sectors within which the modular construction approach is widely adopted. Modular construction provides a way for the developer to reconfigure buildings with minimal alterations to the exterior.

To determine whether the development is suitable for a modular construction approach, a benchmarking exercise has to be carried out. Other factors to be looked into and decided upon include the range of materials to be used, assembly types, approach for modular construction (volumetric or non-volumetric), building type, site constraints, location, skill availability, and so on.



Source: stock.adobe.com



## 6.5 TRANSPORTATION NETWORK

Based on the analysis and establishment of GIS data, the transport pattern is to be studied for the targeted areas of the IAFP to identify national roads (primary and secondary roads) and regional roads (tertiary and vicinal roads) traversing the procurement zone. The study of GIS data should consider the net marketable surplus which is essential for the sustenance of the IAFP, and the costs and road network of the entire procurement zones are to be studied. In addition, information on existing railway lines, airports, major settlements and infrastructure linkages are to be provided. Pictorial representation of the existing land-use pattern and the transportation network with a spider diagram is to be presented for different lengths of roads.

The effective zone of procurement is a function of net marketable surplus, quantities that are likely to be

processed in the agroprocessing hub centre (APH), cost of procurement, and transportation cost. The various procurement subzones will have different competitiveness in terms of supply to the APH and RTCs. In addition to logistics considerations, legal issues of procuring the commodities from another jurisdiction need to be considered.

Various subzones are to be categorized within the procurement zone in terms of their competitiveness as a feeder zone to the APC and network of RTCs. The effective zone of procurement is to be analysed in the context of legal issues such as regional boundaries, the establishment of collection centres (CCs), storage halls, and others. Raw materials required for the APH from each of the procurement subzones are to be determined based on the output to input norms.

## 6.6 PROCESS OF TRANSFERRING DEVELOPED LAND

The main objective of the construction phase should be to create a world-class, multi-format industrial developed land, with built space for manufacturing, commercial, business and residential use and with excellent state-of-the-art infrastructure facilities. The process of transferring the developed land is in the hands of the respective parties of the special purpose vehicle of the IAFP.

Where land is to be developed, subdivided, or two or more plots are to be amalgamated, or a layout is to be prepared, the national regulations of the country shall apply to the entire area under development, subdivision, amalgamation, and layout, provided that, where a developed land, an existing layout or subdivision plan is being altered, the regulations shall apply only to that part which is being altered or constructed.

The transfer of developed industrial plots, factory shells or warehouses can be done either through sales

or leases. The decision to sell or to lease depends on prevailing land law or development control regulations in the host jurisdiction, market preferences and the types of assets being offered. Leasing provides the greatest market entry and exit flexibility and the lowest financial barriers for IAFP residents as it does not require a large down payment. From the standpoint of the developer, leasing has the disadvantage of facilitating short or medium-term exit from the IAFP, but it also has the critical advantage of providing a constant revenue stream and cash flow.

The sales and leasing price of serviced land and facilities depends on the location of the IAFP, and the extent of the available infrastructural facilities within it. The following strategies are recommended when setting these prices:

- Prices should reflect prices prevailing in the local market

- Prices should enable developer or operator cost recovery plus margin, in order to enable the financing of future IAFP expansion or upgrade needs, and incentivize the developer to make such investments
- Transparency in pricing is essential to finding investors.

In 2015, the Industrial Park Development Corporation of Ethiopia developed a directive for leasing industrial plots and factory shells. The directive outlines the following conditions for their transfer:

- Rental agreements providing for monthly rent payments
- Competitive international selection amongst invited capable investors, in accordance with government bidding procedures
- Ratification of leases by the Corporation's Board of Directors.



Source: stock.adobe.com

## 6.7 IAFP PROJECT CONSTRUCTION – CRITICAL MANAGEMENT ACTIVITIES

The IAFP Authority or project implementation unit has a great deal of responsibility in selecting IAFP developers and overseeing the construction process. The activities surrounding construction management and oversight include regulatory management, planning and scheduling, cost management, contract administration, manufacturing quality assurance and inspection, construction management, quality management and audits. These actions ensure the delivery of quality products, delivered in a timely manner at competitive prices. Descriptions of these responsibilities are elaborated below.

**Regulatory management:** The activities related to overseeing the implementation of the IAFP by the authorities appointed as part of the project implementation unit management team include:

- Design of project component compliance requirements – The design of the project submitted as part of the planning should be checked with respect to national and international standards applicable at all levels of planning, design and implementation.
- Licensing and approval requirements – it is important to determine the interventions required on the part of construction that require approval for further progress. The regulatory management oversees these considerations and must ensure that there are appropriate checks and balances present at the implementation stage.
- Adherence to all statutory permissions, clearances and approvals necessary at various stages of project execution – the regulatory management is responsible for informing and advising the occupant units of IAFP on the clearances and approvals. In addition, the necessary one-stop-shop activities are to be in place for effective knowledge dissemination and an efficient clearance mechanism.

**Planning and scheduling:** The activities related to planning and scheduling include:

- Project scope definition
- Contract packaging

- Identification of optimum construction techniques to match available resources
- Preparation of an overall plan for control and monitoring of project
- Preparation of project schedules – master and control, milestones
- Estimation of required materials, equipment and workforce resources to carry out activities on which to base the project schedule
- Identification of key milestones and critical path and establishment of the baseline schedule
- Monitoring project schedule regularly and recommending remedial measures to maintain scheduled progress
- Update project estimates and schedules to ensure they indicate project status.

**Cost management:** The activities related to cost management include:

- Bills of quantities
- Derivation of rates
- Escalation allowances, if any
- Financing and cash flow considerations
- Comparison of budgeted and forecast costs
- Remedial measure recommendations
- Estimation of change costs
- Examination of contractors' claims submissions.

**Contract administration:** The activities related to contract administration include:

- Monitoring progress and expediting as necessary
- Administration of approved changes to contracts and purchase orders
- Identification of possible exposure to contractors' claims and strategy to avoid or minimize these
- Review of contractors' claims for changed conditions, *force majeure* or extra work, negotiating and optimum position for owner protection and making recommendations to owners

- Cash flow projections for the project
- Project accounting
- Planning, coordination, management and status reporting on the project
- Supervision of construction work.

**Manufacturing quality assurance and inspection:** The activities related to manufacturing quality assurance and inspection include:

- Review of contract documents and purchase orders
- Review or audit of manufacturers' material quality controls
- Preparation of special inspection procedures and specifications
- Materials verification
- Detailed inspection reports.

**Construction management:** The activities related to overseeing construction management activities include:

- Reviewing contractors' detailed construction methodology and drawing submissions for overhaul of design intent and specification compliance
- Monitoring worker standards and checking site materials quality, laboratory facilities, for contractor compliance with specification
- Monitoring construction progress and costs
- Monitoring site safety programmes
- Administering construction contracts, including field changes, checking work measurements
- Certification of contractors' statements for payment
- Preparation of as-built drawings and documents.

**Quality management and audit programme:** The respective authorities as part of their quality management and audit programme must prepare and actively enforce the following procedures during the execution of the various parts and stages of the project. The construction supervision team at the site shall ensure incorporation of the quality assurance and quality control system at the site of work for better performance by contractors and completion of the project in accordance with the schedule and specified standards.

- In the IAFP project, authorities must deploy the same quality management and audit programme which has led to the successful completion and commissioning of similar projects
- The broad outline of the contents of the field manual for construction supervision services and pre-construction tests to be carried out is given in Annex 2.

# 7

## Investment Attraction and Facilitation

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## 7.1 OVERVIEW

Integrated agro-industrial parks (IAFPs) are a specialized tool not only for catalysing growth in agro-industrial sectors, but also for attracting investment. IAFPs and investment promotion activities have a symbiotic relationship, reflecting their mutual benefits. Indeed, investment promotion is critical to the success of IAFPs and should therefore be incorporated into every phase of IAFP planning, construction and operations. At the core of the investment promotion strategy is an understanding of the business perspective and customizing tools and approaches to take care of investor needs throughout the business life cycle.

Growing interest in specialized agro-industrial parks, in Africa<sup>17</sup> in particular, entails growing competition for attracting private investment for the development of parks, and also for attracting tenant companies. A clear understanding of a country's or location's comparative advantages, key markets and competitive factors is an important starting point for designing IAFPs. Investment promotion agencies have a niche role to play in this regard. An analysis of demand assessments, subsector

selection, and value chain constraints conducted during the pre-feasibility phase will identify key elements that investors need to make their businesses successful. In turn, marketing approaches that clearly articulate key IAFP features and the competitive environment in which they sit are the cornerstones of successful investment promotion strategies.

This chapter provides the context for IAFP investment promotion, discusses how investment promotion roles are shared between national and regional investment promotion agencies and IAFP developers and operators, clarifies key IAFP selling points and the array of investment incentive options, suggests investor targeting strategies and approaches, and concludes with other services useful to investors in making their decision to initially invest and subsequently to stay or expand. This chapter does not provide detailed insights into best practices for investment promotion. For in-depth information on best practices, refer to other well-established publications.<sup>18</sup>

FIGURE 40 - IAFP development, Phase 5

### PHASE 5

#### INVESTMENT PROMOTION CONSIDERATIONS

- Understand potential investor needs at different stages of the investment cycle (and incorporate into design and marketing messages)
- Define investment promotion roles of public investment promotion agencies and IAFP operators
- Define investment incentives
- Investor targeting linked to specific agro-industrial clusters and types of businesses desired
- Investment aftercare services
- Monitoring and evaluation functions to ascertain broader areas where investment will have the most impact, such as in relation to national-level Sustainable Development Goals.

17) The African Union initiated the Common African Agro-Parks Programme (CAAPs) as one of the specific initiatives to implement the Comprehensive African Agricultural Development Programme (CAADP) within the framework of Agenda 2063: The Africa We Want, of the African Union. CAAPs is set as an immense initiative to create regional agro-industrial hubs that will respond to the continent's demand of interventions aiming at: the increased supply of domestically produced agricultural goods, the reversal of projections on food imports, and the value-added processing of agricultural commodities to boost intra-African trade and investments. The implementation of CAAPs will help Africa to take over the African food import market of about \$50 billion per annum that is currently outsourced to the rest of the world.

18) There are several existing publications that explore best practices in investment promotion efforts, including by the World Bank Group (2012; and 2014).

## 7.2 CONTEXT

Agribusiness investment in most developing countries historically has been low, resulting in low agricultural value-addition and stagnant production volumes. Investment trends for agribusiness began to change with recent increases in the prices of agricultural commodities. In particular, the 2008 food crisis triggered a surge of private investment into agribusiness. Higher agribusiness returns and relatively cheap land triggered a wave of foreign agricultural investment, and multinational companies have begun to participate in agroprocessing in developing countries (Jiang and Yangfen, 2020). The rising population and resulting increase in food demand are rapidly expanding investment in the food and agribusiness sector. The sector forms a \$5 trillion global industry today that is only getting bigger. Since 2004, global investments in food-and-agribusiness have grown threefold, to more than \$100 billion in 2013. If current trends continue, by 2050, caloric demand will increase by 70 per cent, and crop demand for human consumption and animal feed will increase by at least 100 per cent. Meeting this demand will offer a huge opportunity for investments in food production and processing, along with significant growth in the investment in the research and development of agricultural sector waste (Fung, 2019; Walter and Herther 2017).

For example, agriculture and agribusiness together are projected to be a \$1 trillion industry in sub-Saharan Africa by 2030, compared to \$313 billion in 2010. Moreover, the global political landscape has become more favourable to the development of agribusiness since most developing countries have declared food security a priority under the 2030 Agenda for Sustainable Development.

Agro-food is a vital industry, offering a wide range of investment opportunities. As the world needs to feed a growing population and with less land, often attributed to the deleterious effects of climate change, investing in the food industry emerged as an area of great interest and focus to investors. In recent years, investment in agribusiness is undergoing a period of considerable

change ranging from shifts in consumer preference towards what are termed "clean label" products, to a rising population resulting in increased food demand, to a surge in the development and adoption of agricultural technology. Sustainable agricultural practices have also received increased attention in recent years driven by the need for transparency and accountability. Consumers want to know how the product is farmed and where it originated, demanding the freshest and healthiest products possible. Consumer-facing companies also need to demonstrate their commitment to a sustainable environmental, social and governance approach to stay competitive and meet consumer expectations (Coleman, 2020). Agricultural technology has been growing rapidly, with technology applied in radically new ways in the field. Agricultural technology investment has expanded rapidly in smart farming and data analytics, indoor growing technologies and hydroponics, and better product tracking and labelling (Walter and Herther, 2017). With more than \$17 billion invested in food technology in 2020 alone (FoodTech Data Navigator), investments in agricultural food technology are expected to continue to grow.

The global political landscape has become more favourable to the development of agribusiness since most developing countries have declared food security a priority under the 2030 Agenda for Sustainable Development.

These trends suggest a great opportunity for IAFPs, but also increasing competition for investment funds. For that reason, investment promotion must take into account this broader context and calibrate its tools and messages carefully to effectively communicate unique opportunities provided by the location-specific IAFPs and the supportive business-enabling environment, as well as provide best-in-class services that specifically deal with investor needs and continued aftercare services over time.

### 7.3 ROLE OF INVESTMENT PROMOTION

Investment promotion is a critical function that secures not only strategic developers and operators, but also tenants within the IAFP. This function is often shared between public investment promotion entities and on-site operators, depending on the phase of IAFP development and operations. The table below suggests investment promotion roles and responsible entities aligned with IAFP phases. Once a developer or operator

is selected, they assume the primary role in investment promotion specific to the IAFP. The investment promotion agency at the national level, however, should continue to provide support to the IAFP and should consider the IAFP as an investment promotion tool in and of itself, in addition to promoting investment and competitiveness more broadly in the agro-food processing and agro-allied sector.

TABLE 12 - Investment promotion activities by IAFP Phase

IAFP Phase	Investment Promotion Role	Responsible Entity
1. PRE-FEASIBILITY	<ul style="list-style-type: none"> <li>Provide input into pre-feasibility studies, business case, investment incentives, investment and supply linkages between participants both within and outside the IAFP</li> <li>Facilitate public-private dialogue and policy advocacy</li> </ul>	Investment promotion agency (national and sub-national), national and sub-national chamber of commerce
2. FEASIBILITY	<ul style="list-style-type: none"> <li>Provide input into feasibility studies to ensure alignment with business needs and prevalent investment regulation and code</li> <li>Facilitate public-private dialogue</li> <li>Definition of IAFP anchor firm and building investment demand scenarios in terms of park and plot size, utility supply, and the like.</li> </ul>	Investment promotion agency (national and sub-national) and national and sub-national chamber of commerce
3. RESOURCE MOBILIZATION AND FINANCING	<ul style="list-style-type: none"> <li>Marketing of IAFP Developer and operator opportunity</li> <li>Marketing of potential IAFP anchor firm and investor opportunities</li> </ul>	Investment promotion agency (primary), network of embassies Operator (once selected, assumes a larger role)
4. DEVELOPMENT AND CONSTRUCTION	<ul style="list-style-type: none"> <li>Promote domestic investment to include supply chain linkages in targeted value chains</li> <li>Supporting SMEs in preparing offers on public procurement opportunities and related business plans, once successful</li> </ul>	Operator (primary role) Investment promotion agency (supporting role) National and sub-national chamber of commerce SME development agency
5. OPERATIONS	<ul style="list-style-type: none"> <li>Marketing of IAFP anchor firm and investor opportunities in close cooperation with existing overseas office and network of embassies</li> <li>Promoting tenant investment in IAFPs (domestic and FDI)</li> <li>Promoting complementary infrastructure investments around the park (feeder roads, housing, schools, and others)</li> <li>Providing aftercare services</li> <li>Monitoring the environmental, social and governance impact of IAFP tenants in terms of the Sustainable Development Goals</li> </ul>	Operator (primary role) Investment promotion agency (supporting role) Network of embassies

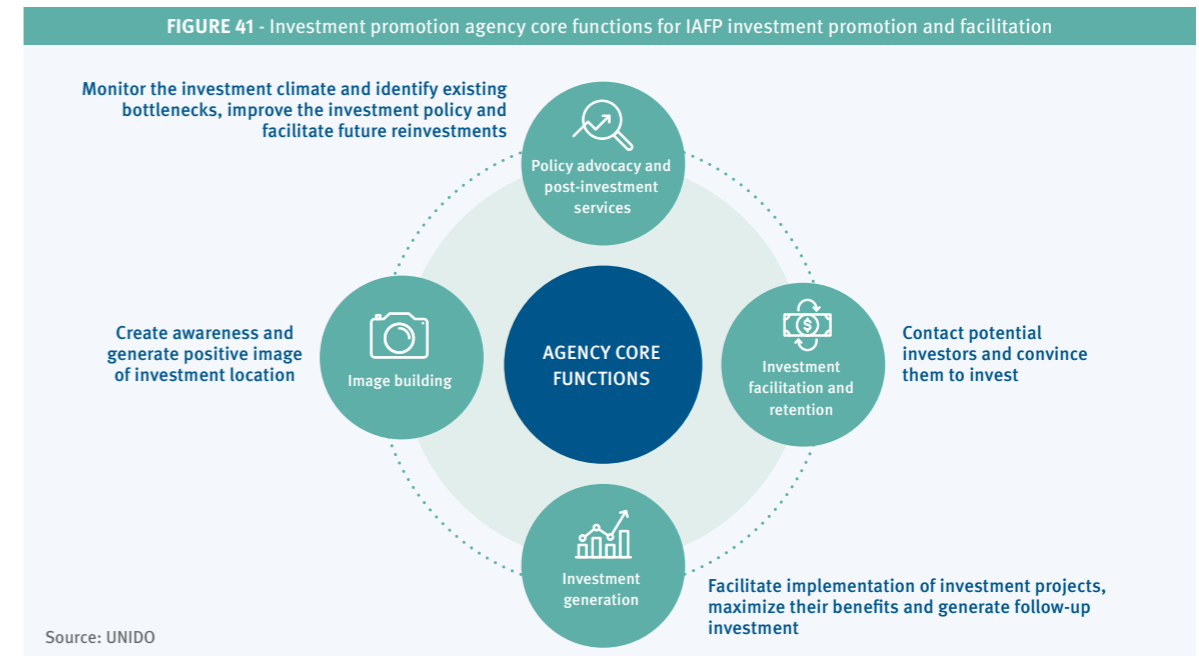
Source: Stephanie Haile

#### 7.3.1 Investment promotion agencies

Many countries around the world have established investment promotion agencies (IPAs) and economic development organizations to facilitate the flow of investment. These investment promotion agencies have been established to compete globally for a share of international investment. According to UNCTAD, over 170 countries have national investment promotion agencies and hundreds of provinces and cities have their own investment promotion units within the local governments that promote both domestic and foreign investment at the city level or industrial park level. They have fostered and enhanced investment into their economies in many ways, which vary from country to country.

The primary function of an investment promotion agency is to develop and implement an effective

investment promotion strategy for a country in alignment with the national economic and strategic development plans and regional integration objectives. The investment promotion agency's core functions include image building, investment generation, investment facilitation and retention, and policy advocacy (Figure 41). These functions need to be assigned different weights depending on contextual situations and lead investors' business cycles. For example, during the COVID-19 pandemic, many investment promotion agencies focused on the function of investment facilitation and retention and barely touched on traditional investment attraction activities which were largely suspended owing to international travel restrictions.



Investment promotion agencies have first-hand information on how to structure initiatives to improve the investment climate and the legal frameworks for investment owing to their close collaboration with private businesses and their reporting function to Government (UNIDO, 2011b). Therefore IPAs are often conceived as bridge-builders aligning private sector and government interests. Accordingly, their specialized

knowledge and private sector networks make them important partners in the IAFP planning phase, including in making the following contributions:

- Facilitating public-private dialogue for the development of IAFP feasibility studies, demand assessments, the business case, and investment incentives

- Developing useful research such as agro-industry subsector analysis, investment gap analysis in existing value chains, IAFP benchmarking, and investor demand assessment and projections
- Aligning IAFP programmes with overall investment promotion frameworks: IAFP are part of the broader national investment promotion and facilitation framework that comprises national and regional policies, legislation and institutions. Activities and mandates of national and subnational institutions should be clearly outlined and coordinated to avoid wasteful duplication and overlap
- Ensuring a whole-of-government approach to investment promotion and facilitation: Overlapping and sometimes conflicting rules, procedures and regulations across ministries and levels of government, including between the central and provincial levels, can create administrative burdens on investors (UNCTAD, 2001)
- Marketing for the solicitation of IAFP developer and operator, anchor firms, and other related investment opportunities
- Hosting investor forums and platforms to match-make investors with IAFP locations
- Public relations through press, radio, TV briefings, conferences, organizing inbound and outbound tours of other benchmarked parks, assisting government representatives (network of embassies in particular) to promote the IAFP in foreign markets, dedicated media and social channels, and similar activities;

such efforts should be grounded in a empirically sound targeting strategy and may focus on specific investor segments from the diaspora, women and youth, and investors from within the sub-region

- Monitoring and measuring activities of the IAFP in terms of food safety matters, uptake of voluntary sustainable standards, waste and pollution levels, and the like, and flagging issues to the concerned legislative authorities
- Active brokerage function maximizing linkages between tenants inside the park and outside vendors and suppliers not only related to agricultural produce but also other related services such as IT, transport, repair and maintenance
- Targeting legal and business assistance to IAFP tenants wishing to expand or divest or those in distress due to looming bankruptcy.

Figure 42 depicts the role of investment promotion agencies with respect to investor life cycles. National-level agencies often serve as the point of contact for a potential investor to the country or IAFP investment opportunity. Therefore, it is important that investment promotion agencies work in partnership with IAFP developers and operators to provide timely and useful information that effectively promote investment and provide streamlined investment services (company registration, permits, worker visas, and so on), and subsequently the aftercare services (dispute resolution, monitoring, evaluation and learning, linkage and spillover facilitation and others).

One of the key risks in IAFP investment promotion campaigns relates to their proper timing. Investment promotion takes time and relies on trust and customer relationships which require continuity and a systematic approach. Premature recruitment campaigns for IAFP tenants based only on the master plan, for instance, lack transparent and verifiable information regarding a park’s readiness to receive investors. Promotion campaigns are therefore usually ineffective unless the construction work on an IAFP is in its final stretch. Investment promotion agencies should also be careful not to send mixed signals and create confusion amongst potential investors about applicable investment policies, especially where there may be overlapping regulatory mandates and jurisdictions among relevant government agencies; and coordinate the exchange of information amongst

key IAFP stakeholders. Such activities should therefore be synchronized with efforts undertaken by national investment promotion agencies.

Lastly, investment promotion activities at a local level have proved to be effective owing to improved knowledge of their location and suitability for on-the-ground facilitation resulting from a local agency’s closeness to local decision makers. Sometimes the development needs at the local level may be different from central government development objectives and local institutions (Millennium Cities Initiative, 2009). Accordingly, national-level investment promotion agencies should work closely with regional governments and IAFP developers and operators to ensure alignment of approaches and reduce duplication of efforts.

### 7.3.2 IAFP developer or operator responsibilities

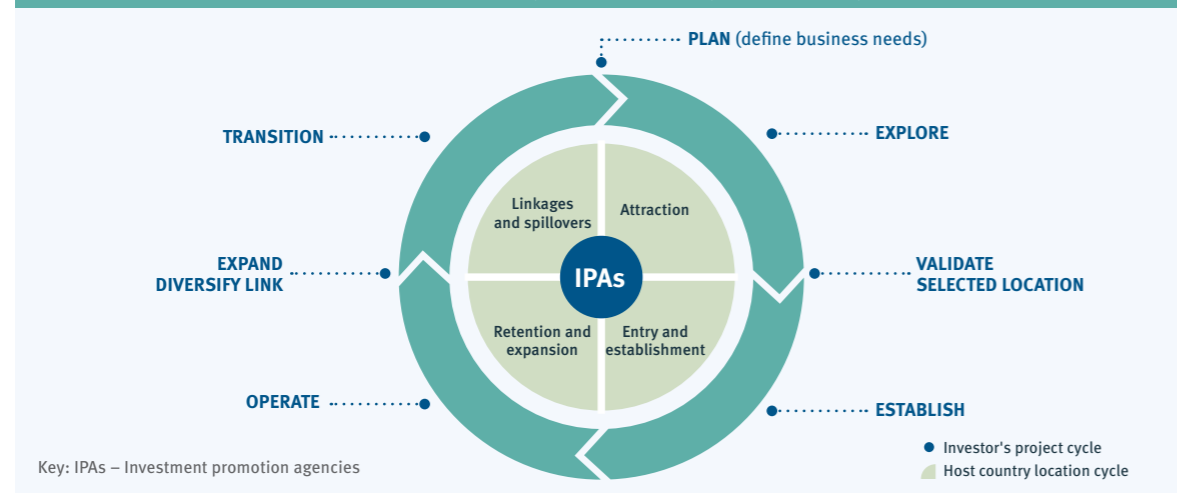
The most important investment promotion responsibility of the IAFP developer or operator in the early stages is the marketing of developed plots. This responsibility is often directly tied to the developer’s or operator’s revenue streams, as tenants pay land leases and service fees to the developer or operator. Marketing of developed plots entails the development of a marketing plan, complemented by strategic branding, advertising, and other sales promotion methods, to promote the IAFP concept and take care of strategic business needs to promote a dynamic agro-industrial integrated system in and around the agroprocessing hub and its rural transformation centres and collection centres satellites. Marketing responsibilities can also be shared with national and subnational investment promotion authorities. Marketing activities could include:

- Arranging investor group visits to IAFP
- Leveraging digital tools, including remote sensing, virtual reality and GPS information, to augment reach to a larger group of investors via online platforms
- Input and coordination with potential occupant units and follow-up
- Public Signing of various memorandums of understanding
- Collaborating with research institutes, technology providers, equipment suppliers, certification laboratories, training institutes and universities for the benefit of the occupant industries
- Soliciting investor feedback on business climate constraints in order to understand shortcomings and informing course corrections that may be needed in IAFP design and implementation.

- Preparation of media plan and media campaigns
- Identification of potential investors, developers and co-developers
- Identification of potential occupant units
- Coordination with various industry associations
- Conducting domestic roadshows
- Holding or participating in international roadshows related to agribusiness
- Conducting one-to-one business meetings with incoming delegations

As the life cycle of the IAFP progresses, the investment promotion responsibilities of the IAFP developer or operator shift towards public relations and investor retention and expansion. Media and public relations activities include publicizing investment success stories and maintaining a regular presence on various media channels (social media, press, radio, television) to promote a positive image. IAFP operators should also provide services that deal with tenant needs once they are established. Such services could include:

FIGURE 42 - Investment life cycle and investment promotion agency roles



- Professional park management and operations, waste collection and disposal, security, environmental management, facilities management and infrastructure maintenance, repair, and replacement
- Technical or business support (such as facilitation services, technological packages, research and development, and extension services)
- Market intelligence
- Vendor and labour matchmaking services
- Streamlined regulatory services (one-stop-shop)
- Laboratory and testing centres, quality assurance and certification laboratories
- On-site workforce training
- Machinery maintenance, repair and operation services
- Customs brokerage, clearing agents, courier and freight forwarding services
- Financial services
- Data processing services
- Robust data infrastructure system (to enable information learning, sharing and internal coordination)
- Provision of all major services through online and offline platforms
- Shared research and development infrastructure
- Common showroom and collaboration space
- Childcare and medical services for the workforce.
- Event management and handling
- Advisory centre and consulting services (free or fee-based) to steer IAFP green, social and digital transition
- Investment advice on investment expansions requiring larger plots, joint ventures emerging among IAFP tenants.

## 7.4 KEY IAFP SELLING POINTS AND INVESTMENT INCENTIVES

### 7.4.1 Key IAFP selling points

An IAFP is uniquely designed to deal with key constraints experienced by agribusinesses in a specific context. Often in low income countries, agro-industrial growth is constrained by common factors such as fractured supply chains that yield insufficient quality and quantity of raw materials; inadequate infrastructure, including roads and reliable and affordable power; regulatory bottlenecks that increase the time and cost of doing business; challenges in accessing investment funds and working capital owing to rigorous de-risking or collateral requirements; difficulties in accessing business support and logistics services; and instability (governance, policy), among others. IAFPs deal with many of these constraints through the provision of hard and soft infrastructure, supporting supply chain strengthening, facilitating linkages to finance and support services, and establishing a strategic policy and legal and regulatory framework that instills a stable enabling environment

conducive to business establishment, collaboration, innovation and growth. Indeed, this unique design combination is the fundamental selling point for IAFPs to both domestic and foreign agribusiness investors. In particular, marketing communications should underscore the ability of the supply chain to generate sufficient quality and quantity of raw material inputs to agroprocessing activities; and any additional efforts that will enhance supply chain development during the IAFP development. Furthermore, the application of green design principles, closed-loop systems, and sustainable production technologies throughout the agricultural production – processing – distribution cycle, are increasingly popular especially for global value chains. To ascertain increased investment flows, the IAFP system should by design meet specific needs of a targeted subsector or value chain to grow the agro-industrial system within a prioritized strategic region.

### 7.4.2 Investment incentives

A variety of investment incentives are often associated with investment promotion, particularly for the attraction of foreign direct investment (FDI), with the intent of boosting prioritized sectors of the economy and encouraging knowledge spillovers, among other economic objectives. An “investment incentive” is a targeted measure provided by a Government to, or for the benefit of, an investor (including small-scale producers) for a new or expanded investment to influence the size, location, impact, behaviour, sector or another characteristic of such investment (FAO, 2021). Investment incentives are generally grouped into four categories: non-tax financial incentives; technical or business support incentives (such as facilitation services, technological packages, research and development, and extension services); fiscal incentives or tax incentives; and regulatory incentives (for example, streamlined and cost-effective services) (Bulman and others, 2021).

Various studies have concluded that fiscal incentives or tax incentives are the most commonly used inducements to attract investors because they reduce firms’ tax liabilities. Fiscal incentives can take several forms, including exempting investors from paying corporate income or other taxes for a specified period of time, and capital cost allowances or direct financial support such as various direct subsidies, grants and loans provided to investors (Bulman et.al., 2021). Chapter 9 – “Policy, legal and regulatory framework for IAFPs” – provides a detailed discussion on tax policy, including financial and fiscal incentives, as well as export policy and incentives. In short, Governments must balance measures that will raise the competitiveness of their IAFPs (who are in direct competition with other industrial parks in the region and the world) while also avoiding a race to the bottom caused by IAFPs competing purely on the basis of fiscal concessions that erode the tax base and may negatively affect operations, maintenance and additional investment in the region.

IAFPs should consider prioritizing instead the financing and delivery of internationally competitive

and valuable infrastructure and services to tenant firms. Evidence shows a strong correlation between financing quality infrastructure and the levels of investment, exports, and employment in parks and zones (Farole, 2011: 4; AfDB, 2021a; Walter, McCartan-Demie and Kebede, 2021; Haile, forthcoming).<sup>19</sup> Where private investment is preferred, but private investment risk is considered elevated, catalysing IAFP infrastructure development can be facilitated through incentives and support made available by Governments to private financiers, developers and operators through direct financial support or guarantees to build infrastructure and facilities in the park. The financing modalities of this arrangement may take many forms: a concession agreement, subcontract, fiduciary management agreement, lease agreement or civil society agreement.<sup>20</sup> State and local government authorities can also offer financial incentives to IAFPs in the form of subsidized land, grants, equity, soft loans and contributions to long-term interest or interest-free bonds (Ravensbergen and others, 2013).

Governments may also provide investors with streamlined services for investment procedures and regulatory services essential for doing business through the extension of one-stop shops. Furthermore, co-location of specialized private service providers within the IAFP can reduce costs, expedite timeframes that preserve product freshness and elongate shelf life, and increase constructive collaboration and innovation over time. Specialized service providers deal with a wide array of functions, including financial services, courier and freight forwarding, input supply, machinery maintenance, repair and operation services, packaging and market intelligence, quality assurance and quality control and product certification services, logistics, childcare and medical services. Co-location of interrelated businesses creates an agro-industrial integrated system that generates clustering and agglomeration benefits considered value-added by most agribusinesses and ultimately makes IAFPs more competitive relative to mixed-use industrial parks that do not sufficiently take care of specialized subsector needs. In situations where such co-location of specialized private sector

19) Design features can also facilitate greater accessibility of MSMEs in IAFPs such as the construction of ready-made industrial shells where firms can ‘plug-and-play’ with lower advance capital expenditure.

20) Chapter 4 – “Resource mobilization and financing” – discusses various approaches to securing finance and leveraging the private sector for IAFP development.

service providers is not possible due to space or other constraints on the IAFP site itself, IAFP operators should nonetheless maintain a list of certified and reliable vendors in the vicinity of the park to which IAFP tenants could be referred. Such support can be enlarged to become a specialized business linkage programme with services offered free of charge and others against a fee (such as, for event organization).

Lastly, broader industry and subsector support programmes, including supply chain strengthening, research and development, workforce development, and so-called “smart subsidies” that foster desired behaviour in certain types of value chain stakeholders (such as increased production or processing of a certain product), may also be considered investment incentives. The key feature of such broad-based support should be the stability and predictability of such policies, even if it is to be phased out over time.

### 7.5 TARGETING OF INVESTORS

The identification of an IAFP developer and operator, who are most often engaged through a public-private partnership, is dealt with in other chapters.<sup>21</sup> The

All investment incentives should be evaluated for suitability and grounded in both an economic rationale for enhancing the competitiveness of the private sector and achieving wider development objectives for the country including revenue mobilization, employment creation, industrial upgrading and shared learning with the domestic private sector. Tools to evaluate suitability include cost-benefit analysis, an analysis of economic return of government investments, relevance to the desired impact, social and political acceptability, sustainability and capacity of local institutions. Incentives could also be offer to reward the risk-taking approach of early IAFP anchor firms to encourage others to follow suit. The value of an investment brought in by an incentive (or a package of incentives) must exceed the costs. Otherwise, the Government risks offering unnecessary subsidies which could be deployed elsewhere.

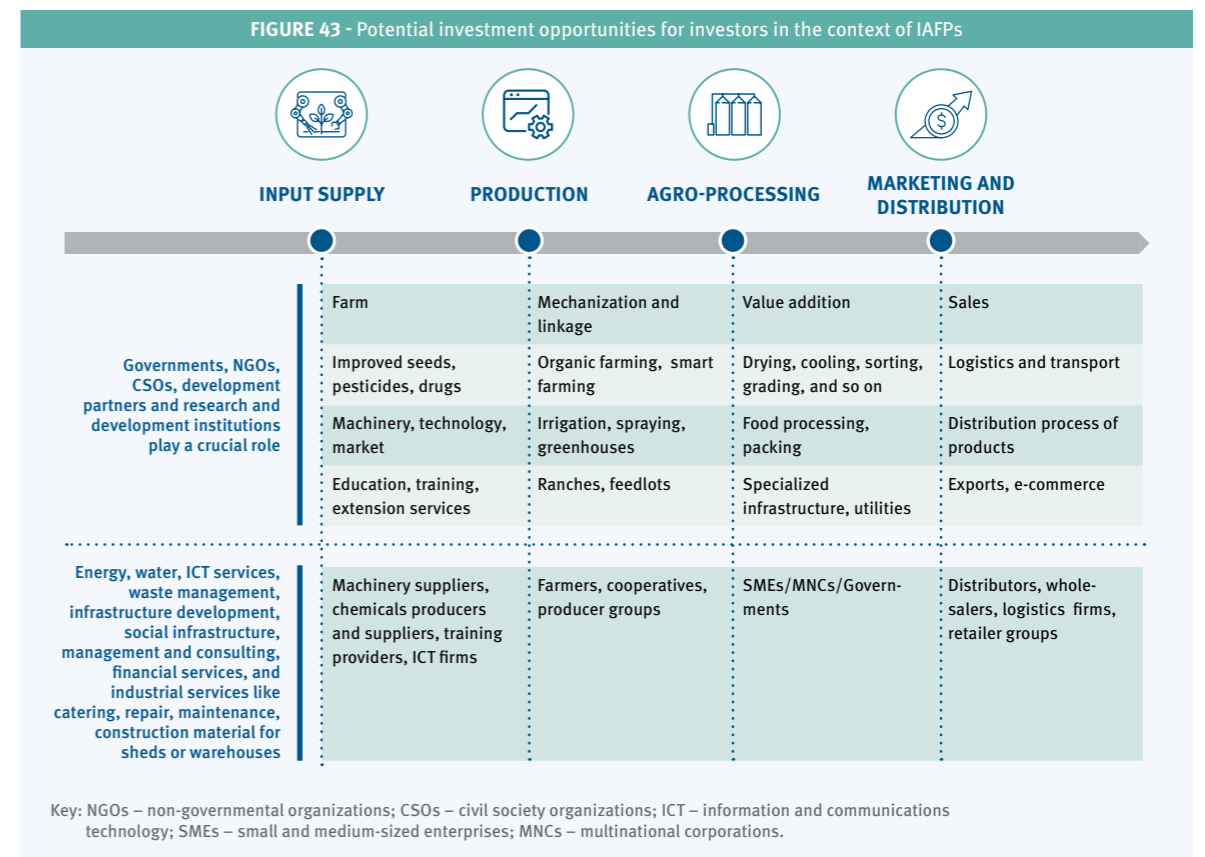
present section focuses on targeting of investors to be installed in the IAFP.

#### 7.5.1 Define target segments, source markets and investment types

Guidance for the IAFP planning phase (refer to chapter 3 – “Planning integrated agro-food parks” – for additional discussion) suggests that policymakers should determine which subsectors to target. Subsector targeting for IAFP helps countries to promote investment in activities that leverage their comparative advantages or are necessary to achieve their broader national economic development objectives. Subsector identification also informs the definition of spatial characteristics of the IAFP infrastructure (for example, energy supply, water consumption, and others) and supply chain network, as well as the type and range of services needed to support target businesses. The composition of future tenants also plays an important role for the orientation of related social and environmental impact analysis given the varying

impact on such items as industrial and workers' safety, pollution levels, noise levels, road traffic and safety, preservation of biodiversity, groundwater levels, and the like.

Accordingly, IAFP investment effort should focus on a few target segments, source markets, and investment types for effective investment promotion marketing and service offerings. First, targeting efforts for the identification of anchor investors is regarded as the cornerstone to achieving greater success in occupying the IAFP. Anchor firms can sometimes serve as IAFP developer or operator, depending on the specific institutional arrangements and business plan established in the planning phase. Their commitment to



invest sends a strong signal to other potential investors to look more closely at the IAFP. Anchor firms can also foster the process known as “crowding-in” by attracting investments from its existing business partners. In an ideal scenario a virtuous cycle ensues, whereby word-of-mouth marketing by existing investors complements and amplifies formal investment promotion efforts. In short, securing investment from anchor firms is a strategic marketing tool on its own and may also warrant taking bespoke approaches on such issues as granting incentives and management.

Next, smart targeting approaches often focus on specific niches as well as gaps and investment opportunities in the targeted subsectors (value chains). Defining and refining target groups can draw on existing studies, strategies, data and assessments, as well as studies conducted for sector prioritization and targeting (WAIPA, 2020). The landscape of potential investors can be organized along the value chain, from input supply to production, agroprocessing, marketing and distribution. The IAFP should also consider fostering partnerships that build dynamic agro-industrial and agro-allied systems

for knowledge sharing, symbiotic relationships and innovation. Existing businesses and their relationships with specific foreign countries or regions are an asset to be leveraged in investment targeting strategies. Some of the existing relationships that can be leveraged to generate leads with potential foreign investors include:

- International partnerships (such as sister cities or innovation and research collaborations with foreign entities, regions, or universities)
- Concentrations of immigrants, diaspora, foreign residents, foreign students, and alumni from particular countries
- Neighbouring countries
- Specific groupings or associations, such as foreign chambers of commerce, cultural centres, and others
- Relationships with foreign sources of supply (importers or distributors that are owned or have strong connections with foreign suppliers)
- Foreign countries or peer regions with similar clusters and sectoral concentrations and specializations.

21) Refer to chapter 3 – planning integrated agro-food parks, chapter 8 – “Operating integrated agro-food parks” – and chapter 9 – Policy, Legal and Institutional Framework for IAFP – for additional discussion on these points.



### 7.5.2 Selecting the right tenant

Enterprises should be carefully vetted to ensure that their cooperation and active participation will achieve IAFP objectives, such as inclusive supply chain strengthening, workforce development, compliance with environmental and social management plans, and continuous learning forums, digital transition, among others. Governments can also sign on to international standards or create a national contact point for responsible business conduct to ensure that IAFP tenants act responsibly and in alignment with the OECD Guidelines for Multinational Enterprises (OECD, 2013). Integration of environmental, social and governance factors is the most widely applied sustainable investment strategy. Based on environmental, social and governance criteria, IAFPs

and financiers can establish negative lists excluding sectors, companies, or practices from IAFP investment opportunities. It is important that tenants should be subject to continued monitoring, not only during the establishment phase but throughout their tenure. On the one hand, business conduct, especially when linked to incentives, may appear to be responsible initially and in keeping with IAFP principles, but could change later on. On the other hand, tenants that are committed to a long-term environmental and social transition, and can show concrete proof of conformity to social and environmental standards, should be acknowledged by the IAFP operator through special award schemes or incentives.

### 7.5.3 Investment promotion and facilitation for IAFPs

Investors have imperfect information, and their decisions are often influenced by perceptions about a specific location. Alleviating these information gaps and misperceptions through well-focused promotion and facilitation services is a key objective of any investment promotion effort. The unique features of IAFPs lend themselves to providing greater specificity to potential investors. Through direct marketing, information can be provided to companies on the profitable business opportunities inside IAFPs. Lack of effective marketing and investment facilitation activities can lead to failure in attracting quality investment into the IAFP, even when infrastructure is readily available.

Promoting and facilitating investment involves two major activities. A promotion activity aimed at positioning a specific location (such as IAFPs) as an investment destination, while facilitation is about making it easy for investors to establish or expand investments, often using one-stop shops with single-point authority. Countries or regions often use location branding comprising a set of IAFP-based elements that range in scope from logos and slogans to a broader range of place attributes including the built and natural environments, actions and attitudes of local government and key stakeholders, and quality of local infrastructure (Kavaratzis, 2005). Location-

specific outreach and awareness creation activities for IAFPs may include an IAFP's geographical location, proximity to raw material supply and markets, general infrastructure connectivity (power, water, effluent treatment, ICT, transport, and others), workforce availability, corporate taxation and incentive schemes, raw material supply, specialized service provision, potential strategic business partners and collaborators, and others.

In the era of fierce international competition for investment owing to the proliferation of industrial zones and parks around the world, location branding has been increasingly adopted on both local and regional scales to attract businesses (Cleave and others, 2016). Policymakers and practitioners use a plethora of location branding instruments to attract and retain business investment in their communities, including a marketing plan, media and marketing campaign, advertising and roadshows, communication and public relations work, organizing investor forums, hosting inward investment missions and outreach to journalists and business partners. In addition, promotion missions abroad using international representations or embassies are also very effective, and even more effective if carefully managed and coordinated with national promotion efforts (OECD, 2015).

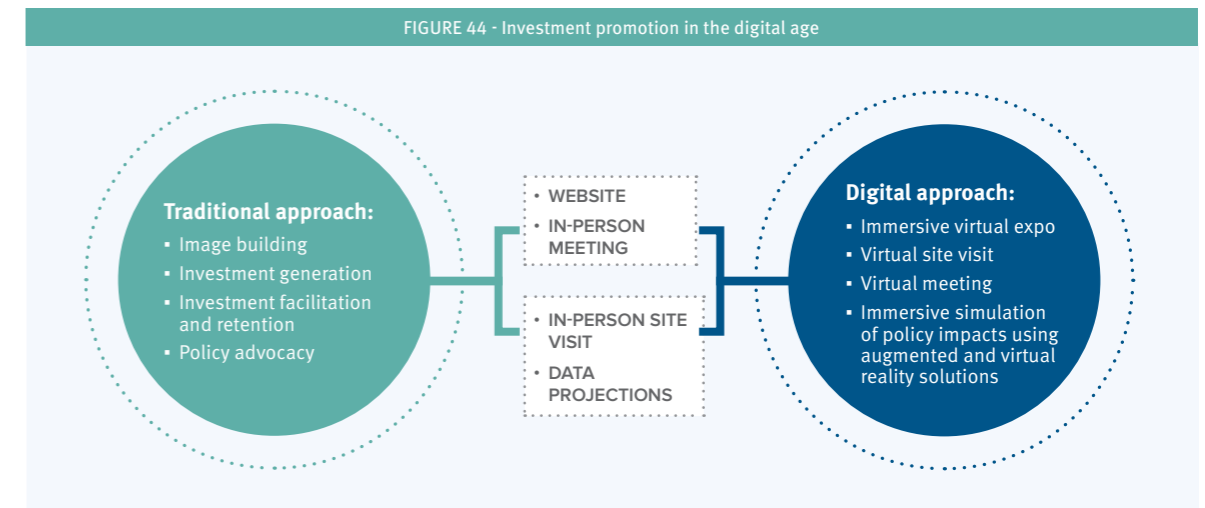
#### BOX 23 - International Agro-Industry Investment Forum of Ethiopia

The Government of Ethiopia in collaboration with UNIDO organized two international agro-industry investment forums. The investment forum aims to mobilize private investment in light manufacturing, with a particular focus on food processing, textiles and garments, and leather and leather products, and showcase specific investment opportunities. The first forum, which was held from 5 to 7 October 2016, attracted over 1,200 participants, including over 400 international participants, including 200 representatives of the international business sector and 50 representatives of financial institutions. A series of roadshows to promote investment in Ethiopia were organized running up to the event, where over 200 participants took part in a field visit to the Eastern Industrial Zone, a privately-owned industrial zone located near Addis Ababa. The first forum also featured 154 formal business-to-business meetings between Ethiopian companies and foreign investors and over 20 business-to-government events. Widespread support was also expressed by development partners and business sector representatives for the development of IAFPs. In the following years, the second international agro-industry investment forum was held in 2018, attracting 2,350 people and 300 international guests, nearly doubling the participation of the first forum. Participants included representatives of the Government, United Nations organizations, financial institutions, and the international and local business community.

The COVID-19 pandemic restrictions on travel, meetings and events forced Governments to re-evaluate their FDI attraction strategies, which often rely on lengthy negotiations and significant travel. Traditional approaches using a polished website with excellent stories and promising statistics may be important, but not enough to convince investors. In the era of restricted mobility, well-designed and regularly updated

content including using emerging technology such as augmented and virtual reality has become a necessary tool to enable investors to experience digitally rendered content in both physical and virtual space (Feldberga and Dick, 2021). Recently, augmented and virtual reality technology was used by some industrial parks to enable investors to digitally visit a potential investment which will support investors' decision-making process.

FIGURE 44 - Investment promotion in the digital age



Source: UNIDO

## BOX 24 - Investors' site visit using virtual reality technology - Nam Dinh Vu Industrial Park

The Nam Dinh Vu is a specially designed industrial park associated with the seaport system – the logistics chain in northern Viet Nam. Following the outbreak of the COVID-19 pandemic, it became challenging to conduct investment promotion abroad and for investors to visit the park. To assist foreign investors to have a look at the industrial park from a distance, the park has introduced a new approach to the site visit supported by virtual reality technology (360-degree panorama photos, 360-degree sample house viewings and virtual reality services). Virtual reality technology enables investors to observe the entire industrial park space using digitally constructed contents without being obscured or obstructed by an object or angle, creating the feeling of going into the reality of a project. With this technology, many investors can visit the amenities of the surrounding area and see if this is a convenient and suitable area. The technology has increased online interaction, saves time and travel costs, and helps customers to learn about the project.



Source: <https://vr360.namdinhvu.com/>

## 7.6 ESSENTIAL SERVICES BY IAFPs

Given the complexity of agro-industrial sectors, a number of services may be needed to assist potential investors in making their decisions to locate within IAFPs. The specialization of these services often implies that specialized staff are needed to effectively respond to investor enquiries. Additional services may include:

- Providing information on relevant policies:** The national and subnational policy environment can be cumbersome. Investment promotion agencies and IAFP operators should consider providing ready access to laws and regulations that govern various topics such as trade policies and agreements for particular products, agricultural production subsidies and related policies such as seed and fertilizer licensing and import requirements, labour laws, and laws governing intellectual property, among others relevant to the targeted subsectors.
- Facilitating access to financing:** Access to financing is not usually a concern for large multinational corporations, but often challenging for MSMEs. Investment promotion programmes associated with IAFPs may consider partnerships with local financial institutions to facilitate access to financial services that meet investor needs ranging from equity to debt products for targeted business profiles and value chain participants.
- Facilitating access to land and water for proprietary production:** Many agroprocessors require reliable sources of raw material supply during the off-season to increase throughput for built capacity. Access to agricultural land for proprietary production (usually with water access for irrigation) is often a factor in achieving bottom lines for processing facilities, extending growing seasons and labour retention. Land tenure, however, is often opaque or unclear in many developing countries with challenging circumstances to negotiate long-term land leases and acquisition. Investment promotion agencies, in collaboration with local governance structures, may facilitate land acquisition services. In so doing, investment promotion agencies should avoid or minimize adverse impacts of IAFP-related
- land acquisition and restrictions on communities and persons. Land acquisition and involuntary resettlement issues should be considered as part of the IAFP environmental and social impact assessment, including applying international environmental and social standards (for example, the World Bank Environmental and Social Standard on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS5)). APIX-SA, the national investment promotion agency of Senegal, for example, has successfully assumed the role of helping foreign agribusinesses to acquire land by assisting the investor with site selection and subsequent negotiations with all stakeholders (World Bank Group, 2012).
- Utility cost transparency:** IAFPs shall provide transparent cost structures for utility use within the park. Power is often a major concern owing to historically unreliable and intermittent access in some contexts, and exorbitant costs. IAFPs should also actively promote a transition from fossil powered energy systems to renewable energy systems.
- Access to qualified labour:** Ideally, IAFPs are located in close proximity to qualified labour markets. When IAFPs are located in more remote areas, this may become a concern to investors and affect their decision. Specialized labour that can manage teams and operate and maintain high-tech equipment can be difficult to find in many contexts, urban and rural. Therefore, programmes must be in place to handle such weaknesses, including expedited visa programmes to bring in expertise from abroad, workforce development programmes, and linkages with universities and vocational schools. Also cultural and social amenities need to be considered inside the IAFP and in its immediate vicinity in order to attract the young and qualified workforce to relocate from urban agglomerations to more remote areas.
- Contract enforcement and dispute resolution mechanisms:** The legal framework must ensure contract enforcement, property rights protection and fair dispute resolution. Confidence in market integrity

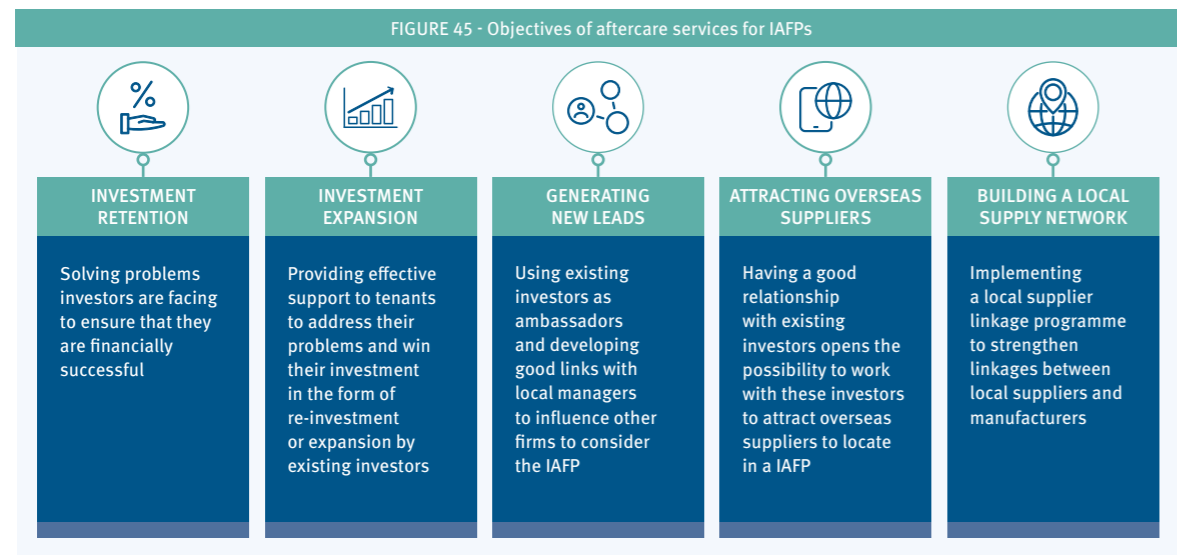
should also be strengthened by developing dispute settlement mechanisms to prevent disagreements from escalating to conflicts. National-level investment promotion agencies sometimes offer alternative dispute resolution services through their aftercare services and grievance handling mechanisms (Heilbron and Aranda-Larrey, 2020)<sup>22</sup>.

- **Aftercare services:** IAFPs can make use of established relationships with existing investors to provide administrative, operational and strategic aftercare services. The administrative services facilitate the entry of foreign firms such as registration and business licensing, visa for expatriates, and others; operational services support the effective and efficient operations of foreign firms (training, creating linkage with local suppliers and cluster development, and others); and strategic services influence the long-term investment decision of the company to make sure that companies stay and continue to expand or upgrade their business activities. Strategic services may include support to the development of new, higher value-added products, nurturing local suppliers to international standards, and policy advocacy.

The provision of strategic services to meet investor needs influences their long-term investment decisions. In particular, the provision of aftercare services has become commonplace and is considered best practice. An effective post-investment service is vital to generating additional investment or expansion of current projects. The concept of aftercare involves a range of activities from post-establishment facilitation services through to developmental support to retain investment, encourage follow on investment and achieve greater local economic impact (UNCTAD, 2007). Most parks provide some type of aftercare (or retention) support to existing tenants. Aftercare services are a proven method of generating new investment cost-effectively and the lion’s share of inward investment can come from existing investors through retained earnings. A recent report by UNCTAD estimates that in 2018, more than half of global investment was made by companies in locations where they already had a presence, rather than in a new location. In the UNIDO *Africa Investor Report 2011: towards evidence-based investment promotion strategies* it was found that an average 60 per cent of working capital and fixed assets financing comes from retained earnings (UNIDO, 2011b).

Despite proven success, aftercare programmes are often neglected and typically receive far less attention and resources than new investment attraction or marketing and promotion. While issues related to administrative bureaucracy and a lack of continued investment promotion agency support have emerged as key factors causing a decline in investor confidence, several investment promotion agencies continue to

place a disproportionate amount of their efforts on attracting new investors (Njau, 2012). Strengthening aftercare services, therefore, in the light of changes in the global FDI landscape, is crucial for establishing successful IAFPs.



Source: adapted from UNCTAD (2021)

22) <https://documents1.worldbank.org/curated/en/375281584479055974/pdf/Strengthening-Service-Delivery-of-Investment-Promotion-Agencies-The-Comprehensive-Investor-Services-Framework.pdf>

# 8

## Operating Integrated Agro-food Parks

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## 8.1 OVERVIEW

Integrated agro-food park (IAFP) operations and management involve site and facilities management and maintenance, continuing investment promotion, performance monitoring and evaluation, and ongoing improvements and reinvestment. Modern operators, furthermore, should ground their delivery of utilities and services in an understanding of eco-efficiency, by-product synergies and integrated waste management, in order to deliver properly coordinated, clean and green services.

IAFPs may also be expected to provide a number of integrated system services, for instance in the form of services aimed at incubating or developing entrepreneurship, organizing regulatory compliance

through one-stop shops, strengthening supply chains through linkage programmes, improving entrepreneur and residents' workforce skills, and providing employee care.

This chapter highlights the following key topics:

- Roles and responsibilities of entities involved in the development, operations and oversight of IAFP
- IAFP legal compliance obligations to achieve their economic, social and environmental objectives
- Criteria and procedures for selecting an operations and maintenance and facility management agency
- Approaches to the design and implementation of a waste management plan in IAFP operations.

FIGURE 46 - IAFP development, phase 6

### PHASE 6

#### SUSTAINABLE MANAGEMENT AND OPERATIONS CONSIDERATIONS

- Roles and responsibilities related to IAFP administration (Joint Steering Committee, IAFP Authority, Developer, Operator)
- Selection of IAFP operator or concessionaire
- Operations (site facilities management) and maintenance functions
- Supply chain linkages, farmer support, and integrated system functions
- Investment promotion and aftercare services
- Regulatory functions (oversight and one-stop shop services)
- Monitoring and performance evaluation
- Compliance with laws, international standards, and management plans
- Environmental health and safety management systems.

## 8.2 IAFP INSTITUTIONAL ORGANIZATION FOR OPERATIONS AND OVERSIGHT

The operations phase of an IAFP requires competent day-to-day operation of the site as well as institutional oversight to ensure accountability of implementing entities (public and private) and continued regulatory compliance, monitoring and performance evaluation. Accordingly, there are often at least four distinct entities involved in the operations phase that have uniquely defined roles and

responsibilities. These are the Joint Steering Committee, the Project Implementation Unit that reports to the Joint Steering Committee (also called the IAFP Authority), the Developer, and the Operator (also called the Concessionaire). The roles and responsibilities associated with each are defined in Table 13.

TABLE 13 - Roles and responsibilities related to IAFP administration

STAKEHOLDERS	ACTIVITIES AND RESPONSIBILITIES
<b>Joint Steering Committee</b>	<ul style="list-style-type: none"> <li>▪ Provide leadership and political will at the highest levels for effective policy formation, IAFP design and implementation</li> <li>▪ Ensure that the project is well embedded and relevant in the national context and linked to opportunities outside the IAFP.</li> </ul>
<b>IAFP Project Implementation Unit or Authority</b>	<ul style="list-style-type: none"> <li>▪ Conduct or manage the pre-feasibility and feasibility design phases</li> <li>▪ Coordinate, and hold accountable, government line ministries for the planning, implementation and operations phases</li> <li>▪ Provide guidance to the local government-level nodal agency in IAFP development and supporting zones</li> <li>▪ Ensure commitment to financial pledges from government and non-governmental entities including development partners and private entities is upheld</li> <li>▪ Ensure external infrastructure linkages and connectivity, road connectivity, national highway strengthening, rail connectivity, dry port connectivity, external water supply source linkages, and others are functional</li> <li>▪ Project clearance and facilitation support</li> <li>▪ Monitoring performance of the private partners and enforcing terms of the contract during implementation</li> <li>▪ Ensuring effective collaboration with relevant administrative authorities for the targeted sectors in IAFP such as various ministerial departments; agro-industry (inputs, equipment and infrastructure suppliers and service providers, transporters, traders, processors, financial service providers, information and communication providers, industry associations); and farmers</li> <li>▪ Other facilitation and oversight as needed.</li> </ul>
<b>IAFP Developer</b>	<ul style="list-style-type: none"> <li>▪ Land acquisition, transfer and assembly</li> <li>▪ Master planning, design and engineering</li> <li>▪ Negotiation and conclusion of government and other institutional partnership</li> <li>▪ Securing statutory approvals and permits, notably including environmental and social impact assessment (ESIA) approvals</li> <li>▪ Arranging finance and marketing</li> <li>▪ External utility connections</li> <li>▪ Development of internal utilities distribution networks and specialized industrial facilities.</li> </ul>

**Concessionaire or Operator**

- Meeting the majority of project capital investment in accordance with the selected option
- Delivering expertise in commerce, management, operations, and innovation to run the project efficiently
- Responsible for carrying out or operating the project
- Taking a significant portion of the associated project risks in relation to remuneration
- Developing the general, specialized and specific infrastructure
- Marketing of industrial space, ready-built space, commercial and supporting elements space
- Operations and maintenance
- Provision of social services (where applicable)
- Facilitation of agribusiness incubators and skills development (where applicable)
- Monitoring and evaluation
- Public relations.

The joint steering committee is often a very high level inter-ministerial committee under the leadership of the presidency, vice-presidency or ministry, as may be designated by the Head of Government. The joint steering committee is supported by several technical committees. The role of the joint steering committee is to coordinate the activities of government departments and agencies in relation to the delivery of the IAFP. The Committee is to monitor the implementation process and most importantly support the mobilization of resources through investment promotion, forums and seek partnerships with donors. International best practice also suggests involving private sector representatives in the steering committee to ensure transparency, accountability, and that private sector principles are incorporated into IAFP planning activities. The IAFP authority or project implementation unit shall perform the role of implementing agency and shall coordinate the execution of various activities for the development of the IAFP in a time-bound manner under the overall guidance of the joint steering committee.

### 8.3 SELECTING IAFP OPERATORS

An IAFP can be developed and operated by the Government, at the national, State or local level; by private enterprise, whether by a construction company developer or consortium, or manufacturers association; or by some sort of public-private partnership (PPP), such as through a joint venture between the Government and a private enterprise. Different government ministries, public

The project implementation unit may choose to create a local government level nodal agency that may include: relevant government ministries or departments, small and medium-scale farmers, private small, medium and large-scale investors, women entrepreneurs, first-generation promoters and youth in agribusiness, farmer organizations and public service providers. In general, the activities and responsibilities of different government and private agencies for the administration of IAFPs must be identified during the planning phase.

IAFP developers and operators are often private firms or consortiums selected through a competitive process administered by the project implementation unit and approved by the joint steering committee. In some models, they may be the same entity. In other models, they may be different or possibly several different entities. The final negotiation of the financing arrangements, risk and reward distribution between public and private entities is often captured in a special purpose vehicle, a legal tool used to pool funds and equity ownership of the IAFP. SPVs are discussed in more detail in chapter 4.

agencies and State-owned development and facilities management corporations regularly invest in IAFPs, given the public interest they present for the economy. Chapter 4 discusses these different options in greater detail.

The developer or owner, whatever its ownership structure, pays for the initial development of an IAFP

and then, during the operations phase, leases or sells the developed and serviced plots and factory shells to private firms in order to recoup its expenditure. Furthermore, regardless of the IAFP's ownership model, the private sector invariably plays a vital role, as the IAFP's tenants, and also very often as the design experts, construction contractors and managers of public projects. This participation by private firms

provides critical expertise and, in so doing, reduces government risk. Where the operator is a separate entity from the site's owner or developer, the IAFP owner or developer is responsible for establishing and defining the IAFP operator's specific responsibilities, to be enshrined in what is known as an "operator agreement". There are three common management approaches:

- **Management by a public entity:** Public management is a widely adopted approach in many developing countries, where a Government has a large economic stake in an IAFP. This can either be done directly by a ministry, agency or authority or through a commercially-oriented State-owned enterprise or SPV. In the latter scenarios, the Government owns, founds and invests in the company, giving the State strong influence over day-to-day decision-making regarding the IAFP's operations.
- **Management by a private entity:** Under this model, the park operator, a private company, is contracted by the IAFP owner and investors, which may include resident firms that own plots and factory buildings in the IAFP. This approach is mainly adopted where private investors have large investments or own the IAFP. Private management contracts to specialized facilities management companies are also regularly established at government or State-owned IAFPs.
- **Joint management by public and private entities:** An IAFP owned by a public-private partnership is jointly managed by the Government and private investors. While the power-sharing mechanism described in the Articles of Association of the SPV allows the parties to divide responsibilities as they deem most appropriate, it almost invariably leaves day-to-day management and technical decisions to the private partners, vesting land acquisition, compensation and resettlement, and government relations and interface (for instance around required permits) on the public partners.

For the latter two management options, private IAFP operators should be selected through a competitive tender process with careful consideration of team experience, knowledge of integrated agro-industrial production and facilities management, firm past performance, marketing strategy, operations and

maintenance strategy, compliance with legal standards and requirements, waste management and promotion of green concepts, and good market value for services rendered. Refer to chapter 9 – "Policy, Legal and Institutional Framework for IAFPs" – for additional discussion on these points.

### 8.4 BRANDING AND MARKETING OF IAFPs

IAFP management should include the adoption of well-planned strategic branding, an advertising campaign and other sales promotion methods to promote this unique concept and in identifying the developer for the agroprocessing hub (APH) and rural transformation centres (RTCs) and an anchor tenant for the APH agro-industrial zone, the APH commercial zone, the APH business zone, the specialized industrial infrastructure and overall branding of the IAFP development. It

is pertinent to create an identity and develop a communication strategy to inform target groups, including developers and co-developers, about the APH and RTC initiatives, and construction and operations and maintenance agencies. Good branding provides opportunities for greater collaboration and synergies. It publicizes both the strategic intent of the IAFP and how it differs from others.

The major marketing programmes for IAFP developers and operators could cover theme-based advertisement programmes and roadshows, as detailed below:

- Preparation of media plan and media campaign
- Identification of potential investors, developers and co-developers
- Identification of potential occupant units
- Coordination with various industry associations
- Conducting domestic roadshows
- Holding international roadshows
- Participating in international agribusiness shows
- Conducting one-on-one business meetings

## 8.5 TEAM COMPOSITION OF OPERATOR

manuals, operations and maintenance activities of IAFPs and must have a team with different sets of expertise. Team composition and expertise required for IAFP operations include:

- Knowledge of sustainable development of IAFPs
- Experts in the areas of industrial park management, preparation of facilities management manuals and guidelines, and knowledge of local conditions with respect to facilities management
- Experts with adequate knowledge of agro-industry; customer handling; the supply chain; information and communications technology (ICT); communication, construction design and utility development; and warehouse and building management and operation in general and Industrial park development in particular
- Experts in complex industrial building and warehouse management and operation;
- Working experience with bilateral and multilateral development institutions or the United Nations organization
- Experience in drafting operations and maintenance

- Arranging investor group visits to the IAFP
- Input and coordination with potential occupant units and follow-up
- The signing of various memorandums of understanding
- Collaborating with research institutes, technology providers, equipment suppliers, certification laboratories, training institutes and universities for the benefit of the occupant industries.

Given the multisectoral and multidisciplinary nature of the work to be undertaken within the operation of IAFP, the team members should have extensive experience in agro-industrial parks, operations and maintenance

- Knowledge of the circular economy and waste enhancement, industrial ecology
- In-depth knowledge of industrial development and environmental management systems
- Knowledge of assessment of the sustainability of smart innovation industrial clusters;
- Experience in the planning and design of various components of IAFPs
- Knowledge of technical, business, and financial aspects of sustainable IAFPs
- Experience in working directly with industries and resource efficiency and cleaner production approaches, including industrial ecology, industrial synergy identification, and support
- Implementation of capacity-building programmes and information dissemination activities
- Excellent ability to work effectively and in multicultural teams, as well as excellent interpersonal communication skills and effective transmission of ideas to others.

## 8.6 IAFP SCOPE OF OPERATIONS

Operations at IAFPs can vary in scope, but most typically include the following activities: facilities operations and maintenance; utilities and services provision, including housing one-stop shops for resident and prospective tenant firms, compliance with legal standards and requirements, waste management, management of

environmental health and safety systems, the provision of social services (where applicable), the facilitation of agribusiness incubators and skills development (where applicable); and branding and marketing of developed plots, and public relations.

### 8.6.1 Operations and maintenance

The scope of services and the level of engagement must be identified during the design and detailed stage and operators must be selected to provide services and support to the occupant units in an improved and coordinated manner. The responsible entity (IAFP operator) for ensuring delivery of the below services to the customer should be identified. The broad scope of services required for operations and maintenance and facilities management services includes inter alia:

- Housekeeping services
- Landscaping services
- Electrical services
- Water management services
- Sewage management services
- Security services
- Solid waste management services.

In order to facilitate superior delivery of these services, best-in-class vendors should be engaged. The quality of delivery of services of these vendors should be measured monthly, based on the review of service level assessments and through feedback from customers. The identification of best-in-class vendors can be done by carrying out a market demand assessment survey and identifying the existing potential candidates and are to be selected based on cost-benefit analysis based on the offerings. They are to be assessed based on certain factors which include:

- Background and level of experience in the field
- Extent of services offered
- Manpower required

- Offering in terms of per-unit cost
- Local presence
- Support services provided
- Other factors that are to be considered.

The operations and maintenance and facility management agency shall perform the services and carry out their obligations with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and best practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The IAFP operator shall at all times support and safeguard the client's legitimate interest in any dealings with the other parties. During the operation period, the IAFP operator shall operate, maintain and perform facilities management of the IAFP in accordance with the agreement and if required, modify, repair or otherwise make improvements to the IAFP to comply with the provisions of the agreement, applicable laws and applicable permits, and conform to best industry practice.

At the most basic level, IAFP is meant to provide an integrated real estate solution for gaps in the market for serviced industrial land. In this context, it must, however, provide more than land and utilities, and offer a basket of services to support resident businesses. The IAFP operator must transfer developed land, ensure effective utility connections and network management, and manage, maintain and repair all of the IAFP facilities, or contract with specialized service providers to do so.

IAFP operators must also supervise residents' own building construction on plots, if this is an option, plant installation and operations, provide environmental management services within the IAFP, and ensure security. Modern operators' delivery of utilities and waste management services should be grounded in an understanding of eco-efficiency, by-product synergies and integrated waste management, in order to deliver properly coordinated, clean and green services at the IAFP-wide level.

Moreover, and especially if the State contributes to the IAFP programme in some manner (for instance through the land, equity, subsidies or tax incentives), IAFPs and their operators may also be expected to provide a number of "public goods", for instance in the form of services aimed at developing entrepreneurship, strengthening supply chains through linkage programmes, improving entrepreneur and resident workforce skills, ensuring employee care, and others.

As integrated real estate solutions, an IAFP's primary indicator of success is its occupancy level. It is thus essential for the IAFP to attract resident firms and investment, and to this end the operator (together with the national or local investment promotion agency) must also develop marketing and branding strategies based on its distinctive characteristics or the so-called "value proposition".

The successful management of IAFPs entails both administration as well as public relations. The IAFP's operator maintains the IAFP and supervises its daily operation on the basis of the operations framework manual.

IAFP operators should possess technical experience and capacity (such as energy management, waste utilization, investment and marketing, and so on) in order to manage activities within the IAFP and ensure continued investment. The scope of the responsibilities and functions of IAFP operators differ according to their agreements with the developers of the respective IAFP. The main management functions required during the operation of an IAFP, however, include infrastructure management and operation, along with the provision of administrative, business and social services. These include:

- Plot and shell facilities allocation
- Infrastructure, superstructure and facilities management

- Administrative services
- Business development and innovation management
- Social services management
- Management and maintenance of certification laboratories, quality control laboratories and incubation centres
- Performance management and monitoring.

IAFP operation involves site and facilities management and maintenance, continuing investment promotion, performance monitoring and evaluation, and ongoing improvements and reinvestment. IAFP management, however, mainly focuses on coordinating stakeholders, attracting investment and initiating the sale of land to residents, and the collecting of joint maintenance and operations fees and charges from users. The following aspects should also be considered:

- Operation and maintenance, utilities and specialized agro-infrastructure facilities to ensure delivery of design standards in service shall be given paramount importance;
- Selection of appropriate operating principles covering aspects regarding workers' safety, hygiene, and environment and that conform to various national and international standards
- Income computation to manage operations and maintenance expenses.

In addition, some of the post-implementation activities essential for the successful operation of IAFP include:

- Day-to-day operation of the development components and overall administration
- Phased development of the components of the IAFP
- Ensuring efficient operations of all general and specialized infrastructure facilities
- Facilities management and maintenance of the components of the IAFP
- Enforcement of development regulations
- Upgrading the facilities to meet the changing requirements and needs
- Collection of maintenance revenue
- Brand image building of the components of the IAFP
- Maintenance of the general, specialized and specific infrastructure
- Maintenance of the environmental infrastructure and compliance with various standards and requirements.

## 8.6.2 One-stop shop services

In order to make the interface with government oversight agencies more efficient, there is value in establishing one-stop shops for the delivery of administrative services to business. Indeed, dedicated staff from each relevant line ministry or agency should be assigned to a one-stop shop to offer a seamlessly integrated administrative services package to investors. Whether such enabling legislation is adopted or such one-stop shops are established through sub-statutory and administrative means, such as inter-agency memorandums of understanding and service-level agreements, their usefulness and importance to investors are certain.

A one-stop shop refers to a service centre which provides efficient administrative services, such as investment registration, authorization, operation, and production of the enterprises in an IAFP through a streamlined process.

Where one-stop shops already exist at a centralized level in a country, then a satellite office may be created within the IAFP. If one does not exist or does not host sufficient services specific to the needs of the IAFP then, in consultation with relevant stakeholders, certain factors and requirements are to be taken into consideration for the creation of a one-stop shop within the IAFP which includes:

- Identifying offices or branches of federal and regional government agencies, including customs, taxation, finance, commodity inspection, migration visa, police and judiciary, to be set up in the IAFP one-stop shop
- Streamlining (and automating where possible) administrative procedures, rules and regulations
- Business start-up and operational services
- Developing a dispute settlement mechanism to investigate and solve investors' complaints and disagreements with other government bodies
- Developing a coordinating tool to strengthen cooperation among service providing Institutions
- Preparing materials and communications strategies that aim to inform investors about the available services in the one-stop shop.

Government services specific to agro-industrial parks range from business start-up processes to quality control services to tax and custom services, among others. The

list below captures illustrative services specific to agro-industrial parks (also refer to Chapter 9 – "Policy, legal and institutional framework for IAFPs" – for additional discussion). Many enterprises in developing countries, particularly those located in countries that do not have sufficient well-established quality infrastructure to support the industry, face enormous challenges in joining the global market. Integrating quality infrastructure facilities and services into one-stop services provides, among other things, support services to resident firms to help them comply with the export market's technical regulations and standards.

### Major services provided by an agro-food park's one-stop shop

- Investment incentives information
- Employment permits
- Planning and construction
- Social security registration and account management
- Tax and custom services
- Port or airport cargo clearance
- Access to publicly-funded innovation and start-up promotion services
- Quality control services (for example, laboratory testing)
- Utilities (electricity, telecommunications, water and gas) account management
- Environmental approvals
- Legalization and notarization
- Tourism information services
- Land administration
- Access to banking services (provided by commercial banks located on-site or in separate premises)
- Access to housing.



### 8.6.3 Branding and marketing of developed plots

IAFP operators are often responsible for the marketing of developed plots. Initially, this is one of their primary functions: to ensure the financial self-sufficiency of the IAFP, and ultimately their own bottom line since the majority of their revenue comes from land leases and fees from service provision to tenant firms. These responsibilities can also be shared with national and subnational investment promotion authorities.

Operators should develop a marketing plan and respective tools and share these and subsequent status reports to the oversight authority. Market feedback and frequent feedback loops are essential to understanding shortcomings and informing course corrections that may be needed in IAFP design and implementation. (See Chapter 7 – Investment attraction and facilitation” – for additional discussion.)

### 8.6.4 Public relations

The successful management of an IAFP entails both administration and public relations. Media and public relations activities that publicize investment success stories and cater to the national media requirements for coverage. Public relations can be maintained through press, radio, television briefings, conferences,

organizing inbound and outbound tours of other benchmarked parks, promotion of the IAFP by government representatives in external markets, use of dedicated media and social channels, and others. This responsibility should be shared by the IAFP operator and the oversight authority or project implementation unit.

### 8.6.5 Preparation of operations and maintenance manuals for the nature of services required for the IAFP

It is important to keep a record of all necessary details regarding the activities carried out during the operation and maintenance of the IAFP. This record shall serve as a manual providing overall guidance to management and help in taking efficient and productive decisions. The operations and maintenance manual should cover the following:

- Establishment and functioning of the one-stop shop service manual
- Visitor management system manual
- ICT and communication networks management manual
- Maintenance of established facilities manual with clear assignment of responsibilities of participants;
- Utility (water, electricity, telecommunications, and others) service and rate management manual
- General amenities (such as school, crèche and day care, polyclinic, places of worship, retail spaces, recreation centres, training centres, and others) operation and management manual
- Stores and warehouses management manuals.

### 8.6.6 Compliance with legal standards and linkage requirements

The IAFP operator must comply with certain legal standards pertaining to international and national labour rights. In addition, the design of the IAFP relies on internal and external linkages and skills development that will foster a stronger, more dynamic workforce and

competitive industry cluster. The IAFP operator shall make physical space for, contract and coordinate with entities involved in the provision of social services, agribusiness incubators and skills development, one-stop shops, and after-sale services. These elements collectively contribute

to a more competitive agro-industrial integrated system, rendering site location more attractive and ensuring financial sustainability of the IAFP and associated firms.

**Labour standards:** Responsible labour standards are to be in place for efficient management. A responsible labour relationship manager is to be appointed who is aware of the national and international labour laws. The following aspects, that summarize some of the labour laws, are to be considered:

- Decent work environment with proper working conditions and respect of the rights of labourers
- Allowance of formation of trade unions
- Legal issues and dispute settlement.

IAFPs should be leveraged as platforms for basic protection of workers' rights, workers' welfare programmes, standards and practices, enhancing work skills through appropriate training, contribution to quality jobs and knowledge-based economy. The following are to be also covered:

- Minimum workforce to ensure efficient and effective management of the facility
- Arrangements for engagement of labour and staff
- Establishment of rules and regulations in accordance with labour enactments
- Reimbursement regulations
- Insurance and loss coverage.

The responsible management of labour relations has a direct influence on the industrial parks' sustainability as it affects the size, morale and productivity of the workforce. Due emphasis should therefore be given to: decent working conditions; freedom of labour union activity; and labour dispute settlement. Modern industrial parks can and should, however, be leveraged as platforms to go beyond such basic protections, and to promote superior worker welfare standards, employment standards and practices to attract talent, to enhance workforce skills, and to contribute to quality jobs and a knowledge-based economy.

**Social services:** Social services are also one of the important components of five key UNIDO indicators related to the inclusive and sustainable industrial development pillar on creating shared prosperity, and this compliance must be ensured. IAFPs should aim at creating a favourable working and living environment,

cooperating with the community and encouraging dialogue with interest groups and directly or indirectly ensuring the provision of healthcare, training, retail, community and civil society relations, recreational accommodation for workers and firefighting services within the IAFP, with the costs of such listed services being either rolled into the fees paid by residents (such as for firefighting services, community relations), based on user fees (such as for healthcare, accommodation for workers) or may be provided by commercial businesses (including retail, catering, and others).

#### **Agribusiness incubators and skills development:**

Operators shall foster an intellectually stimulating environment through which professionals from academia, industry, incubators and research laboratories can collaborate on projects of business, government, societal, commercial and national significance.

The facilities proposed in an IAFP should be fully secured and provide the required level of control on data and information protection. The occupant units shall have access to intellectual resources, high quality specialized and specific infrastructure facilities, highly specialized equipment, shared resources, business incubation space and a variety of technical, entrepreneurial and commercialization services. The occupant units can enjoy multi-formatted space agreements – long-term leasehold, short-term lease, and monthly lease.

The IAFP should be positioned as an integrated production, industrial and business hub and should work with regional research partners, companies and entrepreneurs to facilitate and undertake commercialization and incubation activities. The IAFP will also participate in any wider regional innovation system where benefits can be accrued through collaboration between local innovation and incubated ventures.

The IAFP should house training centres, and skills development and employability improvement centres. Cooperation with the private sector is encouraged for capacity-building, skills development and training which may include:

- High-tech and biotechnology-based agriculture and research
- Agricultural education and knowledge hub
- Soil, water and nutrient testing
- Dissemination of market data

- Agricultural portal, agricultural clinics
- Other possible cooperation areas.

The necessary training and skills development need to be imparted, and the IAFP operator shall provide employment opportunities. Also, efforts should be taken to impart entrepreneurial skills to the selected displaced people and provide necessary assistance for them to establish MSME units in the IAFP.

**After-sale services:** After-sales support may be provided by a retailer, manufacturer, or a third-party customer service or training provider to the occupant units. The

following interventions can be envisaged (see also chapter 7 – Investment attraction and facilitation – for additional discussion on these points):

- Strategies for the incorporation of high-end management services as well as value-added services such as Wi-Fi, telecommunications, value-added telecommunications, internal communication services, and others, across IAFP and RTC area
- Provision of all major services through online and offline platforms
- Robust data infrastructure system shares information and enhances internal coordination.

## 8.7 WASTE MANAGEMENT SERVICES DELIVERY

The IAFP operator needs to adopt and continuously monitor the implementation of a waste management plan in IAFP operations. The IAFP operator should also encourage waste prevention, reuse, recovery and recycling, through programmes promoting cleaner production, resource efficiency, recycling and materials exchanges, to facilitate transactions between waste generators and industries that can use waste as raw materials. For waste treatment and disposal, the IAFP must put in place the appropriate infrastructure and technologies for the treatment of the waste generated by the IAFP's resident firms, depending on the characteristics of the waste they generate and implement standards on what resident firms can discharge into common wastewater management systems. The IAFP operator should maximise synergies with local authorities as regards the efficiency of waste collection and management. Lastly, the use of low-carbon technologies, as well as an industrial symbiosis where relevant, can be encouraged by conducting continuing greenhouse gas emission inventories.

Amongst other more conventional benefits focusing on cleanliness, such plans allow IAFP operators to strategically consider their own cost efficiencies, as well as IAFP users' value-added benefits and their broader collective socio-environmental responsibilities. For instance, rather than using landfills for large volumes

IAFP waste management typically begins by developing a comprehensive plan that serves as a blueprint for waste management activities and encourages waste reduction and avoidance.

of domestic and industrial wastes, there is potential for the IAFP to transfer these wastes and by-products to a centralized waste processing facility. Such a facility can maximize industrial land use in the IAFP's strategic core, as well as facilitate and encourage the co-processing of domestic wastes and industrial by-products into valuable materials. The conventional waste management strategies should be based on principles such as:

- Reducing hazardous substances, pollutants and contaminants at the source by upgrading production systems and technology, as well as modifying inputs and products
- Reuse or in-process recycling of the product in its original or in a modified form
- Recycling through the separation and sorting of materials otherwise destined for treatment or disposal, for reincorporation into the same or different products, either at the factories, on-site in common facilities or off-site
- Recovery through the extraction of raw materials for their subsequent use as inputs, by establishing materials exchange or marketplace programmes

facilitating transactions between waste generators and industries that can use waste as raw materials

- Treatment through applying technologies to reduce the volume, mass and toxicity of waste prior to disposal. Waste can, for instance, be treated through thermal, chemical and biological processes, depending on the form, quantity, characteristics and degree of segregation of the waste
- Industrial symbiosis through the synergistic and cooperative exchange of industrial by-products, energy, water, by-products, and processing wastes among closely situated firms
- Circular economy practices, extending product lifespan by promoting green designs, resource-efficient cleaner production, and efficient industrial waste, water and energy management and repurposing at the factory, or

through common on-site or off-site exchange systems and infrastructure (also see Chapter 5 – “Planning for inclusive and sustainable IAFP” – for additional information)

- Disposal through the release of unused waste materials into the environment, after at-source reduction, reuse, recycling, recovery, and treatment, using the most appropriate method based on the waste characteristics. Landfills, incineration and composting are the most widely practised methods of waste disposal
- IAFP operators should ensure that their disposal sites are suitably located, fairly close to the source of the waste, separate from residential and commercial areas, off floodplains, and on a geologically stable base.

## 8.8 ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT SYSTEMS FOR OPERATIONS AND MAINTENANCE

The following are key considerations for operations and maintenance and the requirements for successful implementation related to environmental health and safety systems. IAFP operators shall develop plans and procedures to deal with each component discussed below that mitigate risks to health and human safety.

**Ensuring compliance with legal and other requirements:** The IAFP should ensure and identify the applicable legal and other requirements related to occupational health and safety, communicate applicable legal and regulatory requirements to all concerned, track the amendments in the applicable legal and other requirements, update the information and monitor the compliance status in all aspects of the IAFP. All the activities entailed in ensuring compliance shall be carried out by the respective liaison authority of the project management team responsible for operations and maintenance. Training for updating knowledge on statutory and legal requirements should also be imparted to the identified relevant personnel as and when required.

**Documents procedures:** The procedure for document and data maintenance related to the requirement

of national and international standards should be maintained for effective planning, operating and control of processes for proper implementation of the integrated health and safety and environmental management system of the IAFP. Maintaining records of operations and management of the IAFP will facilitate the activities carried out by the occupant units. The records that are required as part of the maintenance include a project plan, legal register, objectives and targets, along with an action plan, training records, internal audit records, safety committee meeting records, certificates of the qualifications and skills of all tradesmen, medical examination records of all personnel working at site and checklist, permits and safe methods and risk reduction techniques cards.

**Hazard identification, risk assessment and control:** The operations and maintenance management team should identify operational health and safety hazards and assess the risks, determining the necessary control measures. The team should review the risk control measures which cover all routine and non-routine activities; activities of all personnel having access to the workplace including contractors and visitors; human

behaviour, capabilities and other human factors; external hazards having an impact on the workplace, and hazards created in the vicinity of the workplace by work-related activity; the facilities and resources at the workplace provided by the IAFP and changes, including proposed changes, in the IAFP; the activities and materials of the IAFP; and modifications to the operational health and safety management system and their impact, applicable legal obligations (if any) and design and development activities and their adaptation to human capabilities.

Hazard identification and risk assessment will be carried out before the start of any activity, at the planning stage, by the operational health and safety personnel, project manager and engineer-in-charge as part of environmental and social impact study. Hazard identification will be done by the site safety officer in consultation with the respective engineer-in-charge, contractor's engineers and workers. If any of the risks are relatively minor or the hazard can be easily controlled, the activity will automatically be attended to immediately. As a second step, all risks associated with hazards will be identified. After identification of risks, prioritization of risks will be carried out to identify which hazards need attention first. The next step includes deciding on the control measures to mitigate the identified risks and also involves implementing selected control measures at the workplace. This means undertaking those activities necessary to allow the measures to function or operate effectively. The final step in the risk management process is to monitor and review the effectiveness of measures.

**Safe methods and risk reduction techniques procedure:** The IAFP shall aim to provide a clear and simply worded procedure to be understood by employees, contractors and workmen for the effective implementation of the safe methods and risk reduction techniques procedure and issuance of induction and height work stickers to personnel. That procedure will make it easier to identify new hazards by interacting with workers or to implement the control measure for any hazard immediately, ensuring commitment by supervisors and workers and holding them accountable. Upon signing the safe methods and risk reduction techniques card, in the case of any mishap, supervisors and workers shall be held solely responsible for their own safety. Responses in the safe methods and risk reduction techniques card can be replicated in the hazard

identification, risk assessment and control procedure, which will be updated automatically. This is linked to the work permit, as permits are reflected on this permit (without which the work permit cannot be considered as a valid document). The safe methods and risk reduction techniques procedure helps site supervisors and others in charge to upgrade and enhance their knowledge, as they have to undergo rigorous training to understand the environmental health and safety management system of the IAFP, and strengthens their interaction with safety personnel and workers for the implementation of procedures.

### Safety measures

**Occupational health and hygiene:** To identify the potential occupational health hazards and factors affecting hygiene at the workplace, steps should be taken to suggest suitable remedial action and facilitate the implementation of corrective and preventive measures.

**Procedure for behaviour-based safety:** This procedure should be developed to ensure effective behaviour-based safety in the organization. A safety officer will conduct regular training, education, motivation, and an induction programme for workers to improve their knowledge, and awareness about safety. Various safety activities, such as poster displays, promotional events, film shows, walks, and others, shall be identified to create awareness in the workforce. The safety officer will also conduct training on behaviour-based safety for IAFP (especially for all the project engineers, those in charge of buildings or areas, project managers, and others) and the contractors' staff working on the site. To ensure that the root causes of unsafe behaviour are prioritized, they shall be made an agenda item of the regular safety committee meetings and training programmes on the same subsequently shall be conducted (training shall be in the form of audiovisual training; short, focused presentations – of the kind known as “toolbox talks”; and job-specific training). The purpose of the training would be to introduce everyone to the concept of behaviour-based Safety and how to capture the safe and unsafe behaviours and analyse them. The capturing of the observations shall be done for all activities daily. The triggers for unsafe behaviours shall be captured and monitored every month.

**Procedure for operational control:** The IAFP shall ensure that operational control measures are taken on identified hazards and to comply with applicable statutory and legal requirements to manage the operational health and safety risks. Risk assessments should be carried out before the execution of every task. Work will be allowed to proceed only if the risk is not significant. If the risk is significant, then a process of elimination or minimization will be done prior to commencement of the work.

**Procedure for emergency response plan:** A clear and simply worded plan should be provided on the procedure for emergency preparedness and response; to identify the potential emergencies; to establish and maintain the procedures to handle such emergencies promptly to reduce the downtime; and to expedite the first aid and medical treatment facilities for those affected. The emergency response plan includes procedures to effectively evacuate the staff and workers from the workplace.

**Material logistic management:** This document should guide the development and use of the materials logistics plans across all projects of IAFP. Such plans are tools to manage all materials from project conception through to demobilization and completion. To maximize the benefits of the logistics plans, a training and communications plan should be developed which details the level of training required by all persons with responsibility for developing or implementing the logistics plans.

**Fire prevention and protection:** A procedure must be provided that can be easily understood by employees and that will protect them from work-related injuries or loss of life. Some of the potential hazards include fires in the office, electrical faults, cooking in hutments, fuel storage, smoking, hot work, mechanical friction, fire in-store and antics.

**Work permission procedures:** There is need for a clear and simply worded procedure to inform the personnel carrying out the work of particular measures and precautions they must take in order to carry out the work safely. When a contractor needs to perform work, they should obtain permission from the IAFP operator. The applicant should be the site supervisor of the work, who must have enough training and knowledge in the particular area of work for which permission is being

sought, and the IAFP operator must be assured of that before granting permission.

**Performance measurement and monitoring:** It is important to provide a clear and simply worded procedure to measure and record the key performance indicators for effective implementation of the environmental, health and safety management system in IAFP. In addition, the procedure would be used to measure safety and health performance of a site periodically; and to identify weaknesses in managing safety and health in the workplace and zero in on the specifics to reinforce efforts for improving performance. The score will be used for all awards and recognitions.

**Personal protective equipment:** Again, a clear and simply worded procedure should be provided that can be understood by all employees on the selection, issue, use and maintenance of personal protective equipment. The primary methods for preventing employee exposure to hazards are engineering and administrative controls. Where these control methods are not appropriate or sufficient to control the hazard, personal protective equipment is required. A work area assessment is required to determine the potential hazards and select the appropriate equipment for each person's job, when this equipment must be worn, adjusted, maintained and discarded, and the limitations of the personal protective equipment.

**Procedure for working at a height:** The objective should be to provide, where practicable and applicable, a detailed and clearly worded procedure that can be understood by most employees on preventing injury to persons when working at a height (active floor or shuttering level).

**Procedure for scaffolding and working platform:** A clear and simply worded procedure should also be provided on the use of scaffolding and working platforms. This should cover all aspects, including the procedure by which the scaffolding must be handled, setting board, height and floor restrictions, safe working platform specifications, regular inspection of the working platforms, safety measures such as usage of harness, and others.

**Procedure for night work:** The objective is to provide a clear and simply worded procedure to be understood by most employees on preventing injury of persons and damage to property when working at night.

**Procedure for demolition activity:** This procedure and guidance should be developed to ensure that effective measures are taken in place to monitor and maintain safe practices during demolition. The related procedures include excavation and the use of personal protective equipment. This procedure ensured must be followed during the operating stage to avoid the hazards of demolitions, such as structural instabilities, unsecured hazards in the work area, dropping construction debris, falls from heights or through openings and contact with live electrical equipment and other utilities.

**Office safety:** The office and establishment safety plan should be developed, maintained and reviewed to ensure it constantly reflects the management of specific risks to health and safety arising in the office or establishment environment.

**Procedure for use of plant equipment and machines:** A clear and simply worded procedure should be provided that can be understood by employees on preventing injury to persons and damage to property when using plant, equipment and machines on site.

**Project performance evaluation:** There must be a clear and simply worded procedure to evaluate the effectiveness of the implementation of the environmental health and safety management system in the organization and a procedure to get the data. Appropriate procedures should be identified for performance evaluation.

**Procedure for reporting, investigating and analysing incident:** The purpose of this procedure is to ensure that incidents – including accidents and near misses – are systematically investigated and suitable remedial measures are identified and implemented. Systems are to be put in place to record data about all incidents. The procedure will include highlighting and analysing the data to establish the root causes of each incident, which will form the basis of corrective and preventive action for eliminating unsafe practices, and taking appropriate corrective action to prevent a recurrence in accordance with the hierarchy of controls and to meet the requirements of the health and safety policy and relevant sections of the occupational health, safety and welfare legislation.

**Procedure for implementing rewards and recognition system for workers and contractors:** The purpose of this procedure is to establish a system to improve and strengthen safety performance at sites by recognizing and rewarding proactive operatives, engineers, safety officers and contractors on site for their contribution to improving site safety. This can be achieved by identifying workers whose performance is excellent in terms of safety, and using a voucher tracker system to maintain safety as well as discipline with respect to usage of PPE, undertaking behaviour checks, reporting all unsafe activities and running an award system.

**Visitor management:** The purpose of this procedure is to guide and initiate the action to deal with safety and reduce physical risks to persons visiting IAFP

construction sites and it also provides an overarching framework for the management of visitor safety, which is consistent with the current organizational approach to risk management. Certain considerations include visitor information pamphlets, signages, drug and alcohol control, fire and evacuation control, first aid, smoking, and others.

**Procedure for electrical work:** A clear and simply worded procedure, understood by all employees, should be provided on the requirements of electrical installations, machines, equipment, tools and working near underground cables and overhead electricity lines.

**Standards for on-site workers' housing quarters:** This procedure should establish a minimum standard for the provision and maintenance of living conditions for the wellbeing and welfare of the workforce in construction projects of the developer as well as the occupant unit employees. The standard should advise on adopting minimum basic requirements of design, construction, installation and maintenance of temporary workers' housing quarters (labour camp) on a construction site. The document should aim to provide the project teams and contractors with guidance on the planning, design, construction, operation and decommissioning of labour camps in a sustainable way.

**Participation and consultation:** This procedure and guidance should be developed to ensure that effective health, safety and environment meetings and communication procedures are established within the IAFP to monitor implementation of the project's health, safety and environment plan in line with the relevant statutory requirements.

**Procedures for roles and responsibilities:** These procedures need to be prepared to guide, advise and lead the management team in the right direction for the growth and profitability of the IAFP (and its tenants) under the policies decided by the Board of Directors, approve the environmental health and safety policy for implementation and provide the necessary resources for promotion and implementation of good environmental health and safety practices across the park.

**Procedures for traffic management:** This document should guide the development and use of the traffic management plan. This plan ensures safety control measures are in place for all traffic movement in and around the IAFP construction sites. This document should also be read in conjunction with the IAFP occupational health and safety, plan, materials logistics plan and lifting plan which deals with the unloading and distribution of construction materials around the project. Some of the traffic control measures include management at the entrance through security, granting of access pass to vehicles, face-scanning technology for the workforce, alternative entrances, access to the site from the site offices, and so forth.

**Safe operation for work resumption under difficult conditions, pandemic situations or government regulations:** The purpose of this standard operating procedure is to describe the procedure to be followed for resuming work following full or partial closure resulting from any restrictions placed on the industries by external factors. This standard operating procedure is prepared to resume the work at all projects and locations of an IAFP after the period of instruction.



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# 9

## IAFPs Policy, Legal And Institutional Framework

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## 9.1 OVERVIEW

The legal and institutional framework is one of the most crucial enablers of any integrated agro-food park (IAFP) programme, to ensure that it is globally competitive in its approach to achieving developmental objectives. Policy frameworks are cross-cutting to all IAFP development and operation phases, with consideration especially critical in the planning phases.

IAFPs are best developed if they are part of a national policy framework that explicitly supports agro-industrialization and related value chain strengthening measures.

Policy framework, institutional strengths and weaknesses, resource allocation, ownership and governance structures, and stakeholder consultation and coordination are all important considerations when evaluating how IAFPs fit into existing policy and institutional frameworks, as well as determining how gaps may be dealt with to meet the specific needs of IAFPs. Accordingly, policymakers should first examine economy-wide competitiveness factors that influence IAFP feasibility and investor perceptions. Agriculture and subsector-specific factors must also be evaluated and appropriately addressed in IAFP policy frameworks.

Factors of competitiveness can be enhanced through the adoption and implementation of more of an “SEZ-type” IAFP programme. The special economic zone (SEZ) focus is typically on offering a superior business environment in the zones. Although not all economic constraints can be eased through an SEZ policy, SEZs are particularly well suited to taking care of constraints resulting from poor business environments, such as burdensome and unnecessary regulations, and access to production inputs. Therefore, lessons learned from SEZ policy frameworks and practices are directly applicable to IAFPs.

Institutional governance of an IAFP involves two key and rather distinct elements: regulatory governance (generally the role of the state); and commercial development and operation (generally the role of the private sector). There is some flexibility as regards the role of the State, in particular as regards to a more prominent role of the state in IAFP planning and development. Generally, a privately-driven IAFP model

reflects international best practice. However, risky environments have given rise to the application of a joint venture special purpose vehicle or public-private partnership (PPP) model for the development and operation of IAFPs, under which underlying risks are shared by both the private sector and public sector partners in the IAFP, according to their agreed level of equity exposure. The multidisciplinary complexity of IAFPs often necessitates the creation or extension of a one-stop shop to facilitate the coordinated and streamlined delivery of regulatory services to IAFP users.

The structure of the present chapter is divided into two main sections: first, a discussion of the policy and legal framework for IAFPs and, second, a discussion of their institutional governance framework.

Within the first section, two main topics will be considered in turn: the overall national economic policy conducive to the success of IAFPs, followed by a discussion of IAFP-specific policy, legal and regulatory frameworks. Each of these topics will delve into a series of sub-issues, including the following:

Overall national economic policy conducive to the success of IAFPs:

- Conducive national investment policy (including policies governing agribusiness)
- Land management policy
- Power regulation, water regulation and telecommunications regulation
- Financial and fiscal incentives
- Labour and training policies
- Dispute resolution policies.

IAFP-specific policy, legal and regulatory frameworks:

- Importance of aligning economic policy with regional and global value chains
- IAFP investment policy (including in terms of: eligible activities, linkages, business accelerators and incubators; financial and investment freedoms for IAFP developers and operators, selecting and contracting the right developers and operators, and investor licensing)

- IAFP-specific land policy (including as regards IAFP designation policies, land use planning and physical development control, and also IAFP socio-environmental management and health and safety policy)
- IAFP tax policy, export policy and incentives
- IAFP-specific labour and training policies.

The second section deals with the institutional governance framework for IAFPs. This section explores

four important topics. First, a review of some of the key IAFP stakeholders and other participants and their respective institutional roles and responsibilities. Second, IAFP Governance framework of good practices, both in terms of IAFP programme regulation and site commercial operations. Third, institutional support systems for IAFP developers and tenants or investors. And fourth and lastly, collection centre (CC) and rural transformation centre (RTC) frameworks.

## 9.2 CONTEXT – WHY IAFPs CAN LEARN FROM SEZs

Integrated agro-food parks are tools for attracting foreign direct investment (FDI), diversifying the economic base, and enhancing commercial and technical capacities. The legal and institutional framework is one of the most crucial enablers of any IAFP programme, to ensure it is globally competitive in its approach to achieving these aims.

The design of an effective and stimulating IAFP must, however, begin with an understanding of the multiple facets of the agricultural investment climate and an identification of those barriers to investment that can be removed through the proposed programme. Above and beyond natural comparative endowments, such competitive advantages as regulatory conditions for investment, institutional capacity, bureaucratic efficiency, labour market conditions, infrastructure, and various other factors affecting businesses in the agricultural sector, are of the utmost importance in this context.

A wide variety of territorial agro-industrial models have been applied in developing countries, with varying degrees of success. IAFPs, for their part, have been and must continue to attempt to incorporate the lessons of their experience and of international best practice.

The IAFP model explicitly considers the supply chain through the RTC and CC infrastructure and linkages. Policy frameworks, therefore, should deal with such linkages as well. In this respect, it is important to begin with the recognition that factors of competitiveness can, in the agricultural sector, be usefully enhanced through

the adoption and implementation of more of an “SEZ-type” agribusiness programme. Indeed, economies which rely primarily on natural resources and low-cost labour for competitiveness can leverage SEZs to deal with barriers to achieve greater efficiency and to boost productivity, which comes from higher-value added agroprocessing activity.

Most SEZs are multi-use in nature, but their activities often allow and promote such varied agro-allied activities as: food processing; food and beverages; bottling; animal and vegetable oils and fats; fruits and vegetables packing; floriculture; agroprocessing; leather, shoes, other footwear, handbags; forestry, timber, wood, coal, paper processing; rubber; tobacco; and cotton. Furthermore, many countries have developed special-purpose parks based on an SEZ concept. Agro-industrial literature has identified that, among others, the types of constraints to growth in the developing context arise from inadequate quality and quantity of raw materials, high up-front investment costs, high costs and lack of reliability of power, logistics constraints, cumbersome regulatory process, and changing policy frameworks. The IAFP can be a way to mitigate, circumvent or take care of these constraints.

It may be useful to consider a misconception about the SEZ concept at this juncture. The SEZ policy construct which has evolved throughout the world, in particular since the mid-1990s, as a reaction to earlier EPZ models, typically have no minimum export thresholds, and enable their enterprise occupants to

serve domestic, intra-zone and export markets alike, by differentiating the applicable customs duties. Thus, the fact that IAFPs are only sometimes export-oriented, but often also deal with unmet domestic and regional market needs (or import substitution objectives), is not a reason for distinguishing them from the wider body of SEZ policy learnings literature. IAFPs and SEZs alike have the flexibility to deal with site-specific, broader domestic, regional and global export markets.

Again, modern SEZ frameworks do not typically impose export restrictions. Programmes where they do, disincentivise agribusinesses' access to domestic (and sometimes also regional, customs union or integrated economic area) markets because they must export a defined share (usually over 60 per cent) of their product in order to qualify for zone enterprise status. This is easily taken care of by the removal of minimum export thresholds, subject to imposition of duty and VAT on domestic market access applied on the "foreign origin" input share of the zone-based product sold in the domestic fiscal and customs territory (that is, the domestic marketplace). It is important, however, in this regard that the zone-based and domestically sourced inputs (whether in terms of raw material, labour or semi-finished inputs) not be computed in the valuation as "foreign", but be treated as domestic under the rules of origin regime applied.

A related and frequently voiced concern is that an export orientation (often with emphasis on FDI) can crowd out domestic businesses, especially micro, small and medium-sized enterprises (MSMEs). Several things may be noted in this regard, which tend to dispel this myth. First, once again, SEZ-inspired frameworks need in no way, as discussed above, be export-oriented. Second, they need not be FDI or MSME oriented either. Indeed, many zones around the world (such as the Turkish organized industrial zones or South African industrial development zones, to name but two such programmes) often have a domestic MSME supply park associated with a free zone, in order to deepen and lengthen local MSME tier-1 and tier-2 supplier integration into domestic and global value chains alike. Third, it may be noted that there is no empirical evidence or literature to support the supposition that domestic MSME business is crowded-out by zone-based FDI or large-scale foreign multinational corporations. In contrast, the advantages of attracting foreign and multinational corporations into the market, whether in terms of procurement and supply

opportunities for local firms, transfer of technology to local suppliers and spin-off ventures, employment opportunities for host community labour markets, and in terms of other positive economic externalities, are all well researched and established.

For all of these reasons, SEZs offer valuable lessons in terms of how to structure an IAFP initiative. The IAFP model can usefully apply many of the lessons learned from the experience of other types of territorial spatial development initiatives, including multisector SEZs which have been widely studied and are in many respects aligned with IAFPs.

Each subsector is unique in characteristics, development needs, infrastructure and policy frameworks. Often, few of a country's various investment climate constraints are truly dealt with by the country's industrial park legislation or procedures. This is because zone programmes are too infrequently grounded in a thorough assessment of, and set of responses to, the actual constraints faced by the country's investors (let alone those of specific sectors, such as the agro-allied sector), nor in a proper benchmarking of the national policy response relative to what exists in competing regional investment locations and industrial parks. Better IAFP results are achieved where the programme is complemented by subsector identification, needs assessment, targeting and support, with close collaboration and participation of the private sector.

To be most successful, IAFPs should be designed to take care of specific and sectoral economic challenges, as well as to take advantage of strategic and sectoral opportunities.

No "one-size-fits all" zone concept applicable to all countries exists. IAFPs should be tailored to understanding and meeting actual and potential investors' needs and behaviours.

IAFPs, like other zones, can be tailored to the specific needs and sectoral investment priorities, in order to achieve critical economic objectives and to help them to overcome specific market failures and economic constraints. Sector targeting helps countries to promote investment in activities that leverage their comparative advantages or achieve their broader national growth strategies.

## 9.3 OVERALL NATIONAL ECONOMIC POLICY CONDUCIVE TO THE SUCCESS OF IAFPS

In order to better provide a world-class IAFP integrated operating system, improvement of the legal, regulatory and institutional frameworks for private agricultural sector development is often advisable. IAFPs are particularly effective when used as one component of a broad national strategy to diversify and industrialize.

Going back to first principles in this regard, certain basic requirements are important to a country's competitiveness. In addition to high-quality infrastructure, strong institutions, measured by such factors as property rights, burden of government regulation and the legal framework for dispute settlement, are critical. Economic efficiency enhancers also become important as the country moves to an efficiency-driven stage. These include a variety of conditions and policies that can affect production efficiency, labour market efficiency, financial efficiency, technology, and market size and scale economies.

It should be stressed, in this respect, that the interconnected nature of the various policy areas is

often insufficiently considered when designing targeted spatial development initiatives. Investment, agricultural, industrial, education, labour, trade, transport, and customs laws and policies, all have an influence on the effective development and implementation of such programmes. Embedding the IAFP policy into an integrated and coherent overall strategy is therefore an important driver for success. Countries should develop integrated strategies rather than stand-alone IAFP policies, with particular emphasis on policy coherence across different areas. IAFPs are not an end in themselves; they are a functional means to the achievement of long-term objectives set by national development strategies. When targeted spatial development initiatives are designed as stand-alone policies, they are less likely to deliver on their objectives, as demonstrated by the relevant experiences of China, the Republic of Korea, Singapore and the United Arab Emirates with their industrial park programmes.

### 9.3.1 Investment policy

The general legal framework for investment issues, which should be areas of concern, could for instance include:

- Uncompetitive legislation and administrative practices, including laws affecting investment that are either out-of-date, in need of reform, or need to be implemented more effectively
- Absence of implementing regulations for adopted legislation
- Legal or de facto competition and anti-trust issues
- Delays in securing business licences, and separate and cumulative company registration, trading Licence issuance.

Agricultural investment and business policies often have one or more of the following purposes: to create a business environment that attracts investment in agriculture, agro-pastoral, horticulture, floriculture, aquaculture, agroprocessing, and associated industries; to promote training and skills development of agro-workers; to help catalyse cluster formation and value-added activities in the agriculture sector; and to increase productivity and food production for domestic and foreign consumption.

In addition to the sorts of transversal business policies measured by the World Bank Doing Business indicators (that is, licensing, construction permitting, labour regulation, taxes, customs duties and procedures,

and others),<sup>23</sup> specialized agricultural investment and business policies may therefore also offer investors the following types of policies, regulations and services:

- Favourable import and registration policies for agricultural inputs, farm machinery and specialized post-harvest and processing equipment
- Water access, management and pollution mitigation regulations
- Seed breeding, GMO and related intellectual property protection policies
- Supply chain development services including agricultural extension and training programmes for local farmers in partnership with educational institutions; agricultural guest worker programmes
- Subsidized electricity for processing activities
- Funding for the development of agricultural research and development
- Specialized agricultural sector vocational training institutes
- Streamlined rules for intellectual property (including plant variety protection) registrations
- Enhanced biosafety, food safety, sanitation and agricultural research and development regulations
- Preventative and risk-based control procedures that comply with internationally recognized practices such as good agricultural practices, good manufacturing practices (GMP), good hygienic practices (GHP) and Hazard Analysis Critical Control Point, ISO 22000 and other relevant ISO standards; and product standards based on the internationally recognized FAO-WHO Codex Alimentarius and sanitary and phytosanitary levels.

The operation of agricultural enterprises can ultimately be facilitated through the availability of such services (public and private) as: quality, product, process and standards certification services; ministry of labour, ministry of agriculture, and recognized specialized technical training institutions and extension services; research and development, patenting, and product commercialization services, in conjunction with

recognized universities and legal services providers; and quarantine, laboratory services and facilities, and sanitary and phytosanitary advisors.

In addition to general investment framework legal constraints, there are therefore also sector-specific legal and regulatory constraints in the agro-allied cluster, including for instance:

- Gaps in intellectual property legislation, including as regards seed varieties
- An unlevel playing field and inspections regime for meat hygiene regulation, focusing only on larger, more visible players
- Absence of any formal, regulated agricultural guest worker programme.

Legislation may be based on a managed or regulated market approach, in which government bodies or industry oversees and controls the market to some extent.

There can be a role for certain “smart” and targeted market management policies, where utilized in conjunction with “sunset clauses”, in order to kick-start new economic activities under a Keynesian “infant industry” approach. The time bound market protection measures of Brazil, India and Viet Nam to support the development of their cashew nut industries (through raw nut export limits), for example, were successfully used to attract investment in cashew processing, and were phased out after a critical mass of such activity was established. As a result, over the period of 1990 to 2010, Viet Nam went from insignificant processing to becoming the world’s largest exporter of processed cashews. It should however be noted that Viet Nam also, in a less distortionary fashion, linked professional bodies and government agencies to processors developing technology, and created market infrastructure that improved market linkages to international buyers.

23) Currently suspended, as of this writing, pending full investigation of the possibility of resolving various methodological and computation problems.

### 9.3.2 Land management policy

Effective physical and spatial planning capacity is one of the core tools available to IAFP authorities to guide investment decisions, allocate resources, and ensure the long-range compatibility of IAFP development with the national economy.

Access to an unencumbered land title, for properly located, adequate and sufficiently scaled, serviced and industrially zoned<sup>24</sup> land is critical for any IAFP, as it is, in effect, a real estate project. It is therefore important, at the onset, to consult and engage with the communities likely to be affected by the creation of an IAFP – including through an appropriate environmental and social impact assessment (ESIA) and management plan and, if required, through the development of a resettlement action plan, for instance.<sup>25</sup>

Legal assets as regards the acquisition, development and use of land for such a project notably include:

- Freehold titled land and long-term leasehold on public land
- Facilitated identification and access of land through the government title deeds registry and surveys department

- Simple land title registration and transfer processes
- Permission of land swaps with the State
- Coordinated building permits and environmental clearance processes
- Dedicated desk officers assigned to large projects
- Absence of property taxes on farmland (that is, on land outside municipal areas).

The socio-environmental sustainability dimension of spatial development initiative policies and, more broadly, of all economic growth models informed by the Sustainable Development Goals, is also gaining more and more relevance, given the recent shifts in multinational corporations’ strategies and public policies aimed at containing climate change.

But what is also important for IAFPs is that the land should host services to support the anticipated agroprocessing activities. In addition to the above general considerations with respect to land use and development control frameworks, this also has infrastructure regulation implications, which we will now briefly discuss.

### 9.3.3 Power, water and telecommunications regulation

#### Power regulation

It is critical for an IAFP to provide an adequate, consistent and stable power supply to its occupants’ processing activities owing to the perishable nature of agricultural products whose quality and shelf-life often rely on a timely manufacturing process and reliable cold chain. Noteworthy challenges in this respect can include the following:

- Independent power plants not being sufficiently permitted, incentivized or facilitated
- State-owned national power utility de facto transmission and distribution monopoly, shielding it from competitive pressures, notably on price; and

- Consequent high electricity costs and power reliability issues.

These issues should be dealt with in the IAFP concept. Possible solutions include reviewing power purchase agreement models and further incentivizing the use of sustainable, alternative energy, potentially through both tariffs and tax incentives. There may also be opportunities to promote circular systems with agro-industrial by-products, discussed in greater detail in chapter 5, on planning for inclusive and sustainable IAFPs.

24) For agro-processing activity, warehousing, and so forth.

25) Both of these types of planning instruments benefit from the existence of useful, publicly available guidance documents, which can be leveraged to assist IAFP project promoters with the community engagement process.



### Water regulation

Agroprocessing and food manufacturing are water-intensive industries. In this context, the following considerations are important:

- Absence of potable water distribution monopolies
- Issuance of borehole and aquifer water abstraction permits, supported by clear regulations for water drilling and borehole permits
- Affordable irrigation water costs
- Competitive potable water tariffs.

This is another area where a solid ESIA framework is also, once again, important, as it enables IAFP

promoters to understand the impacts of water use and waste across watersheds and stakeholders, in advance of engaging in appropriate policy solution design.

### Telecommunications regulation

If a public telecommunications utility crowds out the private sector, with bundled services and a monopoly on fixed line telephony or other services, the resulting costs for data and voice, Wi-Fi bandwidth and reliability, and e-government, can all be poor. The legal framework should thus be an open one, including for mobile service providers, placing competitive pressure for service quality and on pricing.

Access to adequate, sufficient, appropriate, and right-skilled labour is a critical factor of production and, thus, of corporate location decisions by investors. Labour market regulation affects this factor of production, in terms of its education and skills, mobility, and employer flexibility to staff its enterprise in accordance with market needs.

Good labour regulation requires a balancing of labour flexibility with worker protection. It should thus not only solidify social bonds, but also improve economic efficiency. Over-regulation can have negative effects on the economy and, ultimately, worker well-being. Research shows that employment flexibility can accompany job quality.

Efficiency-enhancing labour regulation is particularly critical in the attraction of agroprocessing and manufacturing activities. As pure labour-driven zones are decreasing in importance, skilled, adaptable labour pools in flexible investment environments are at a premium – availability of qualified technicians and graduation rates for knowledge workers are replacing hourly wage statistics as key factors in international investment decision-making. IAFPs are at the forefront of associated labour regulation development because their new, FDI-led activities (often technology-intensive) by definition require a diversity of labour skills. Investors find these locations attractive because they generally facilitate access to workers through labour market information systems, liberalized access to foreign workers, and linkages with national training institutes.

As labour is a critical factor of production and market efficiency is enhanced by its free movement, investors should have the right to hire expatriate advisors, experts and labour in accordance with liberalized rules, including the freedom to: contract with advisors, experts and labour to work in their projects according to their business and market needs; secure, if required, foreign workers within stipulated categories of labour.

Labour can be matched with market needs through the following market regulation approaches:

- Free market approach to labour negotiations between private sector employers and their employees and unions

- Competitive wage rates
- Long-term visas to enable the entry of expatriate employees with so-called “rare skills”, without any associated “localization” requirements
- Streamlined procedures, such as a unified Resident permit that includes entry, visa, work, residency, and identification
- Government inspection units that work jointly, by clubbing together rather than undertaking numerous separate farm and enterprise inspections, thus avoiding production disruptions<sup>27</sup>
- Government labour mediation and arbitration.

Weaknesses in terms of labour regulation can include the following:

- Wages councils (which are also involved in such matters as work shifts, retirement age, and so on), creating some complexity and restrictions on freely negotiated flexibility in labour markets
- Insufficient technical and vocational training institutes, with scattered programmes
- Ad hoc rather than sustained exporter assistance programmes, which tend to be externally sponsored by bilateral donors with a specific export market focus
- Absence of skills upgrading or training co-funding programmes, and of tax credits or allowances for such training
- Difficulties in obtaining visas for rare skills, for instance for temporary permits for urgent or emergency machinery repairs
- Absence of long-term permits and visas and of seasonal agricultural workers schemes.

In terms of workforce skills, the presence in-country of the following programmes is also helpful:

- Government apprenticeship schemes
- University agribusiness programme curricula based on industry stakeholder engagement process, including teaching adjuncts from industry, and undergraduate and graduate internship programmes
- Veterinary services training centres; farmer training on access to finance, estate establishment, business management and marketing; extension services on

### 9.3.4 Financial and fiscal incentives

A key area of government support to be fully considered is that of financing or of co-financing the IAFP programme and ambient context. In this regard, the Government’s approach to IAFPs should first and foremost be to promote the public interest (that is, the broader interests of the country) and to provide certain key public goods and services when they will not be met by private-sector companies operating under market mechanisms.<sup>26</sup> These functions should include:

- Development of off-site transport infrastructure to connect IAFP with domestic, international and regional markets
- Development and provision of utilities up to the gate of IAFPs
- Funding and coordination of programmes for

worker training not taken care of through market mechanisms

- Funding of public services to ensure law and order and to settle investment-relayed disputes.

There is also a role for government incentives in agro-allied cluster development, in which context some best practice fiscal incentives and facilitative tax administration procedures include the following:

- Accelerated depreciation of capital or agricultural machinery
- Special deductions for agricultural support services
- Tax credits for agricultural sector training
- Support for supply chain development, particularly aimed at the inclusivity of smaller farmers and SMEs.

### 9.3.5 Skills, labour and training policies

Among the services that can be provided within IAFPs, the availability of training and educational services deserves special attention, as many firms in the higher value-added segments of the agricultural value chain struggle to recruit sufficiently skilled workers. To ensure

that the skill levels of the workforce match the needs of IAFP investors, policies should promote the provision of skills development programmes in collaboration with local educational providers, bearing in mind the needs of investors.

26) The UNIDO approach is indifferent as to whether an IAFP is publicly, privately or PPP funded. In the African context, for instance, Governments are often the main champions and funders of IAFP infrastructure, sometimes with a private operator or more closely aligned with a traditional PPP arrangement.

27) Allowing incident and complaint-based occupational safety, health and welfare inspections at any time.

- technical product standards, planting, harvesting and post-harvesting issues
  - Publicly availed data and statistics on production, imports and exports, as well as assistance in market identification
  - Government MSME and smallholder farmer training
- on business and tax management, including taxpayer education and “customs to business” programme meetings, good agricultural practices and post-harvest handling practices, among others
- Government guidance on water effluent discharge management.

### 9.3.6 Dispute resolution policy

Certain basic requirements are important to an IAFP initiative’s – and indeed a country’s – basic competitiveness. These include not only high-quality infrastructure and strong institutions, but also such factors such as property rights and an enabling legal framework for dispute settlement.

IAFP development and operation, for instance, requires siting in areas suited to the purpose of agribusiness, as well as being harmonious with local economic and social development plans, and of sufficient size to support a diverse and competitive business ecosystem; and requires the identification of land interests and resolving any potential disputes and claims related thereto.

Foreign investors around the world, including in IAFPs and analogous spatial development initiatives, have thus come to rely upon alternative dispute resolution mechanisms as their preferred avenue for dealing with civil, as well as commercial, disputes, given the flexibility, control and efficiency they offer in this regard.

But the risk for IAFP-related disputes, given their dual public economic policy and commercial operation aspects, extends beyond the relationships between IAFP developers and operators, their civil society stakeholders, and even their commercial and contractual (including contract farming) partners. They also include potential disputes with host Governments.

In order to ensure the success of their projects, IAFP developer and operators, and end-user investors alike, must have the right to be master in their development and investment, including the freedom to challenge any government regulatory action, measure or decision that may have adversely affected them, generally once again including through recourse to local or international arbitration.<sup>28</sup>

The IAFP policy framework should, therefore, in this respect, include the following best practice provisions on dispute resolution:

- Investor access to alternative dispute resolution and, ideally, advance host Government binding to agree to such
- Fundamental alternative dispute resolution rights in terms of investor choice of rules, law, language, forum and jurisdiction, including but not limited to access to International Centre for Settlement of Investment Disputes, United Nations Commission on International Trade Law, International Chamber of Commerce and London Court of International Arbitration rules and forums
- Automatic enforceability of alternative dispute resolution decisions (whether domestic or foreign) by the local courts in accordance with the principles set forth under the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards.

28) The mechanism for resolving inter-agency disputes, in most cases, is the courts, unless a statute provides for an alternative dispute resolution mechanism through which government entities too can enter into agreements that they will, for instance, follow arbitration.

## 9.4 IAFP POLICY, LEGAL AND REGULATORY FRAMEWORKS IN THE OVERALL NATIONAL ECONOMIC POLICY CONTEXT

### 9.4.1 Aligning economic policy with regional and global value chains

As previously noted, to be most successful, IAFPs should be designed to deal with specific sectoral economic challenges and to take advantage of strategic and sectoral opportunities. Off-the-shelf or standard IAFP/SEZ policies, legislation and regulations are often inadequate to position agro-food park programmes for success. To achieve specific economic objectives, and to help a host country overcome its specific constraints, dedicated acts and regulations for these schemes should thus be tailored to the specific needs and sectoral focuses of the zones they regulate. In addition to the infrastructure and policies normally found in any spatial development initiative, IAFP enabler and incentive policies might thus include:

- Facilities for protected plant variety intellectual property registration

- Enhanced SEZ biosafety, food safety, sanitation and agricultural research and development regulations
- Preventative and risk-based control procedures that comply with internationally recognized practices such as good agricultural practices, good hygienic practices, Hazard Analysis Critical Control Point, ISO 22000 and other relevant standards, as well as inter-agency memorandums of understanding for the on-site presence of: quality, product, process, standards, and trade certification services
- Ministry of agriculture and food safety, and recognized specialized technical training institutions and extension services
- On-site quarantine, laboratory services and facilities, and sanitary and phytosanitary advisors.

### 9.4.2 IAFP investment policy

#### Eligible activities

There is a tendency by too many Governments establishing IAFP programmes to fail to see the full clusters within which agricultural value chains are situated. As a result, all too often, such programmes are designed in a manner that are overly restrictive in terms of allowed and benefiting economic activities, merely allowing for strict agroprocessing and agro-logistics activity. This is self-defeating, as agricultural sector stakeholders will not invest in locations and schemes that exclude the other components of their cluster. As a result, a critical category of activities to consider in this context is that of domestically produced agro-allied sector inputs. These, for instance, include the following:

- Seeds, fertilizers and chemicals manufacturing, supply, storage and trading
- Farm and packing machinery, implements, irrigation technologies, and vehicles

- Allied engineering and metalworking
- Oxygen cylinder
- Packaging (that is, plastic bottles, packaging and bags, printers)
- Basic (non-original equipment manufacturer) machinery spare parts.

Another area of economic activity in the context is that of agro-allied services. In this respect, the following services in particular bear note:

- Non-bank financial institutions, financial advisory and structuring services, as well as venture capital, investment and frontier funds, and institutional investment schemes (such as pension funds, collective investment schemes, warehouse receipt systems), and insurance
- Professional services (such as marketing, accountancy and law firms)

- Crop breeding, quality control and certification (in other words, global good agricultural practices certification), research and development and testing services
- Transport and logistics services, including small to large insured road transporters and fleets (including for (fast-moving consumer goods and consumer packaged goods, haulage, refrigerated haulage, and others), warehouse operators, vehicle servicing, clearing agents, couriers and freight forwarders, and diesel fuel suppliers
- Machinery maintenance, repair and operation services, including machinery repair and maintenance, and ICT (namely, SAP and Oracle enterprise resource planning software) support
- Integrated facilities management services
- Agro-industrial waste management and by-product use including, organic fertilizer, bio-fuel production).

#### Financial and investment freedoms for developers

In order to ensure the success of their projects, the IAFP developer or operator should be granted the following investment freedoms:

The right to be master in their development and investment, including the freedom to:

- Invest according to the business type, form, and model of their choice
- Obtain approval for any legitimate change in their investment activities
- Own their assets and have rights in their assets protected to international standards
- Receive all incentives, facilities, and services provided for under law in order to encourage investment and reinvestment
- Transfer to locals or foreigners leased premises or business activities
- Challenge any government action that has adversely affected them in accordance with dispute settlement provisions, including but not limited to recourse to international arbitration.

The right to manage their investment activities, including the freedom to:

- Source and use inputs, materials, vehicles, machines, and technology from both international and domestic sources

- Control the profits of their investments
- Access domestic and foreign markets without restriction
- Request changes in their business type, form, and model, as well as in their investment activities, in accordance with applicable law
- Access alternative dispute resolution mechanisms for dealing with civil, commercial and State-related disputes (a subject that will be treated in greater detail later in this chapter).

#### Selecting the right IAFP proposals and (where applicable) contracting the right developer or operators

Prospective IAFP developer and operators, where private, should be screened under a rigorous process and, whether private, public or PPP-based, see their business plans evaluated for feasibility. Proposed business plans must in all cases be more than merely aspirational and must be rooted in a realistic assessment of market potential.

Furthermore, the IAFP project and developer approval processes must protect all concerned stakeholders. All IAFP proposals, whether public or private, should thus include the following elements:

- Financial and technical capacity of the developer, as demonstrated through:
  - › Information about the developer including its name, owners and their ownership stake, key management personnel, all proposed subcontractors, available capital balance, most recent financial statements, key qualifications and relevant project experience
  - › Accurate financial information demonstrating the financial viability of the developer, and any majority shareholders
  - › Technical qualifications of management staff and subcontractors to carry out proposed activities
- Financial sustainability of the proposed project, as demonstrated through:
  - › Financial models for the proposed activities that identify internal rate of return, return on investment, cash flow, projected sources of income (for example, usage fees), and assessment of payment risk. The methodology and assumptions behind these models should also be included
  - › Evidence of the developer's or operator's financial capacity to develop and operate projects, such as through balance sheets or letters from banks ready to provide credit

- Likelihood that the developer or operator will comply with infrastructure construction guidelines and standards as demonstrated through:
  - › Engineering and construction plans that include detailed costing and a phased development strategy that outlines the assumptions and conditions necessary to the start of construction of follow-on phases of the development
  - › Bylaws, guidelines, manuals and standard operating procedures for construction, management and operation of the proposed infrastructure or facilities in accordance with international standards
  - › An internal monitoring and inspection system to ensure compliance with all obligations, standards, and procedures
- Environmental and social sustainability of the project, and likelihood that the developer will comply with all environmental and social guidelines
- Project feasibility, as demonstrated through a robust feasibility study that includes:
  - › Market-demand assessments based on both quantitative modelling and market sounding exercises
  - › A review of current and prospective needs of targeted users of the proposed IAFP
  - › An identification of the strengths, weaknesses, opportunities, and threats of the proposed project.

#### Investor licensing

One of the key functions of an IAFP regulator is the licensing and approval of enterprises establishing in the park. This process facilitates the investment process itself, and ensures that the Authority retains adequate knowledge of and control over enterprises that receive its benefits. By establishing a localized registry of IAFP enterprises, and by approving their activities to operate in the park, the programme can place itself in a position to:

- Regulate market entry based on its own liberal and transparent criteria
- Monitor IAFP activity and plan service provision accordingly
- Monitor compliance with customs, tax, environmental and other obligations
- Sanction regime violators through revocation of approvals.

IAFPs often also host significant numbers of small and medium-sized enterprises, be they service providers,

contractors, suppliers, or independent investors. These enterprises typically have fewer human and financial resources to tackle the procedural and regulatory business start-up processes. They cannot afford to hire facilitators and must complete all procedures unassisted. Yet often these investors face daunting procedural requirements: numerous steps, long delays, and multiple fees. Business registration procedures are too often complicated and cumbersome, representing a substantial expense in time and money. For these investors, a streamlined registration process is a necessity.

IAFPs often offer registration services under some form of one-stop shop structure. Where one-stop shop decisions are accepted by other agencies, the registration process is shortened considerably. Whatever incarnation of the one-stop shop is adopted, streamlined and automated registration and approval of investment projects should be a key feature of this service. Indeed, one-stop shops can offer such streamlined services, including tax payments and product certification procedures that are often required of agro-based products, especially for export. Such procedures are often time cumbersome in developing countries and an added cost of doing business and deterrent to investment.

Many countries set statutory limits for the maximum response times for operational permits, using the “deemed approval” (also known as “consent by silence” or “affirma ficta”) principle if there is no official response within the legal time limit. “Affirma ficta” may be used for a number of operational permits associated with business-start up. If no official response has been received within the statutory limit, the receipt acknowledging submission of forms is considered sufficient legal justification to proceed with the activity.

#### Linkages, business accelerators and incubators

The IAFP model proposed in these guidelines aims to anchor a total area development approach. While the increased economic activity and outputs this generates should, in part, deliver increased agro-allied exports as well as import substitution, the IAFP also aims to catalyse broader rural industrial development, notably by better integrating farmers into overall agro-allied value chains, rather than remaining trapped in autarchic subsistence farming. The notion of “linkage” is thus central to the definition of success of the IAFP concept.



Source: stock.adobe.com

Some of the principal policies that can serve to promote linkages in a IAFP context, several of which have already been covered due to their simultaneous ties to overall so-called “good investment policy”, include the following:

- A hub and spoke design, by which off-park growers and other suppliers of park-anchored companies are eligible to park policy and the incentives offered by soft benefits and services, even though they may not benefit from the IAFP’s infrastructure
- The open eligibility of all stakeholders within the agro-allied cluster to invest and operate within the IAFP, rather than for instance just agroprocessing or even so-called “farm to fork” participants, including in particular such services as agricultural research and development and academia, agricultural finance and insurance, input supply, extension services, packaging, packers, and agro-logistics and cold chain transport. Ultimately, commercial collaboration, triple-helix dynamics of interaction between academia, industry and the Government, as well as clusters and linkages, can only take place where such interactions are both allowed and promoted
- The avoidance of any minimum investment, hectareage under production, employment or export thresholds, or national ownership requirements or performance conditions, for any enterprise to qualify for programme eligibility
- Inclusion of policies (including tax allowances, grants, subsidized or cost-shared services, and deregulation measures) within the overall IAFP legal and regulatory framework that deal with issues, and act on policy levers directing affecting agricultural

- research, finance, production, transformation, and transport. Here one must go well beyond garden-variety tax breaks and begin to consider the dismantling and reimagining of a broad swathe of bureaucratic, protectionist and market management-oriented aspects of policies affecting, burdening and weighing down these economic activities
- The mandatory, regular hosting of agricultural or farmers’ markets, fairs and competitions, and training (including extension) events at the IAFP site
- The establishment of supplier linkage databases and provision of facilitated matchmaking services by the IAFP operator or regulator, a point which will be revisited in detail later in this chapter.

As linkages between IAFP firms and local suppliers take place through several channels, it is essential to deal with informality through programmes that incentivize local MSMEs to formalize through collaboration between the IAFP regulators and operators and other institutions in charge of enterprise development, including investment promotion agencies.

A similarly useful investment facilitation measure is the establishment of business accelerators and incubators to provide technical assistance (as well as to ensure the availability of MSME work facilities), as has for instance been done in the Kenyan Athi River zone, through the synergies with the local business community created by its export business accelerator. The Atlantis SEZ of South Africa has sought to help local MSMEs benefit from some of the more specialized opportunities

the initiative can create for them through an on-site renewable energy incubator.

As part of the MSME development strategy of Port Elizabeth, South Africa, the Coega SEZ partnered with the municipal government in promoting MSME development within and around the zone through several initiatives, including a target of 40 per cent of procurement spent on local MSMEs, spearheaded by an MSME development unit within the Coega Development Cooperation. The Unit is in charge of the MSME development programme, which stimulates the formation and viability of small business within the host region based on: an MSME supplier database; a training and development programme that specifically assesses each MSME and its needs; and technical mentoring and support to MSMEs to upgrade their ratings by sectoral bodies. Targeted MSMEs include firms in the construction industry, providers of cleaning, equipment and stationary types of services, and security services in the zone.

Related initiatives include the Black Economic Empowerment Programme and the organization of supplier development days, which gather MSMEs, local and national governments, and other entities involved in supporting MSMEs, to learn about opportunities available within the zone. In addition, Coega offers a financing support scheme to MSMEs awarded contracts for projects within the zone. The scheme, run by the Coega Development Cooperation small business finance and support unit, also provides strategic advice and mentoring to the MSMEs, through weekly site visits. It moreover offers various loans, including: bridging finance loans for primary materials; order finance loans; and revolving facility loans for MSMEs delivering continuing services in the zone. The focus of Coega on developing and supporting MSMEs illustrates the role that targeted spatial development initiatives can play in creating linkages with the local economy by extending market opportunities, providing training, supporting access to finance and mentoring.

In Ghana, the Tema Multipurpose Industrial Park, in order to create linkages between local area firms and on-site firms, and to promote overall growth in the country, has established common service centres for the development of business support clusters, open to MSMEs.

While not all firms in the Park have access to its special fiscal regime, its common service centres serve all

enterprises in the area, regardless of ownership, size and market orientation. The economic rationale for the creation of these centres is based on the recognition of local MSMEs’ challenges in accessing high-cost equipment and machinery, technology and storage. To mitigate these challenges, the centres aim to catalyse industrial clusters and vertical linkages through the Tema initiative’s geographical agglomeration. The centres notably include Furniture City and a textile development centre. Furniture City aims to create linkages between local small-scale furniture producers and major exporters in the Ghana important wood products sector, through the Wood Technology and Design Centre, as well as 300 common workshop units for small-scale carpenters and a common showroom, amongst other facilities. The platform, with its geographical agglomeration of local area and on-site firms, thereby particularly aims to stimulate knowledge spillovers through MSME suppliers’ relations, networking, sharing of best practices, and improved supplier understanding of current and potential business partners’ needs, as well as through labour mobility.

Last but not least, to further smooth firms’ operations, IAFP should offer business services, such as business matchmaking, supplier development programmes and local recruitment services. Such investment-facilitating services were key success factors in Penang in Malaysia (COMCEC, 2017) and in the Dominican Republic (World Bank, 2016a).

#### IAFP designation policies, land use planning and physical development control

Rigorous IAFP statutory site designation criteria are essential to the selection a location well positioned for success. This involves assessment of a prospective IAFP site’s relative spatial endowments through feasibility studies, without which no IAFP location should be officially designated. Furthermore, an IAFP must be designated only after it has been proved that it is likely to deliver the programme’s sought-after economic benefits. IAFP site selection must, therefore, undergo a rigorous evaluation process, demonstrating that any proposed site possesses the following attributes:

- A critical mass of economic activity, ideally including an incipient cluster (the presence of business activity and multiple enterprises engaged in formal, registered economic activity within a short distance of the proposed IAFP which could be potential suppliers or tenants in the IAFP, and aid in the development

- of backward and forward linkages with expected activities in the proposed park)
- Upstream raw materials or distribution centres (RTCs and CCs), or downstream processing or distribution points for the agroprocessing hub (APH) outputs
- Private-sector support for designating an IAFP in the area (only where there is a strong, validated market demand for an IAFP should development take place)
- The presence of right-skilled labour and production resources, including adequate labour or consumption markets, nearby (or planned) social infrastructure and so-called “quality-of-life” facilities for investors’ management and staff (that is, hospitals, schools, hotels, retail business, places of worship, recreation and tourism amenities), and appropriate human development conditions
- Strong transport connections to domestic and international markets
- Guaranteed connections to power and water infrastructure on legal terms ensuring reliable and affordable supply

- Land availability, including: an area suited to the purpose of the IAFP, as well as harmonious with the national, district and local economic, sustainability and social development plans; sufficient size of the proposed IAFP to support a diverse and competitive business environment; ease of identifying interests in the land in the proposed IAFP and resolving any potential disputes and claims; ability and space for expansion of the site; and appropriate environmental conditions.

An IAFP site must be of an appropriate size to accommodate and stimulate clusters, as well as to allow for expansion of its hosted investment and economic activity. The minimum number of projected investors in the IAFP should be high enough to facilitate intra-park trade, with supplier-purchaser, subcontracting, and partnership arrangements made possible. This number will certainly be higher than to allow for a single-enterprise IAFP. Generally speaking, the more businesses in an area, the more dynamic the economic benefits will be.



Source: stock.adobe.com

With regard to size of the park, IAFPs, in general, should not be of less than 50 hectares. Sizes at maturity can thereafter range up to several hundred square kilometres. Initial analysis on current and expected pent-up demand for serviced industrial, logistics and services land, must show the expected growth of the targeted agro-allied subsectors of the economy, and their respective contributions to land demand at the proposed site. Actual approvals of development should then be for phases and be ‘right-sized’ according to conservative demand forecasts that ensure they fill up rapidly, and achieve rates of financial and economic returns that justify the investment and overall programme fiscal costs.

The possibility of considering agricultural land options for the IAFP is not as promising as it may at first sound. Indeed, “agroprocessing” is not the same thing as farming, growing, ranching or animal-husbandry, and does not involve “agricultural” activity in the same sense, meaning that, from a land use and zoning perspective, IAFPs correspond more closely to industrial and commercial land use than to agricultural land use. IAFPs, moreover, should not be located “off-grid”, in “remote areas” distant from private and government services, social infrastructure, and agglomeration and distribution nodes. Remote satellites located in production basins may be necessary for aggregation purposes, but are not ideal locations for developing agro-industrial hubs.

Having said that, models could incorporate “processing and business sites” (such as the CCs, RTCs and APH), as well as synergistic out-grower farm sites. As regards such grower-oriented sites, it is also worth considering the inclusion of the following features within the overall IAFP programme design:

- Application of internationally recognized norms and standards as regards responsible land acquisition (See for instance, among other useful reference resources in this regard: World Bank (2014), USAID (2015), African Union, ECA and AfDB (2010))
- Government-facilitated access to and allocation of farmland, at competitive prices
- Government land banks for large-scale, commercial farms, with land allocated based on the presentation of a professional business case

IAFP developer and operator agreements and licences should, in all cases, include obligations and incentives for the provision of serviced land amenities that would make the zone truly attractive to both investors, and in particular financial mechanisms enabling the zone’s developer or operator to recover costs for the private provision of basic infrastructure and utilities not provided by the Government.

Effective planning controls also serve to regulate economic activity in a modern IAFP rather than trying to regulate economic activity through a complex advance screening and project evaluation process. Ongoing monitoring and enforcement of compliance with zoning plans, building codes, health and safety regulations, and environmental norms should regulate entry (and, in some cases, force exit) of businesses, rather than an abstract project evaluation. Effective and ongoing post-audit compliance is the flip side of streamlined business registration and approval.

Imbuing the IAFP with the ability to achieve these goals requires a unique regulatory structure for planning and environmental control within the site. The policy objectives considered by this include:

- Tasking the IAFP/SEZ Authority as the comprehensive regional planning body for the IAFP/SEZ
- Creating an efficient service delivery mechanism for all planning, construction and environmental approvals in the IAFP.

Physical planning and infrastructure policies are thus important to both the developer and operator and the tenants of the proposed IAFP, and particularly so to investors in sectors heavily dependent on reliable and affordable public services such as water and power, as is the case with agroprocessing.

A key prerequisite for establishing a new IAFP is a clear business case demonstrating overall commercial viability, as well as economic outcomes and benefits. IAFP policy should therefore set the conditions that need to be satisfied by development plans for new parks. In this regard, it is worth noting that larger spatial development initiatives perform better than smaller ones, given their great potential for cluster development.

Lastly, preferential land use for analogous regimes' park-based firms through subsidized land and rent on a permanent or temporary basis is, for instance, offered in Africa, in Madagascar, Mali, Mauritania, Nigeria and the United Republic of Tanzania. The South African Coega SEZ not only offers large plots

for big tenants, but also a multiuser facility which provides smaller industrial spaces inside the park for MSMEs. This physical proximity between the large firms and MSMEs aims to facilitate the transfer of knowledge, interaction and networking, and the formation of value chains.

### 9.4.3 IAFP socio-environmental management policy

At the IAFP developer and operator licensing and project approval level, it is important that the applicant demonstrate the environmental and social sustainability of the project, and the likelihood that the developer will comply with all environmental and social guidelines, as demonstrated through:

- An environmental and social impact assessment and detailed mitigation action plan that includes:
  - › A baseline survey and audit of existing environmental pollution (including air pollution and air quality levels, wastewater discharges and water quality, and solid waste management) and social conditions in and around the relevant project site
  - › Mechanisms, facilities, and infrastructure for ensuring no net negative environmental impact results from the proposed activities
  - › An internal monitoring and inspection system to ensure compliance with all obligations, standards, and procedures, including those related to effluents and emissions, as well as to social standards
  - › An environmental and social information disclosure mechanism, public participation strategy, and a complaints review and response procedure
- Bylaws, guidelines, manuals and standard operating procedures for construction, management and operation of the proposed IAFP in accordance with international standards for socio-environmental management
- A description of proposed social services and social infrastructure for the site given the nature and scope of the project, such as schools, accommodation, medical facilities, police, childcare, shops and entertainment, transport, and other public services for workers and their families.

Ultimately, all IAFP developers and operators should also engage in specified activities throughout the development and operation of the project, which should be expressed as conditions, covenants, and representations and warranties in their developer agreement or licence. In this context, IAFP developers and operators should, to the greatest extent possible, be required to abide by the following best practice operating standards:

- To implement socio-environmental management systems, including for the treatment of used water, waste disposal, and air emissions, to ISO 14001 on environmental management systems, OHSAS 18001 on Occupational Health and Safety, and SA8000 on Social Accountability (humane workplace and worker human rights) standards, and also to the standards of the United Nations Convention on the Rights of Persons with Disabilities
- To mitigate or avoid any adverse impacts upon the environment, surrounding communities, economy, culture, public order, safety, public health, natural resources, livestock, or crops
- To facilitate lawful activities of any trade union of IAFP workers or enterprises
- To protect the health, safety and well-being of all persons in the IAFP including workers
- To act in accordance with agreed corporate social responsibility standards and protocols.

An important aspect of the Atlantis SEZ of South Africa development strategy was, for instance, its concerted efforts around community involvement, including through the establishment of the Atlantis SEZ Stakeholder Community Network in 2019.

In addition, the following services for the operation of the IAFP by its developer or operator should be pursued to the greatest extent possible:

- Formation of supplier linkages with local businesses
- Provision of solid and liquid waste collection, treatment and recycling
- Provision or facilitation of business incubator facilities for start-ups and SMEs
- Provision or facilitation of recreational and social facilities and services, such as fitness centres, recreational areas, childcare services, cafeterias, medical clinics, worker transport, security, worker and management housing with associated maintenance and housekeeping services, shops, and supermarkets.

All of the above IAFP services should be considered and negotiated in the context of the conclusion of any IAFP developer and operator agreement.

In terms of reporting obligations, all IAFP developers and operators should be required to:

- Present or provide quarterly or annual information regarding the levels of pollutants released into air

and water; all labour complaints and the results of all inspections and investigations in the park and compliance with all specified environmental and social performance targets

- Notify the Government upon becoming aware of any conditions or factors not previously considered that materially affect the following information as presented with their licence application, including its environmental and social impact assessments and mitigation strategies
- Notify and obtain approval from the Government prior to making any material change to the environmental and social monitoring, inspection, and reporting mechanisms or mitigation action plans presented in their licence application.

In terms of dealing with sustainable development goal concerns, the UNIDO Eco-Industrial Park model shows how implementing stricter environmental, social and governance standards and improving zone capacity to monitor and evaluate performance against these standards can serve to catalyse green, future-oriented and high-impact investment.

### 9.4.4 IAFP tax policy

IAFPs may adopt a policy framework which aims for a liberal and flexible investment environment, and a measure of insulation from policy distortions affecting enterprise efficiency, such as taxes, tariffs, excessive regulation, and red tape. Such a tax environment is additive for the attraction of agroprocessing investment (particularly FDI), if other core business needs (for example, infrastructure connectivity, supply chain and market linkages) can also be satisfied. The extent to which taxes are liberalized and incentives granted, however, varies among different programmes and should be evaluated in the context of key factors driving investment, market demand, park competitiveness and distortion to non-IAFP firms with similar operations elsewhere in the domestic economy. One would want to avoid encouraging existing businesses to move into zones to benefit from preferential tax policies, which would not be additive to the economy and would simply erode the tax base.

In addition to incentives regarding the direct taxation of corporate income and input duty suspension, IAFP enterprises are often exempt or offered preferential treatment on indirect taxes. These can include sales and consumption taxes or production and value-added taxes (VAT), stamp duties and property taxes. Most industrial parks eliminate taxes that yield low revenue streams and are costly to administer, such as stamp duties, municipal taxes (as discussed earlier in this report), education taxes and a plethora of other levies. Many municipal levies are replaced with fee-for-service provision of services and infrastructure. This also reduces the opportunity for corruption, especially if the fee-for-services payments are streamlined through a one-stop shop or national authority that acts as an alternative route for tax administration to local tax authorities.

In addition to general agricultural sector tax policy, there is also a specific role for government incentives

in IAFPs, and fiscal incentives and facilitative tax administration procedures are a common feature in agro-focused SEZs.

Around the world, IAFP and other related programmes often offer investors fiscal and financial incentives. Financial incentives provide direct finance to companies in the form of grants and subsidies for inputs (including on plot and lease price, utilities, workforce training) or

outputs, loan guarantees or loans at concessional interest rates. Fiscal incentives reduce tax expenditures, including exemptions from tax base, allowances and credits, rate relief, tax deferrals, duty exemptions on imports and exports, VAT exemptions and accelerated depreciation.

The following tables provide some illustration of the types of fiscal and financial offers on offer in such programmes:

**TABLE 14 - Global multi-use SEZ fiscal and financial incentives (sample of 30 programmes)**

% DISCOUNT OR SUBSIDY	CORPORATE INCOME TAX INCENTIVES		DUTY-SUSPENSION		SUBSIDIZED LAND OR PLOT ACQUISITION	
	No. of countries	% of sample	No. of countries	% of sample	No. of countries	% of sample
100%	21	70%	19	76%	5	50%
99–80%	8	27%	6	24%	0	0%
79–10%	0	0%	0	0%	0	0%
< 10%	1	3%	0	0%	5	50%
<b>Total</b>	<b>30</b>	<b>100%</b>	<b>25</b>	<b>100%</b>	<b>10</b>	<b>100%</b>

Sources: McKinsey, IDOM, Locus Economica

**TABLE 15 - Global agro-allied SEZ financial incentives (selected programmes)**

AGRO FOOD PARK	INSTALLATION COST ASSISTANCE	LABOUR COST ASSISTANCE (SALARY PREMIUM)	WORKFORCE TRAINING COST ASSISTANCE
Republic of Korea (textiles and footwear zones)	Subsidies for plot acquisition and construction	+50% (nightshift, weekend and holidays)	Subsidies for building a training or research and development centre
United Arab Emirates <sup>29</sup>		+25% (nightshift); 50% (weekend and holidays)	
Morocco	Construction subsidy of €8 per m <sup>2</sup>	+25 to 50% (nightshift); +50 to 100% (weekend and holidays)	Training subsidies

Sources: FAO, Locus Economica, IDOM

29) Perhaps the leading SEZ with agricultural activity in the Middle East and North Africa region is the Jebel Ali Free Zone, in the United Arab Emirates. This 5,700 ha SEZ, the largest in the region by trade activity, has created over 115,000 jobs, based on strong global connectivity, efficient administration and competitive incentives. Amongst the key sectors of investment activity in the zone is food processing.

In addition to outright nominal corporate income tax rate reductions, exemptions or holidays for investors, other examples of corporate income tax rate adjustments applied in agribusiness parks and SEZs and worthy of note include the following:

**TABLE 16 - Income tax credits and allowances (selected leading agro-SEZ programmes)**

INDONESIA <sup>30</sup>	MALAYSIA <sup>31</sup>	PHILIPPINES <sup>32</sup>	TAIWAN PROVINCE OF CHINA <sup>33</sup>	TAIWAN PROVINCE OF CHINA <sup>34</sup>
<ul style="list-style-type: none"> <li>Deduction of foreign and local interest expenses</li> <li>Accelerated depreciation (25–50%)</li> <li>50% amortization rate for intangible assets</li> <li>5–8-year net operating loss carry-forward</li> </ul>	<ul style="list-style-type: none"> <li>Investment tax allowance: 60% of qualifying capital expenditure for 5 years</li> <li>Reinvestment allowance: 50% of capital expenditures</li> <li>100% industrial adjustment allowance</li> <li>Accelerated depreciation for plant and machinery</li> <li>Indefinite loss carry-forward</li> </ul>	<ul style="list-style-type: none"> <li>100% tax credit for firms using domestic breeding stock and genetic materials</li> <li>25% tax credit for non-traditional producers substituting local raw materials, spares and capital equipment for imports</li> <li>100% tax credit for firms using locally made machinery, spares and capital equipment</li> <li>100% deduction of training expenses</li> <li>50% deduction of wage bill of new skilled and unskilled workers employed</li> <li>Developers: 50% deduction on domestic market, facilities, utilities purchases</li> </ul>	<ul style="list-style-type: none"> <li>15% tax credit of locally purchased machinery and equipment</li> </ul>	<ul style="list-style-type: none"> <li>200% deduction of water, power and transport costs for 10 years from first sales date</li> <li>25% deduction from net profits of costs of project's infrastructure and facilities</li> <li>Tax deduction equivalent to 5% of annual increase in export revenue</li> <li>Tax deduction of 10% of electricity and transport costs for 5 years</li> <li>5-year net loss carry-forward</li> <li>5% depreciation rate for buildings, 20% for machinery</li> </ul>

Source: FAO, World Bank, UNCTAD, Locus Economica, Vivid Economics

These agricultural and agro-allied focused incentives reflect development priorities and key constraints to doing business for each respective country. Special fiscal and financial considerations for IAFPs may be needed to effectively attract new investment. Such

measures should be informed by consultation with private enterprises during the planning phase around establishing broad IAFP programmes and specific IAFP projects.

30) The SEZs in Indonesia target downstream activities in agricultural industries. The Sei Mangkei SEZ, for instance, offers incentives for investors processing palm oil and rubber. In 2016, a year after the zone became operational, Unilever opened an oleochemical factory processing palm oil for various consumer goods products, targeting the domestic market and South-East Asia.

31) Zones producing forestry products, food processing, food, footwear, textiles, garments and handbags.

32) In the Philippines, SEZs evolved from customs-free zones limited to foreign trade, first introduced in 1969, to multi-activity zones (EPZs hosting only manufacturing) in the 1970s, and then to specialised SEZs in the 1990s ("ecozones" hosting both manufacturing and services activities). Today, all the zones in the country have an industry focus –including agro-industry. The Philippine Economic Zone Authority (PEZA) is thus involved in the promotion and development of food parks with SEZ status. PEZA has had an influential role in the development of the Clif Agro-Industrial Park, Food Terminal Incorporated and Cocochem Agro-Industrial Park.

33) Taiwan Province of China established three specialised SEZs focusing on agricultural biotechnology in the 2000s as part of an industrial upgrading strategy.

34) Zones producing forestry products, food and beverages, tobacco, animal and vegetable oils and fats.

### 9.4.5 IAFP export policy and incentives

WTO rules have important consequences for SEZ-type IAFP regimes. In particular, the Agreement on Subsidies and Countervailing Measures (the “subsidies code”) and the Agreement on Trade-related Investment Measures (TRIMs) pose compliance challenges. The TRIMs Agreement’s provisions, as previously discussed, consider investment measures that confer advantages either inconsistent with national treatment (such as, mandatory domestic purchases or limits on imports) or requiring quantitative restrictions (such as, limits on imports or exports).

An even greater potential for conflicts with WTO exists under the subsidies code, which considers export subsidies that may take the form of forgone or uncollected government revenue such as tax concessions. Non-specific subsidies that are neutrally

allocated and do not distinguish between sectors are however non-actionable and legal under the WTO. The only subsidies expressly prohibited under the WTO framework are those provided by the Government and contingent on exports or domestic use requirements.

As noted above, local market sales and raw material sourcing are an important consideration in the IAFP concept, due to the justification for these parks to add greater value to local production and, oftentimes, to service growing domestic and regional demand. As also previously noted, the IAFP regime should clearly and explicitly operate on a suspensive, no-duty-no-drawback basis, and avoid or eliminate any minimum export quota provisions, subject to application of ordinarily applicable duties, VAT, excise and rules of origin, given WTO incompatibility.

EGYPT <sup>35</sup>	TÜRKIYE <sup>36</sup>	UNITED ARAB EMIRATES	THAILAND	VIET NAM
<ul style="list-style-type: none"> <li>Unrestricted, subject to full duty payment</li> </ul>	<ul style="list-style-type: none"> <li>Unrestricted, subject to full duty payment</li> </ul>	<ul style="list-style-type: none"> <li>Unrestricted sales for firms in industrial estates on a reduced duty basis</li> </ul>	<ul style="list-style-type: none"> <li>15% tax credit of locally purchased machinery and equipment</li> </ul>	<ul style="list-style-type: none"> <li>Unspecified, decisions made on case-by-case basis</li> </ul>

Sources: Locus Economica, World Bank

Some special-regime parks around the world even provide incentives for local sales, such as VAT reductions (for example, Subic Bay Freeport in the Philippines, Labuan Freezone in Malaysia and Jebel

Ali Free Zone in the United Arab Emirates) or duty reductions (for example, Labuan Freezone and Batam Free Trade Zone in Indonesia, with 20–25 per cent duty level reductions).

MALAYSIA	PHILIPPINES (PEZA)	TAIWAN PROVINCE OF CHINA	THAILAND
<ul style="list-style-type: none"> <li>Encouraged, eligible for duty drawback and other export schemes</li> </ul>	<ul style="list-style-type: none"> <li>Sales to ecozone free trade enterprises are considered to be constructive exports</li> </ul>	<ul style="list-style-type: none"> <li>Encouraged, eligible for various tax and duty exemptions or rebates</li> <li>Awards provided to companies with local purchase over \$2 million</li> </ul>	<ul style="list-style-type: none"> <li>Encouraged, eligible for various incentives</li> </ul>

35) Egyptian zones include such agro-allied activities as spinning and weaving, food industry, and the production of leather, wood, furniture, agricultural products and soft drink concentrates.

36) Turkish zones are engaged, among other activities, in food products manufacturing.

Other examples of countries with tax exemptions on local sales to SEZs under applicable legislation include the cases of such sales to Batam Island in Indonesia and to Jebel Ali in the United Arab Emirates, duty

drawback for such sales to the Subic Bay Freeport in the Philippines, and input duty exemptions related to such sales in the case of Labuan Island in Malaysia.

### 9.4.6 IAFP labour and training policies for labour skills enhancement

Most modern industrial park-type regimes focus on streamlining procedures, driven by the growing importance given to skilled and productive rather than purely low-cost labour. Industrial park-type regimes generally offer a free labour market, including market-driven wage-setting, and liberal work permit and visa policies for expatriates at technical and management levels.

Investors have also come to expect liberalized work, immigration and residency privileges for themselves and their managerial staff. Industrial parks thus define themselves as very different investment locations based on this interplay of skills and regimes. Their investor-friendly regulatory frameworks encourage work permit transparency, providing greater investor comfort. Being able to anticipate visas and work permits is a crucial factor in evaluating an investment opportunity. Many zone regimes establish liberalized approvals for foreign nationals employed by end-user enterprises, as well as for their families; and allow expedited clearance of foreign visitors to the parks for business purposes.

Best practice policies and facilities worth consideration in the context of access to right-skilled labour, workforce development and labour market regulatory compliance, through the IAFP concept, include:

- An on-site, government-funded but industry-oriented vocational training, skills upgrading and placement programme, focused on agro-allied industry and technical skills
- An on-site, government-funded exporter assistance programme
- Government agricultural sector in-house training co-funding, tax credits and allowances for park residents and occupants
- Automatic investor expatriate quotas, long-term permits and automatic renewal procedures for IAFP investors

- Emergency, same-day visas for original equipment manufacturer agricultural machinery repairs within the IAFP context.

IAFP developer and operator agreements and licences should include obligations and incentives for the provision of services that would make the zone truly attractive to both investors and workers, for example:

- Provision or facilitation of attractive and safe worker accommodations, common spaces, childcare, health clinics, cultural amenities, and other types of services and social infrastructure
- Provision or facilitation of training programmes as well as connections with universities or training institutions that provide students with the skills demanded by IAFP tenants
- Incentives to the zone’s developers and operators and enterprises to provide training to workers.

Since agroprocessors have had difficulty in finding enough skilled workers, IAFP programmes should provide training programmes to provide workers with the skills needed for the activities targeted in the zones. Connections should also be made with existing educational and training institutions to help match graduates with IAFP employers in targeted sectors.

The location of State-funded national skills development centres and training colleges is often geographically concentrated. To take full advantage of their services, and offer them as a benefit to IAFP investors, it is advisable to locate IAFP near to them where possible.

An example of the skills upgrading of labour forces in spatial development initiatives is provided, for instance, by Penang, in Malaysia, where a public-private initiative in 1989 brought about the creation of a private sector-led training centre – the Penang Development Skills Centre – aimed at developing skills closer in line



with investor needs. Similarly, the Tanger Med Zone, in Morocco, also offers industry-specific skill development programmes. A similar demand-driven approach has been adopted by the Santander SEZ in Colombia, where a government-led initiative provides English-language courses and the national tax authority offers courses to firms every time a new regulation is passed, while the Business Alliance for Secure Commerce provides training in safety culture, client and supplier selection, risk analysis and compliance with best practices. All of these courses are highly relevant to the many service providers and logistics firms located in the zone. Myanmar too has enabled knowledge spillovers by training the local workforce at the Thilawa SEZ.

In addition, attracting workers to industrial occupations and improving labour productivity can be enhanced by improving quality of life in agroprocessing manufacturing work. Among the possibilities for doing this include:

- Negotiating arrangements with private IAFP developers and operators to provide attractive and safe worker accommodation, common spaces, childcare, health clinics, cultural amenities, and other types of services and social infrastructure
- Creating clear guidelines for employers on standards for working conditions and assisting them with compliance
- Providing incentives, such as rent reductions, to developers, operators, and enterprises to provide training to workers, establish more flexible leave and working hour policies, provide professional development and career advancement opportunities, and adopt other practices desired by workers
- Arranging for park operators and employers to reach out to prospective workers by visiting cities and villages and hosting on-site visiting days.

## 9.5 INSTITUTIONAL GOVERNANCE FRAMEWORKS FOR IAFPs

### 9.5.1 Main stakeholders and other participants, and their respective institutional roles and responsibilities

Governance of an IAFP involves two key and rather distinct elements: regulatory governance (generally the

role of the State); and commercial development and operation (generally the role of the private sector).

**TABLE 19** - Best practice division of responsibilities between the private and public sectors in the governance of agro-parks

GOVERNMENT	PRIVATE SECTOR DEVELOPER AND OPERATOR
<ul style="list-style-type: none"> <li>▪ Strategic planning, vision, priorities for IAFP programme</li> <li>▪ Public consultation and engagement of private sector</li> <li>▪ Identify role of the private sector</li> <li>▪ Approve sites and assemble land if necessary</li> <li>▪ Select IAFP developer and operator; enter into development and management contracts with them.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct detailed feasibility analysis</li> <li>▪ Develop land use master plan</li> <li>▪ Develop and operate on-site infrastructure and utilities</li> <li>▪ Secure financing and other resources</li> <li>▪ Provide business advisory and professional services.</li> </ul>

GOVERNMENT	PRIVATE SECTOR DEVELOPER AND OPERATOR
<ul style="list-style-type: none"> <li>▪ Coordinate the preparation of land use master plans with developers</li> <li>▪ Provide off-site infrastructure and utilities</li> <li>▪ Approve developers' construction plans and monitor progress</li> <li>▪ Issue licences and permits to zone users</li> <li>▪ Cooperate with revenue authorities to administer customs and tax procedures</li> <li>▪ Monitor operations and services to ensure compliance with management agreements</li> <li>▪ Investigate and enforce zone users' compliance with regulations</li> <li>▪ Support marketing and investment promotion efforts</li> <li>▪ Facilitate supply chain linkages</li> <li>▪ Strengthen agro-industrial integrated system</li> <li>▪ Develop workforce and other social services.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide social and cultural services</li> <li>▪ Develop and implement security measures and systems</li> <li>▪ Market the IAFP to prospective tenants</li> <li>▪ Lease plots to tenants</li> <li>▪ Sell utilities and other shared services</li> <li>▪ Maintain infrastructure and common areas</li> <li>▪ Waste management</li> <li>▪ Childcare</li> <li>▪ Performing discrete regulatory functions under delegation of public authority (<i>cahier des charges</i>) contracts, when there is no conflict of interests. Such functions might, for example, include security and one-stop shop services, processing of business licences, labour monitoring, environmental management, and customs logistics facilitation. There are, for instance, examples of such delegations of authority in Mozambique and Burkina-Faso (customs), South Africa (Gauteng one-stop shop), Pakistan (labour monitoring), and elsewhere.</li> </ul>

Some flexibility as regards the role of the State may be allowed for in the division of roles and responsibilities outlined above – in particular, as regards a more prominent role of the State in IAFP planning and development. In some African countries, industrial park regimes that have relied on private developers (for example, Ghana and Tunisia) have not had noteworthy success. In others, such as Morocco and the Democratic Republic of the Congo, the time it took to find suitable zone developers and operators was lengthier than Governments might at first have anticipated.

The risk-reward calculation of park development may not be sufficiently enticing without a significant public sector role, even though access to public utilities, roads, and so forth, is often non-existent or slow to materialize, and some sort of role for the private sector is evidently necessary.

The IAFP model adopted in Ethiopia has provided for a stronger public role in the planning and development of parks, with a view to more effectively pooling and targeting available resources, and more quickly generating the agglomeration benefits and backward linkages that agro-industrial parks promise. Greater

public advance investment in basic park infrastructure and industrial shells allows for smaller firms to “plug-and-play”, requiring significantly less investment financing and more inclusivity within the park, are also planned under this approach. Ethiopia IAFPs are however yet to demonstrate significant positive investment results.

This is why PPPs remain this chapter’s preferred and recommended option for IAFPs, as demonstrated by the success of, for instance, Indian mega-food parks<sup>37</sup> based on such models. At least 16 are currently in operation with over a score more under development. MFPs have been 30–70 per cent publicly funded, in terms of their initial infrastructure, with the minimum 20 per cent private stake, however, always exceeded.

Government stakes can also be phased out at a later date through privatization or partial divestiture of holdings through PPP joint venture special purpose vehicles, as evidenced, for instance, by full or partial withdrawal from zones they initially built by the State in Colombia or in the United Arab Emirates, once operational, and as is, for instance, also currently being contemplated in Ethiopia and in Lesotho.

37) The major agro-processing activities in Indian mega-food parks include: sugar refining; fruits (mango, banana, jackfruit, pineapple, guava, grape and others); vegetables (gherkin, cucumber, drumstick, tomato, onion, garlic, potato, chili and others); spices (chili, tamarind, turmeric, cardamom, pepper, cinnamon, vanilla and others); herbs (aloe vera, senna, ashwagandha (Indian ginseng), amla (Indian gooseberry) and others); marine (crab, lobster, prawn, tuna and others); and other (cashew, rice and others).

### 9.5.2 Governance framework

Applying the general frameworks inspired by other spatial development initiatives, there are different potential IAFP governance framework models, which

UNCTAD has summarized in terms of the following three basic approaches:

TABLE 20 - Comparing SEZ governance models

GOVERNANCE MODEL	ADVANTAGES	DISADVANTAGES
<b>Public</b>	<ul style="list-style-type: none"> <li>▪ Potential decentralization of ownership at local and regional levels</li> <li>▪ Public objectives</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drain on limited public resources</li> <li>▪ The management body often lacks competency</li> <li>▪ Conflict of interests may undermine effective management</li> <li>▪ Lack of market know-how may lead to poor investment choices</li> </ul>
<b>Private</b>	<ul style="list-style-type: none"> <li>▪ Reduces industrial park’s opportunity cost by delegating park development and operation to private sector</li> <li>▪ Facilitates park development and operation in the absence of State capacity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Private sector may tend to focus more on profit maximization at the expense of overall economic development</li> </ul>
<b>Joint</b>	<ul style="list-style-type: none"> <li>▪ Ensures strong commitment of political leaders</li> <li>▪ Enables utilization of the private sector’s technical expertise</li> <li>▪ Allows public sector control on certain elements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Coordination problem between public and private sectors</li> <li>▪ Cultural differences in management team may cause communication problems</li> </ul>

Different commentators have taken different views on the relative merits of these models. It is not certain, for instance, whether a private or PPP-based approach would be any less capable of local-level adaptation and specialization than a public one, although there are compelling arguments in favour of such a view. It is also not clear why PPP-based models would be any less capable of coordinating with public stakeholders than, for instance, an “overly hierarchical” line ministry, often at considerable risk of being looked askance by other government bodies when straying outside of its allocated responsibilities, a tension readily apparent

from the above table. Financial sustainability is also a key consideration the above table may place too little emphasis on.

Setting such differences of appreciation of these three governance models aside for the moment (although they will be revisited later in this chapter), they all share the common characteristic of being further divisible into distinct regulatory and (potentially commercial) development and operational dimensions, each of which will in turn now be explored and discussed.

### 9.5.3 IAFP programme regulation

Regulation of the various legal, regulatory and administrative matters at the heart of investment in agroprocessing can fall under a large number of distinct government bodies.

Countries with successful agro-parks have, however, usually relied on a single, overarching national regulatory authority for overall regulation. Apart from lodging such a regulator under the aegis of the

host country’s ministry of agriculture, this regulatory authority can take several general forms, for instance including: an independent zones authority, which is empowered to perform or facilitate most regulatory functions for zone investors and residents itself, or an inter-governmental commission which consists of representatives of all government entities with responsibilities affecting zone users, headed by a secretariat.

The principal benefit of such frameworks is that they unify, simplify and streamline IAFP governance. When too many government entities have involvement in regulating zones, compliance tends to become more complicated for zone users, and monitoring and enforcement become weaker and more erratic. For many countries, a single regulator helps to minimize overly burdensome or duplicative regulatory behaviour from institutions with internal culture challenges in need of broader resolution. The autonomous authority framework also cultivates and concentrates public service talent and know-how regarding the IAFP concept. Such an authority can harness permanent staff with a clear and comprehensive mandate and can build up institutional know-how to ensure effective IAFP oversight.

The IAFP authority can work with other government bodies to improve performance standards. The IAFP regulator, however, should be able to license industrial and commercial tenants under its own rules to operate within the IAFP, as well as regulate land development in the IAFP, with minimal recourse to outside agencies.

Where it seems more judicious for existing government agencies to carry out their ordinary responsibilities, except that such functions are to be coordinated and streamlined for IAFP users through a one-stop shop, the strength of memorandums of understanding in allocating responsibilities under an inter-agency framework is critical. Even with strong regulatory authority, the IAFP regulator will have to work with existing government departments to deliver certain services, given the need to align and integrate the IAFP framework to the greatest extent possible with existing systems and technical requirements.

For an IAFP one-stop shop to be truly effective, the permits, licences, and other authorizations it issues, as well as the reporting requirements it mandates, should replace or consolidate most of the existing requirements imposed by various other government entities. To fully empower the IAFP and SEZ one-stop shops, the regime’s overarching law should thus make explicit reference to these powers. The law should also provide the IAFP authority with the power to re-engineer the procedures for issuance of such authorizations, with a view to streamlining them. Often, supplemental arrangements will also need to be made with other government agencies to effectuate this, through additional technical memorandums of understanding.

Internationally, in best practice agro-park and SEZ regimes, its one-stop service office processes approvals itself, and thereby reduces the bureaucratic burdens, costs, and delays for investors. It is thus recommended that IAFP host countries move towards the international best practice model for one-stop shop investment facilitation, operations and management. Other streamlined regulatory services to be considered for inclusion in one-stop shops service areas to IAFP tenants include: product certifications (sanitary, phytosanitary, organic, and others), customs administration, and other publicly administered compliance-related procedures. Such procedures are often cumbersome for agribusinesses to navigate, requiring physical visits to various line ministries. Co-location of these regulatory services within the IAFP is effectively a soft investment incentive, as streamlined administration lowers operational costs and drives competitiveness for agribusiness firms. The most successful zones worldwide furthermore provide streamlined administrative services through online single windows.

All of this has IAFP concept implications. First, provisions for the finance, budget, human resources, and training of the IAFP and SEZ regulatory authority are required. This will ensure sufficient resources to provide high-capacity and motivated administration in the IAFP, in particular if accompanied by a set of principles for the sound operation of a one-stop shop.

Second, inter-agency memorandums of understanding between a variety of national regulatory bodies are

needed to coordinate the activities of the IAFP one-stop shop. All activities not performed by the IAFP regulator directly must be simplified, made less costly, and made faster through the structured coordination of the shared IAFP and SEZ regulatory functions with these bodies.

Lastly, it is worth bearing in mind that, in certain instances, knowledge transfers in this area might be

promoted through structured, formal mechanisms, embedded in the governance model, including through international partnerships. In the Sino-Singaporean Suzhou Industrial Park in China, for instance, knowledge transfers were operationalized through formal training programmes intended to improve the institutional capacity of the hosting Chinese municipal partner.

#### 9.5.4. Site commercial operations

Around the world, privately-driven IAFP with SEZ characteristics, with the Government merely acting in a regulatory oversight role, typically perform better than State-driven ones. The last 50 years of performance by various types of business and industrial parks and SEZs worldwide have amply demonstrated this point. Available data show that privately-driven parks and zones are generally less expensive to develop and operate than public ones. Also, with the exception of only a few prominent ones, privately-driven parks and zones tend to provide better infrastructure, facilities, and amenities, generate higher rental prices and profit, and yield better economic results. Evidence suggests that they also have better social and environmental track records than public parks and zones (see World Bank, 2008).

Agro-industry is a risky business, not least because of wide fluctuations in the cost and reliability of raw materials, and most operate on thin profit margins. A greater role for the public sector in developing IAFP than in certain other types of industrial parks and analogous spatial development initiatives may thus, once again, be needed, in order to serve as a catalyst for investment in the context of relatively low rental income, and eventually for privately developed or operated IAFP. PPP options most closely reflect best practices in this respect. Indeed, PPPs (with a greater “champion” role of the private sector) have been the predominant approach to developing agro-parks in India and Africa alike, although they may not always necessarily have exhibited best practices in PPP structuring. Still, initiatives such as those of Gabon, and more recently Benin and Togo, where ARISE’s well-structured joint ventures are in place (or being put in place), are examples of such good practices. Middle-income economy PPP-based zones, including

those of Morocco and South Africa in Africa, India, the Philippines and Thailand in Asia, and Chile in South America, provide further examples.

The advantages of privately-driven IAFP development and operation include:

- **Cost savings for the Government:** Privately developed and operated IAFP reduce costs for the Government. The most significant cost savings are achieved by placing the burden of financing on-site infrastructure, facilities, and operating costs on private developers and operators. The Government should, however, remain responsible for off-site infrastructure and facilities to connect the zone to the surrounding economy. These are normally only a small part of total development costs, however, usually representing no more than the equivalent of 25 per cent of on-site development costs. Requiring private IAFP developers to provide on-site offices and other facilities for government authorities is another relatively standard cost-cutting measure (a measure which was, for instance, been taken in the Philippines). Many private zone operators pay the overtime pay of customs officers and other officials to remain on-site 24-hours a day. In some agribusiness parks, private operators have even assumed discrete regulatory functions, such as inventory counts for customs purposes, which reduces government administrative costs further.
- **Added value IAFP services, infrastructure, and facilities:** On the whole, privately operated IAFP tend to offer better facilities and services, attract higher end types of activities, and thereby command higher prices from tenants, ensuring greater financial viability and sustainable contributions to the economy. Because they are run on a cost recovery basis, such zones are generally more responsive

to tenant needs, offering a wider range of property management services and amenities. These improved services, infrastructure, and facilities lead to increased demand from investors. Increased demand allows the zone operator to charge higher rental rates. SEZ-type IAFP operated by private companies have also received a better market response than public ones in numerous countries, for instance in the Philippines and Kenya.

- **Boosting economic performance:** Overall, private parks are more profitable and tend to deliver stronger economic benefits than their publicly owned counterparts. In the Philippines, private parks of various sorts have contributed to over 70 per cent of the country’s exports. It is true that some highly successful zones have been publicly run. Looked at globally, however, private parks have been more successful than public ones and are less dependent on officials.

Some of the reasons why privately-operated IAFP are more likely to succeed include:

- Concern for the bottom line
- Greater experience providing high-quality facilities and amenities in other projects
- Access to more sophisticated technology
- Superior rent and service charge collection techniques
- Higher quality management equipment and methods
- Lesser reliance on scarce public resources and budgetary allocations.

The private IAFP developer and operator will be expected to fully bear the risks of:

- Failure of the business model for the IAFP, including the risk that revenue will not meet expectations or that costs will be above expectations
- Environmental, social, or public health damage from IAFP activities with regard to injured parties
- Changes to the market or macro-economic conditions
- Lack of interest from investors
- Improper market demand or market access
- Competition from other locations.

Non-performance of the IAFP to the requirements, timeframes and standards set in the developer and operator licence or agreement should moreover result

in the strict application of sanctions, ranging from fines, to non-delivery of options on extension land, to suspension and cancellation of zone developer and operator approval.

This risk profile may, however, in many cases, be too high to secure investment. This is partially why so many agro-park programmes are stalled across Africa. To de-risk investment, an increasing number of Governments have therefore moved towards promoting the joint venture special purpose vehicle PPP model for the development and operation of IAFP and other industrial parks, under which all of the above risks are shared by both the private sector and public sector partners in the IAFP, according to their agreed level of equity exposure.

All IAFP developers and operators should engage in specified activities throughout the development and operation of the project, which should be expressed as conditions, covenants, and representations and warranties in their developer agreement or licence.

In this context, the IAFP developer and operators should, to the greatest extent possible, be required to abide by the following best practice operating standards:

- To manage the IAFP facilities to ISO 9001 standards
- To manage a transparent financial accounting system, to International Accounting Standards or International Financial Reporting Standards
- To develop and implement a monitoring and evaluation mechanism under which progress towards the goals of the IAFP performance indicators may be tracked, and to share data obtained with the Government for statistical purposes
- To pay on time all custom duties, taxes, fees, and other charges owed
- To monitor and track the entry and exit of all goods and people to and from any customs-controlled area
- To facilitate and ensure the enforcement of all applicable laws in the IAFP
- To avoid speculative behaviour, both by itself and by any IAFP investors
- To provide utility and other services to the IAFP as agreed
- To develop and adhere to standard operating procedures to guide their actions.

IAFP standard operating procedures should be required of or put in place for all IAFP operators, including detailed provisions regarding:

- Leases to investors and their termination provisions
- Customer service delivery and relationship management procedures
- Safety, including IAFP gate pass procedures
- Human resources management and development for IAFP staff.

In terms of reporting obligations, all IAFP developers and operators should be required to:

- Present or provide quarterly or annual information regarding the current economic rate of return and economic value addition of the IAFP project

- Notify the Government upon becoming aware of any conditions or factors not previously considered that materially affect information as presented with their licence application in respect of financial analyses, financial models, feasibility or economic analyses, increased risk, or their own financial or technical capacity to develop or operate the park
- Notify and obtain approval from the Government prior to making any material changes as regards their spatial, engineering or construction plans, or standard operating procedures.



Source: stock.adobe.com

### 9.5.5 Institutional support systems for the developers and tenants

IAFPs should offer better business amenities than elsewhere in the country. Developer agreement arrangements must be made sufficiently enabling of privately driven, developer-based solutions, and need to be flexible in this regard. All too often, IAFP host countries lack any significant investment promotion agency providing investment facilitation or aftercare, with the agency being focused on country branding and investment promotion, having no physical one-stop shop or portal, and lacking in standing and powers. Some valuable IAFP investor support amenities might thus include the following:

- Professional park management and operations, waste collection and disposal, security, environmental management, facilities management and infrastructure maintenance, repair and replacement
- A one-stop shop, providing business start-up, facilitation and aftercare assistance, including a market intelligence and resource centre, and vendor and labour matchmaking services
- In-house customs services
- A services centre, including shared research and development infrastructure, laboratory and testing centres, quality assurance and certification laboratories, showroom and collaboration space, office space, machinery repair centre and data processing services
- On-site workforce training, including government capacity-building programme offerings
- Machinery maintenance, repair and operation services
- Customs brokerage, clearing agents, courier and freight forwarding services
- Childcare and medical services for the IAFP workforce.

It is important to be familiar with the problems and opportunities specific to the country or region and to tailor IAFP services to investors' needs. Nigeria and South Africa, for instance, provide security services to ease business, through their SEZ programmes. Such services can usefully be complemented, for instance, by environmental compliance assistance services or ICT support services to facilitate operations of firms that rely on digitalized processes, in order to endow the IAFP

with 360-degree investor care packages that respond to the specific needs of the users it hosts.

The delivery of the following types of services for the operation of the IAFP by its developer and operator should be pursued to the greatest extent possible:

- Development of pre-built, standard, and shell factory shed buildings, for agroprocessing activity
- Provision or facilitation of logistics facilities and services, such as storage, packaging and labelling facilities, common bonded warehouses, on-site customs clearance, container freight stations, supply-chain management, inventory management, third-party logistics and transport, and freight forwarding services
- Provision or facilitation of business facilities, such as shared office space, temporary office services, conference centres, meeting rooms, exhibition centres, product display areas, communication centres, and production support facilities, such as repair and maintenance centres, training centres, shared production facilities, common technical services for product testing, certification laboratories and tool rooms
- Provision or facilitation of business support services, such as: reception services; ICT technical support; engineering supervision and construction management; financial services, including banking and insurance; post and courier services; and cleaning services
- Provision or facilitation of advisory and professional services, such as: feasibility study and market research support; business planning assistance; recruitment assistance; information on production, marketing, recruitment, and training; secretarial services; accounting; financial management; payroll; tax planning; marketing; translation; and legal services.

Whether an IAFP is developed and operated on a privately-led or a PPP basis, all of the above IAFP services should be considered and negotiated in the context of the conclusion of any IAFP developer and operator agreements or licences.

### 9.5.6 Rural transformation centre and collection centre frameworks

By linking farmers in outlying districts to processors, IAFP satellite centres (CCs and RTCs) serve to improve farmers' knowledge of market outlets, enable them to obtain better prices, and facilitate their access to training and inputs, eventually making the supply chain more efficient and sustainable. The CCs most directly serve as collection points for farmers' groups and individual farmers, and may offer pre-cooling storage services, and extension and advisory services. RTCs offer a platform for primary processing (that is, storage, grading, sorting and packaging), as well as for supplying agricultural inputs (planting material, fertilizers, pesticides, agricultural machinery and so on).

A clear understanding of these fundamental characteristics of CCs and RTCs leads to the following observations and conclusions, from a governance standpoint:

First, all of these various nodes are generally part of a single, multi-site IAFP, under the overall management of a single IAFP developer and operator, providing administrative, operational, and management efficiencies and thereby lowering costs for investors and users. Furthermore, to look at CCs and RTCs any other way would be to misunderstand (and therefore to dilute) the inherent logic of their value as an integrated network of satellite centres to the park-based IAFP concept. Moreover, it should be squarely acknowledged and recognized that third-party packing or packer centres and services (which is, in essence, exactly what CCs and RTCs offer) are rare in the agricultural value chain. This is because required volumes for the optimization of such services and infrastructure tend, through market forces, to organically impose vertical integration by large organizations, capable of bringing together the necessary capabilities and skillsets in terms of the associated market research, knowledge of market standards and needs, contract management, transformation-related engineering, relationships with (or ownership of) road transport networks, and marketing.

Second, APH in general, CCs and RTCs should be privately owned and managed.<sup>38</sup> Based on a realistic and sober assessment, government-run CCs and RTCs in Ethiopia, to the extent established to date, are significantly affected by their critically low levels of human and financial resources for staffing and operations.

Third, CCs and RTCs must be grounded in a sound business model. From a governance perspective, this means that they should support themselves by providing paid services, including for sourcing, storing, drying, and bagging raw material at commercial rates, distributing agro-inputs on behalf of importers as commission agents, and accepting fees for any other services purchased by farmers, processors or traders. Operation and maintenance fees should, to these ends, be collected from CC and RTC users and deposited into dedicated IAFP accounts.

Relating these issues to international good practice models for spatial development initiatives and industrial park development and operations in general, the following key questions must be dealt with by the IAFP policy in this context:

- From a regulatory perspective, the IAFP government regulator's specific obligations and responsibilities under the IAFP policy as regards the sale or lease of land, facilitating investors' regulatory interface, management and operational responsibilities in the CCs and RTCs if any, delivery of any sort of operational services if any, the exercise of enforcement-style responsibilities (such as collection of proceeds, fees and fines, monitoring, blocking prohibited actions, and referring matters to the courts), and coordinating with the utilities, municipalities and ministries for the uninterrupted, continuing provision of their services to occupants. Indeed, these latter services and responsibilities should not simply be left to "other respective authorities", "relevant authorities" or "other relevant organizations"

- From an institutional governance perspective, the appetite for leveraging PPP arrangements, including operation and maintenance outsourcing arrangements with user associations and, if so, any associated legal requirements
- If concessions, joint ventures or private schemes are allowed, the allocation of roles between the Government and the private sector in approving land concessions and leases
- How much centralization is appropriate in setting maintenance and operation fees, as well as the content of plot allocation contracts to end-user occupants, and site operating procedures and rules
- The building of an integrated governance system through interagency service-level agreements and memorandums of understanding.

While most of these questions can and should be resolved at the overall IAFP programmatic or park levels, there are compelling arguments for granting individual CCs and RTCs the necessary authority to:

- Make internal plot allocation decisions
- Set site-specific management and operation fees

- Determine the content of leases at these sites
- Determine certain site operations rules to be respected by users
- Coordinate with local utilities and municipalities
- Negotiate and conclude service-level agreements and memorandums of understanding with stakeholders at the local level
- Establish contract farming with local producers
- Determine the specific services to be offered at the site, based on local demand.

While these are primarily implementation responsibilities, within an integrated governance framework context, a measure of CC and RTC operational flexibility of authority (from that of the IAFP-based hubs and headquarters) as regards necessary associated decisions on these fronts should be built into the IAFP policy governance framework.

38) As, for instance, found through the World Bank project design and operational experience and research in Afghanistan, Ethiopia, India and Morocco, reflected in its various project concept notes, available online on the World Bank website at [www.worldbank.org](http://www.worldbank.org).

# 10



## Conclusions

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## CONCLUSIONS

The preceding chapters provided comprehensive instructional insights into the developmental benefits of integrated agro-food parks (IAFPs), along with the processes, principles and considerations of how to develop and operate such parks, inclusive of supportive policy, legal and regulatory frameworks. Accordingly, this chapter summarizes key conclusions of this important body of work.

In recent years, many developing and emerging economy countries have prioritized the development of their agro-industrial sectors as a means to foster gains in agricultural productivity and catalyse investment in value-addition of primary production. This agro-focus to industrial transformation capitalizes on strong agricultural production bases and expands manufacturing potential and industrial output to meet growing demand for food within countries and globally. In turn, the growth of the agro-industrial manufacturing sector creates on and off-farm employment opportunities, and promotes dynamic economies that connect rural areas to urban and global markets. This is particularly helpful to counter-balance rapid urbanization trends that are taking place in developing countries.

Agro-industry is considered a specialized manufacturing sector that includes a wide array of industrial processes, ranging from basic aggregation, cleaning and storage, to manual and semi-automatic transformation processes, to more sophisticated product transformation with the use of additives, product disaggregation and the use of agro-industrial by-products. Aggregation and processing activities often require linkages to various agro-allied sectors, including packaging, logistics, marketing, and machinery services. In short, agro-industry can be a starting point to drive a country's industrialization goals and spur technological spillovers to other manufacturing sectors.

Although many approaches have been adopted to grow agro-industries, IAFPs have become a popular model over the past decade. An IAFP is an agribusiness development corridor integrating value chain actors with high-quality infrastructure, logistics and

specialized facilities and services to create economies of scale for sustainable market-driven agribusiness development and rural transformation. IAFPs consist of three distinct yet integrated components that intentionally foster linkages among value chain stakeholders. The three components of the IAFPs are: the agroprocessing centre (APC) which is an industrial park that houses a cluster of agroprocessing and agro-allied firms grouped together to share infrastructure; the primary processing and aggregation centres, known as rural or agriculture transformation centres (RTCs or ATCs), which are intended to host community-based rural institutions, providing a mix of hard and soft infrastructure and services to agro-producers and entrepreneurs active in the agricultural sector; and the consolidation centres, serving as a stocking point providing logistics and services and supporting connectivity between the rural agriculture production regions and RTCs and APCs.

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Agro-industrial development is highly complex, touching on multiple disciplines, challenging market dynamics, several government line ministries, and a diverse array of stakeholders with sometimes competing interests. In an attempt to help navigate these complexities, UNIDO, in collaboration with partner institutions including the African Development Bank (AfDB), the African Union Development Agency (AUDA), the African Export-Import Bank, the China Export-Import Bank and Mahindra Engineers, has developed these guidelines on IAFPs to offer stakeholders specialized guidance on international best practices regarding sustainable agro-food park development, operation, promotion and regulation. They also support agro-industrial park stakeholders by providing practical tools to enhance performance

and manage risks. The guidelines are intended to be used and applied to IAFPs by a variety of stakeholders including: park regulators, park developers, park operators, park tenants, and stakeholders and partners such as multilateral development agencies and development finance institutions.

In total, the preceding chapters of the guidelines relay comprehensive guidance on IAFP conceptual, development and operations processes, with special attention given to elements of critical importance to IAFP success such as financing, environmental and social considerations (sustainability), construction, environmental impact, linkages, investment promotion and operations, and policy, legal and institutional frameworks. The guidelines are organized to sequentially convey the six phases of IAFP development, although resource mobilization and investment promotion are often implicated in most phases, particularly during the initial development

process. Similarly, the subject of policy, legal and institutional frameworks is conveyed as a stand-alone chapter, but is heavily implicated during the first two planning phases and provides foundational guidance for all other phases as well.

The key message of the guidelines is that carefully designed IAFPs need to be integrated with the rural economy, incorporate both soft and hard infrastructure in a manner that mitigates negative environmental and social impacts, help overcome the business constraints of agro-industrial firms in a way that creates shared value, and facilitate entry into manufacturing and higher value-added activities. The IAFP model can generate high productivity, stimulate innovation, promote investment and foster social inclusion and environmental protection.



Source: stock.adobe.com

Agro-industrial literature has identified that, among others, the types of constraints to growth in the development context arise from the inadequate quality and quantity of raw materials; high up-front investment costs; the high costs and lack of reliability of power; logistics constraints; cumbersome regulatory processes; and changing policy frameworks. IAFPs can be a way to mitigate, circumvent or take care of these constraints through intentional design not only of the hard infrastructure, but also through developing strategic policy, legal and regulatory frameworks that deal with specific and sectoral economic challenges, as well as to take advantage of strategic and sectoral opportunities.

IAFPs can be tailored to specific needs and sectoral investment priorities, in order to achieve economic objectives and to help stakeholders overcome specific market failures and economic constraints.

The planning phase for IAFPs is an iterative process and requires a series of analyses and extensive stakeholder consultations to establish a sound business case, detailed infrastructure design, financial structuring, a supportive policy framework and regulatory oversight. Through a series of pre-feasibility analytical tools, the business case provides supportive evidence of investor demand, viable subsectors, beneficiary analysis, integrated system analysis, location analysis, benchmarking and competitiveness analysis, and preliminary cost-benefit analysis.

IAFPs can be tailored to specific needs and sectoral investment priorities, in order to achieve economic objectives and to help stakeholders overcome specific market failures and economic constraints. Subsector targeting helps countries to promote investment in activities that leverage their comparative advantages and are necessary to achieve their broader national growth strategies. There is no one-size-fits all IAFP design that applies to all countries. IAFPs should be tailored to understanding and meeting actual and potential investors' needs and behaviours.

IAFPs must be market-driven in order to secure investment and ultimately be successful. This requires close coordination with agribusinesses to ensure their needs are understood and sufficiently considered in the IAFP conceptualization phase. Accordingly, only if

the business case is viable should the planning phase continue with detailed feasibility studies including master planning, detailed engineering design, and environmental and social impact assessment (ESIA). Once again, design should align with investor needs and adopt a phased approach to scale up operations over time.

Incorporating inclusive and sustainable industrial development methods into the planning process is encouraged. The greening of supply chains, mitigating climate change impacts, and maximizing social inclusion and risk mitigation, are growing trends in food and agro-industrial systems, evolving quickly with rapid technological advances and rising consumer awareness. Where possible, UNIDO advises IAFP planners, developers and operators to apply inclusive and sustainable industrial development methods along the lines of its four pillars: creating shared prosperity; advancing economic competitiveness; safeguarding the environment; and strengthening knowledge and institutions (UNIDO, 2022).

Central to the planning phase are the systemic interactions of several independent stakeholders (producers, agribusinesses and institutions) in an industrial set-up or industrial integrated system in a collaborative effort to gain economies of scale and positive externalities by sharing infrastructure and services. Different components of IAFPs, such as the agroprocessing centre, rural transformation centres and consolidation centres, must be designed to function as a unified system to enable demand-driven combination and integration of various agricultural activities and encourage linkages with value-chain contributors. Consequently, stakeholder consultation and private sector engagement is vital to the success of the IAFP planning process.

Across the phases of IAFP development and operations, a steady inflow of capital is required to fund pre-feasibility studies, feasibility studies and their subsequent mitigation plans, construction of horizontal and vertical infrastructure, and operational working capital. Various public, private and public-private arrangements can financially service the inputs and outputs of different IAFP development and operations phases. The nature of such arrangements (public, private, or PPP) will differ based on the perceived level of risk and reward associated with



Source: stock.adobe.com

the project component, as well as the justification of socioeconomic impact associated with public funding. Agriculture is typically characterized as a highly risky sector due to weather variation, commodity price volatility, and changing consumer preferences. Risks are often exaggerated in the context of developing and emerging economies who often have a preponderance of smallholder farmers, fractured supply chains and changing policies. In a historically risky environment (or risky subsector), for example, greater leadership and funding may be required of public entities in the initial phases.

Public-private partnerships (PPPs) tend to be the most common, and most recommended, form of private financing of infrastructure for agro-industrial zones and parks. The PPP agreement would define and grant specific rights to the private sector to build and operate the IAFP for a fixed period of time, as well as allocate risk between the private sector and government or regional government.

Project structuring requires a delicate balance of public and private roles and responsibilities. On the one hand, ensuring sufficient public commitment, longer-term policy frameworks, and implementation capacity to deliver public investments and services necessary to catalyse and sustain private investment (such as basic connective infrastructure); while also ensuring private sector champions, engagement and demand-driven investment that capitalizes on market opportunities

with reasonable investment risk. Traditionally, the State undertakes regulatory governance and the private sector assumes the role of commercial developer and operator. However, the risk-reward calculation of park development may not be sufficiently enticing without a significant public sector role in IAFP planning and development.

Public-private partnerships (PPPs) tend to be the most common, and most recommended, form of private financing of infrastructure for agro-industrial zones and parks (Tyson, 2018). In the case of an IAFP, a PPP is defined as a contractual arrangement between the Government or regional government-owned entity on one side and a private sector entity on the other, for the provision of developed industrial plots, ready-built facilities, general infrastructure and specialized agro-infrastructure. The PPP agreement would define and grant specific rights to the private sector to build and operate the IAFP for a fixed period of time, as well as allocate risk between the private sector and government or regional government (UNIDO, 2016). If the Government invests a significant stake in the operation, it can always be phased out at a later date through privatization or partial divestiture of holdings through PPP joint venture special purpose vehicles (SPVs).

Whatever delineation of public and private roles and responsibilities are decided to fund, design, build and operate the IAFP, the project structure is



legally organized through an SPV to legally bind the commitment (and often the commingling) of funds, ownership interests, and the respective roles and responsibilities of the public and private partners. The SPV raises finance through a combination of equity — provided by the project company’s shareholders — and debt provided by banks, or through bonds or other financial instruments (PPP Knowledge Lab, n.d.). The finance structure of the SPV is therefore a combination of equity and debt, and contractual relationships between the equity holders and lenders. Clear roles and responsibilities are outlined in an SPV that allocates IAFP development, promotion and day-to-day operations and maintenance responsibilities, most often to a competitively selected private entity who would, in turn, receive performance-linked payments that conform (or are benchmarked) to specified and pre-determined performance standards. The operator is often paid by collecting fees from service users, by the Government, or by a combination of the two, with payment typically contingent upon performance.

The institutional governance of IAFP must consider the APC, RTCs and CCs as one integrated network of satellite centres to the park-based IAFP concept. Therefore, it is recommended that RTCs and CCs be managed by the same operator as that for the APC “hub”, although different collaboration and fee structures can be developed for each satellite centre.

IAFPs are capital-intensive projects and typically take at least ten years to be fully established. Therefore, there is often a need for patient capital to realize investment returns. Government funding may be sourced from a range of lenders including multinational development banks, development finance institutions, capital markets, and sovereign wealth funds; or they may raise funds through issuing government bonds or sovereign bonds. The public sector can also support or reduce investment risk by offering different tools such as co-funding with private parties through PPP arrangements (SPVs). Private investors often use loans, equity and project financing financial instruments. Operators and tenants may choose to collaborate through private-private co-financing. Private entities can also access subsidized loans, partial loss loan guarantees, risk management products through multilateral institutions’ non-sovereign financing windows and directly from the host Government.

The on-site construction of the IAFP commences after detailed engineering design is completed and project structuring is legally binding, IAFP developers have been competitively selected, environmental and construction permits have been issued and financing secured. Construction required for IAFP encompasses on-site and off-site infrastructure, ensuring connectivity between APCs and production catchment areas, and RTCs and end markets. A great deal of public infrastructure may be required to make it feasible to secure private financing for on-site development of agro-parks and enterprise co-location. The phasing of such infrastructure is likely to favour the provision of basic public infrastructure and connectivity (for

Government funding may be sourced from a range of lenders including multinational development banks, development finance institutions, capital markets, and sovereign wealth funds; or they may raise funds through issuing government bonds or sovereign bonds. Private investors often use loans, equity and project financing financial instruments.

example, roads, power, water, gas, telecommunications and waste treatment; horizontal infrastructure) before private construction (vertical infrastructure) begins. Private businesses must be assured a certain level of access to basic infrastructure in order to ensure their investments in connecting the “last mile” will facilitate operations to commence within a certain timeframe, and therefore their risk exposure is acceptable relative to remuneration.

Physical infrastructure design and construction should adhere to internationally recognized standards as well as local regulations. Owing to the significant environmental and social impacts associated with geographically large IAFP footprints, infrastructure master planning and construction management strategies must aim to minimize the adverse impacts of the construction processes, resulting infrastructure, and agro-industrial and related activities, on the natural environment and ecosystem (in terms of habitat, soil, water, air, and so on) and on people (in terms of noise, light, fumes, dust, and usage of local amenities), including by conducting ESIA and identifying and using the most efficient construction methods and materials available. In addition, there are many ways that IAFP can incorporate both eco-industrial park design

principles and social inclusion dimensions that offer opportunities to maximize economic benefits and foster circular economies that use resources more efficiently.

For example, the applications listed below increase IAFP sustainability (UNIDO 2018):

The major components of RTCs include:



**Sustainable site development**

Controlling soil erosion and sedimentation, minimizing disturbances or restoring green cover, and so forth.



**Sustainable transport**

Interconnected internal pedestrian and public transport networks, reducing internal-combustion-engine-driven vehicle dependency, and associated fuel consumption and vehicular emissions, and so forth.



**Water conservation**

Rainwater harvesting, landscaping to ensure minimum water consumption, irrigation systems, wastewater treatment and reuse, submetering to improve water performance and thereby save drinking water, and so forth.



**Energy efficiency**

Reducing so-called “heat islands”, encouraging the use of renewable technologies and submetering to improve energy performance, and so forth.



**Sustainable material and resource management**

Use of locally-available building materials, use of eco-friendly materials, avoidance of toxic chemicals, and so forth.



**Health and well-being**

Health and well-being facilities, park design catering to differently-abled and senior citizens, and so forth.



**Green education and public consultations efficiency**

Involving local communities and NGOs, to increase park residents’ awareness levels and encourage the implementation of eco-friendly practices; and waste management: utilization of waste minimization technologies, segregation and management of waste, and so forth.

In most developing economy contexts, the construction of physical infrastructure is often insufficient to ensure inclusive development outcomes. Intentional design, the provision of technical assistance, improved stakeholder linkages, exchange of market information and facilitated access to finance, are needed to take care of the needs of marginalized stakeholders and ensure the benefits of agro-industrialization are distributed to wider constituencies. Such efforts also strengthen supply chains, making private investment in agroprocessing activities more attractive.

Investment promotion is a critical function that secures not only strategic developers and operators, but also tenants within the IAFP and supports future growth.

This function is often shared between public investment promotion entities and on-site operators. Effective investment incentives, streamlining of regulatory functions, and marketing approaches incorporate nuanced strategies specific to the needs of the targeted agro-industrial cluster. The participation of private enterprises as tenants in IAFP facilities and systems may include both large investors as anchor firms that may encompass both production and processing activities, and medium and small-sized businesses whose involvement could cover the entire range of so-called “up or mid-stream” (that is, processing, packaging, machinery services, and logistics) and “downstream” (quality assurance and quality control, distribution and marketing services) activities. Enterprises should be

carefully vetted to ensure their cooperation and active participation in achieving IAFP objectives, counting inclusive supply chain strengthening, workforce development, compliance with environmental and social management plans, and continuous learning forums, among others. Given the dynamic nature of agro-industry, continued investment aftercare services reflect international best practices at maintaining and growing IAFP investors.

The operations phase of an IAFP requires competent day-to-day operations of the site as well as institutional oversight to ensure accountability of implementing entities (public and private) as well as continued regulatory compliance, monitoring and performance evaluation. IAFP developers and operators are often private firms or consortiums selected through a competitive process administered by a designated public entity. In some models, developers and operators may be the same entity. In other models, they may be different or possibly several different entities. IAFP operations involve site and facilities management and maintenance, investment promotion, performance monitoring and evaluation, continuous improvement and reinvestment. In some cases where the Government contributes to the IAFP (through land, equity, subsidies or tax incentives), the operators may also be expected to provide a number of “public goods”, in the form of services aimed at developing entrepreneurship, strengthening supply chains through linkage programmes, improving entrepreneur and resident workforce skills and ensuring employee care (UNIDO, 2019).

Establishing a strong policy, legal and regulatory framework for the development, operations and investment promotion of IAFPs is transversal across all IAFP development and operations phases and can plausibly be considered the most crucial factor contributing to IAFP performance. First, decision makers during the planning phase should account for national economic policy that influences agribusiness competitiveness and hence the ability to attract investment into IAFPs. Above and beyond natural comparative endowments, such competitive endowments as regulatory conditions for investment, institutional capacity, bureaucratic efficiency, labour market conditions, infrastructure, and various other factors affecting businesses in the agricultural sector, are of the utmost importance in multiple facets of the agricultural investment climate.

Furthermore, IAFPs can achieve greater success when used as one component of a broad national strategy to diversify and industrialize, rather than a stove-piped goal in and of itself. Subsector diagnostics for targeted industries will probably reveal a mosaic of interrelated policies that have an impact on agribusiness competitiveness, including policies pertaining to seeds and genetic material, investment, agricultural, industrial, education, labour, trade, transport, and customs laws and policies. The interconnected nature of the various policy areas is often insufficiently considered when designing targeted spatial development initiatives. Embedding the IAFP policy into an integrated and coherent overall strategy is therefore an important driving force for success. Countries should develop integrated strategies rather than stand-alone IAFP policies, with particular emphasis on policy coherence across different areas. IAFPs are not an end in themselves; they are a functional means to the achievement of long-term objectives set by national development strategies.

IAFPs can be an effective tool to achieve development objectives including promoting the value addition of agricultural production through processing, manufacturing and storage of food, feed, and biofuel products; driving technological change, and spurring industrialization of the agribusiness sector by offering premises and supporting services that connect value chain enterprises.

Lastly, regulation of IAFP development and operations often implicate several government agencies. Countries with successful SEZ programmes have usually relied on a single, overarching national regulatory authority for overall regulation. Such an approach is often manifested in one-stop shop services which provide efficient and streamlined regulatory oversight and administrative services, such as investment registration, authorization, registration, operation, and production of the enterprises in the IAFP. A one-stop shop is granted autonomous decision-making authority with specialized staff. One-stop shops improve administrative efficiency in obtaining necessary services and government approvals, while also simplifying the associated procedures. For many countries, having a single regulator helps to minimize overly burdensome or duplicative regulatory behaviour from institutions with internal culture challenges in need of broader resolution.

In conclusion, IAFPs can be an effective tool to achieve development objectives including promoting the value addition of agricultural production through processing, manufacturing and storage of food, feed, and biofuel products; driving technological change, and spurring industrialization of the agribusiness sector by offering premises and supporting services that connect value chain enterprises. The IAFP guidelines provides a comprehensive overview of the contents and processes involved in different developmental and operations phases of IAFPs. The various chapters of the guidelines provide key considerations and international best practices based on evidence to date

from existing industrial parks, pilot IAFPs, and agro-industrial development models more broadly. A variety of stakeholders can use the guidelines to spearhead the development IAFPs. Many of the chapters can also be adapted for use when considering other agro-industrial development models as well.

## REFERENCES AND OTHER SOURCES

- [1] Adiaha, Monday (2017). Complete Guide to Agricultural Product Processing and Storage. *World Scientific News*
- [2] Afreximbank (2016). Afreximbank and Exim Bank of China sign \$1 billion collaboration agreement for development of industrial parks, Press Release
- [3] Afreximbank (2020). Case Study on the Gabon Special Economic Zone S.A. (“GSEZ Nkok”)
- [4] African Development Bank (2015). Green Morocco Plan Support Programme – Phase Two (PAPMV-2) Appraisal Report. Abidjan
- [5] African Development Bank (2016). Feed Africa: Strategy for Agricultural Transformation in Africa, 2016–2025. Abidjan
- [6] African Development Bank (2018). Project: Integrated Agro-Industrial Parks – Support Project (IAISP) – Country Ethiopia
- [7] African Development Bank (2021a). Development Perspectives on Special Agro-Industrial Processing Zones (SAPZs) in Africa: Lessons from Experiences. Abidjan, AfDB
- [8] African Development Bank (2021b). Ethiopia: Productivity enhancement support to the Integrated Agro-Industrial Parks and Youth Employment (PESAPYE): project appraisal report. Abidjan, AfDB
- [9] African Development Bank (2021c). Partnership for Agro-Industrialization: Special Agro-Industrial Processing Zones in Africa: Brainstorming Session. Presentation., Abidjan, AfDB
- [10] African Union, Economic Commission for Africa, African Development Bank (2010). Framework and guidelines on land policy in Africa. Land policy in Africa: a framework to strengthen land rights, enhance productivity and secure livelihoods. Available at [https://www.un.org/en/land-natural-resources-conflict/pdfs/35-EN-%20Land%20Policy%20Report\\_ENG%20181010pdf.pdf](https://www.un.org/en/land-natural-resources-conflict/pdfs/35-EN-%20Land%20Policy%20Report_ENG%20181010pdf.pdf)
- [11] Aggarwal, Aradhna (2014). Promoting Food Processing Through Food Parks and Food Processing Special Economic Zones: The Indian Experience. In: *Innovative Institutions, Public Policies and Private Strategies for Agro-Enterprise Development*, R. D. Christy, and others (eds.). Rome, FAO
- [12] Alliance for Financial Inclusion (2021). Risk Sharing Facilities: mobilizing finance for women-led MSMEs. Available at <https://www.findevgateway.org/sites/default/files/publications/2022/Risk-Sharing-Facilities-Mobilizing-Finance-for-Women-led-MSMEs.pdf>
- [13] Ambuko, Jane. (2017). Why reducing post-harvest losses is a priority for Africa. *The Conversation*, 20 November 2017. Available at <https://theconversation.com/why-reducing-post-harvest-losses-is-a-priority-for-africa-87312#:~:text=According%20to%20the%20Food%20and,t%20ever%20reach%20the%20consumer>
- [14] Amsden, Alice H. (2001). *The Rise of “The Rest”. Challenges to the West from Late-industrializing Economies*. New York: Oxford University Press
- [15] ARISE IIP (2020). Partnership opportunity with AfDB to build Integrated Industrial Platforms for Africa
- [16] Brown, Trent, and Shyamal Majumdar (2020). Agricultural TVET in developing economies: Challenges and possibilities. UNEVOC Network Discussion Paper. Available at [https://unevoc.unesco.org/pub/discussion\\_paper\\_agricultural\\_tvete.pdf](https://unevoc.unesco.org/pub/discussion_paper_agricultural_tvete.pdf)
- [17] Bulman, A., K.Y. Cordes, L. Mehranvar, E. Merrill and Y. Fiedler (2021). *Guide on incentives for responsible investment in agriculture and food systems*. Rome, FAO and Columbia Centre on Sustainable Investment
- [18] Cleave, Evan, Godwin Arku, Richard Sadler and Jason Gilliland (2016). The role of place branding in local and regional economic development: bridging the gap between policy and practicality. *Regional Studies, Regional Science*, vol. 3, No. 1, pp. 207–228
- [19] Coega Development Corporation, SMME Development Unit: a catalyst for the championing of socioeconomic development, Port Elizabeth, 2020
- [20] Coleman, Murray G. (2020). Three big trends in agribusiness. Bennett Jones LLP blog.
- [21] Cramer, Christopher, Jonathan Di John and John Sender (2018). Poinsettia Assembly and Selling Emotion: high-value agricultural exports in Ethiopia. *AFD Research Papers Series*, No. 2018-78, August
- [22] Danish Institute for Human Rights (DIHR). Small and medium-sized enterprises. <https://globalnaps.org/issue/small-medium-enterprises-smes/>
- [23] Datamation (2018). Evaluation Study on the Mega Food Park Scheme. Datamation
- [24] Department of Agriculture, Forestry, and Fisheries of South Africa (2015). Strategy for the development of small and medium Agro-processing enterprises in the Republic of South Africa
- [25] Department of Rural Development and Land Reform of South Africa (2016a). Agri-parks Presentation: your park, your future
- [26] Department of Rural Development and Land Reform of South Africa (2016b). Agri-Park Master Business Plan
- [27] Dzung, Nguyen, Tuan Nguyen and Do Tinh (2017). The role of investment attraction in Vietnamese industrial parks and economic zones in the process of international economic integration. *Journal of Asian Finance, Economics and Business*, vol. 4, No. 3, pp. 27–34
- [28] European Investment Bank (EIB) (2016). EIB President pledges support for “Jobs Compact” in Ethiopia tackling migration and refugee challenge. [Online]. Available at: <https://www.eib.org/en/press/all/2016-212-european-investment-bank-president-pledges-support-for-jobs-compact-in-ethiopia-tackling-migration-and-refugee-challenge> [accessed December 2021]
- [29] European Union (2018). Promotion of Sustainable Ethiopian Agro-industrial Development (PROSEAD). [Online]. Available at: [https://ec.europa.eu/international-partnerships/system/files/aap-2018-part-ii-ethiopia-annex-2-promotion-of-sustainable-ethiopian-agroindustrial-development\\_en.pdf](https://ec.europa.eu/international-partnerships/system/files/aap-2018-part-ii-ethiopia-annex-2-promotion-of-sustainable-ethiopian-agroindustrial-development_en.pdf) [accessed January 2021]
- [30] FAO (2006). Agro-industrial parks Experience from India
- [31] FAO (2007). Review of the challenges and opportunities for rural infrastructure and agro-industries development in the Asia-Pacific Region
- [32] FAO (2011). *Innovative policies and institutions to support agro-industries development*. Available at <https://www.fao.org/3/i2420e/i2420e.pdf>
- [33] FAO (2013). Trends and impacts of foreign investment in developing country agriculture. FAO: Rome. <https://www.fao.org/publications/card/ru/c/85b16a9e-293b-51a9-9f9e-5b60bbf34f6b/>
- [34] FAO (2017). *Territorial Tools for Agro-Industry Development: a sourcebook*, Eva Gálvez Nogales and Martin Webber (eds.), Rome, FAO. Available at <http://www.fao.org/3/a-i6862e.pdf>
- [35] FAO (2020). Agribusiness PPPs and Territorially Bound Investment Instruments for Agro-industrial Development. Session 3 (part one): Territorial Investment Tools – Agro-industrial parks and special economic zones
- [36] FAO and AfDB (2019). *Agricultural Transformation Centres in Africa. Practical Guidance to Promote Inclusive Agro-industrial Development*. Rome: FAO and AfDB
- [37] FAO and World Bank (2010). FAO and World Bank workshop on reducing post-harvest losses in grain supply chains in Africa: Lessons learned and practical guidelines. Available at <https://www.fao.org/3/au092e/au092e.pdf>

- [38] Farole, Thomas (2011). *Special Economic Zones in Africa: comparing performance and learning from global experience*. Directions in Development; trade. Washington DC, The World Bank
- [39] Farole, Thomas, and Lotta Moberg (2014). It Worked in China, so why not in Africa? The Political Economy Challenge of Special Economic Zones. WIDER Working Paper 2014/152. Helsinki: UNU-WIDER
- [40] Farole, Thomas, and Lotta Moberg (2017). Special Economic Zones in Africa, Political Economy Challenges and Solutions in *The Practice of Industrial Policy: Government—Business Coordination in Africa and East Asia*. John Page and Finn Tarp (eds). Oxford Academic
- [41] Farquharson, Edward, Clemencia Torres de Mästle and E.R. Yescombe, with Javier Encinas (2011). *How to Engage with the Private Sector in Public-Private Partnerships in Emerging Markets*. The World Bank
- [42] Feldberga, Evita, and Elyse Dick (2021). Attracting foreign direct investments through augmented and virtual reality. Information Technology and Innovation Foundation. Available at <https://itif.org/publications/2021/08/09/attracting-foreign-direct-investments-through-augmented-and-virtual-reality>
- [43] Fruman, Cecile, and Douglas Zhihua Zeng (2015). How to make zones work better in Africa? Washington D.C., World Bank
- [44] Fukase, Emiko, and Will Martin (2017). Agro-processing and horticultural exports from Africa. IFPRI Discussion Paper 01690. Washington DC: International Food Policy Research Institute
- [45] Fung, Ingrid (2019). The present and future of food tech investment opportunity. TechCrunch. <https://techcrunch.com/2019/10/22/the-foodtech-investment-opportunity-present-and-future/>
- [46] GIZ (2019). STEP. Sustainable Training and Education Programme [online]. Available at: [www.giz.de/en/downloads/20191213\\_STEP%20Factsheet.pdf](http://www.giz.de/en/downloads/20191213_STEP%20Factsheet.pdf) [accessed December 2021]
- [47] GIZ and WAIPA (2020). IPA Toolbox: A practical guide to support investment promotion agencies (IPAs). <https://waipa.org/waipa-content/uploads/IPA-Toolbox-2020.pdf>
- [48] Global Infrastructure Hub Ltd. (2019). PPP Risk Allocation Tool 2019 Edition – Energy, Communications and Industrial Parks. <https://www.gihub.org/resources/publications/ppp-risk-allocation-tool-2019-edition/>
- [49] Government of India (n.d.). Ministry of Food Processing Industries, Annual Report 2018–2019
- [50] Government of India (2021). State Wise Details of 41 Mega Food Park Projects Approved Under the Mega Food Park Scheme in the Country Along with their Status of Implementation [online]. Ministry of Food Processing Industries. Available at: [https://mofpi.nic.in/sites/default/files/list\\_of\\_41\\_mfp\\_on\\_09.07.2021.pdf](https://mofpi.nic.in/sites/default/files/list_of_41_mfp_on_09.07.2021.pdf) [accessed Jan 2022]
- [51] Grant, Richard, Padraig Carmody and James Murphy (2020). A green transition in South Africa? Sociotechnical experimentation in the Atlantis Special Economic Zone. *Journal of Modern African Studies*, vol. 58, No. 2, pp. 189–211
- [52] Haile, Stephanie (2017). Chapter 5: Special economic zones for agro-industry. In: *Territorial tools for agro-industry development – A Sourcebook*, Eva Gálvez-Nogales and Martin Webber (eds.), Rome, FAO
- [53] Haile, Stephanie (forthcoming 2022). Synthesis of the Status of Agropoles in Africa. Economic Commission for Africa
- [54] Heilbron, A.; Aranda-Larrey, Y. (2020). Strengthening service delivery of investment promotion agencies: the comprehensive investor services framework. Finance, Competitiveness and Innovation in Focus. Washington, D.C., World Bank:
- [55] Indian Council for Research on International Economic Relations (ICRIER) (2015). Report on Evaluation of the Impact of the Scheme for Mega Food Park of the Ministry of Food Processing Industries
- [56] Innovation Network (2002). Agro-parks, the concept, the responses, and the practice
- [57] International Finance Corporation. (2017). MSME Finance Gap: Assessment of the Shortfalls and Opportunities in Financing Micro, Small, and Medium Enterprises in Emerging Markets. Washington, D.C. Available at: <https://openknowledge.worldbank.org/handle/10986/28881>
- [58] Islamic Development Bank (2021). Islamic Development Bank Board of Executive Directors approves US\$ 180.27 million for Supporting Nigeria’s Special Agro-Industrial Processing Zone. Available at: <https://www.isdb.org/news/the-islamic-development-bank-board-of-executive-directors-approves-us-18027-million-for-supporting-nigeria>
- [59] Jiang, Xiaoyu, and Yangfen Chen (2020). The potential of absorbing foreign agricultural investment to improve food security in developing countries. *Sustainability*, vol. 12, No. 6: p. 2481
- [60] Lambert (2001). Problems and Constraints to the Development of the Agro-Processing Sector. Available At <https://www.open.uwi.edu/sites/default/files/bnccde/dominica/conference/papers/Lambert.html#:~:text=A%20lack%20of%20proper%20hygiene,for%20the%20agro%2Dindustrial%20sector>
- [61] Lammersen, Frans, and Michael Roberts (2015). Aid for trade 10 years on: Keeping it effective. OECD Development Policy Papers, No. 1, Paris, OECD Publishing
- [62] Locus Economica (2020). Global Benchmarking: selected measures used in agro-SEZ benchmarking. (Presentation). Locus Economica
- [63] Mhlanga, Nomathemba (2010). Private sector agribusiness investment in sub-Saharan Africa. Agricultural Management, Marketing and Finance Working Document 27. Available at <http://www.fao.org/3/k7443e/k7443e.pdf>
- [64] Millennium Cities Initiative (2009). *Handbook for Promoting Foreign Direct Investment in Medium-sized, Low-budget Cities in Emerging Markets*. Columbia Centre on Sustainable Investment Books. 5. New York
- [65] Moberg, Lotta (2017). *The Political Economy of Special Economic Zones: concentrating economic development*. Routledge
- [66] Monga, Céléstin (2011). Cluster-based industrial parks: a practical framework for action. Policy Research Working Paper 5900. Washington, D.C., World Bank
- [67] Mukasa, Adamon, Andinet Woldemichael, Adeleke Salami, and Anthony Simpasa (2017). Africa’s agricultural transformation: identifying priority areas and overcoming challenges. *Africa Economic Brief*, vol. 8, No. 3
- [68] Naeem, Saira, Abdul Waheed and Muhammad Naeem Khan (2020). Drivers and barriers for successful special economic zones (SEZs): Case of SEZs under China Pakistan economic corridor. *Sustainability*, vol.12, No. 11., p. 4675; Available at: <https://www.mdpi.com/2071-1050/12/11/4675>
- [69] Neilson, A. (1978). *Guidelines for the Establishment of Industrial Estates in Developing Countries*. New York, United Nations
- [70] Newman, Carol, and John Page (2017). Industrial Clusters. The Case for Special Economic Zones in Africa. WIDER Working Paper 2017/15. Helsinki: United Nations University (UNU- WIDER)
- [71] Njau, Barbara (2012). Keeping the love alive: why FDI aftercare must not be ignored. *FDI Intelligence*
- [72] Norman, M. (2020). Agro-industrial parks: World Bank experience, approaches, and conclusions (Presentation). Washington D.C., World Bank
- [73] Odusola, Ayodele. (2018). Addressing the foreign direct investment paradox in Africa. *Africa Renewal*, United Nations Development Programme
- [74] OECD (2006). Policy Framework for Investment: a review of good practices. <https://www.oecd.org/investment/toolkit/policyareas/investmentpromotionfacilitation/41246119.pdf>
- [75] OECD (2015). Policy Framework for Investment. 2015 pocket edition. Available at <https://www.oecd.org/daf/inv/investment-policy/PFI-Pocket-Edition-2015.pdf>
- [76] OECD (2020). *Rural development strategy review of Ethiopia: Reaping the benefits of urbanization*, ch.2 “Ethiopian intermediary cities and their roles for rural development”. Paris: OECD

- [77] OECD (2021). *Middle East and North Africa Investment Policy Perspectives*. Paris, OECD Publishing. Available at <https://www.oecd-ilibrary.org/docserver/6d84ee94-en.pdf?expires=1665826936&id=id&accname=guest&checksum=ADBDEAE0C3491B59739A173E73706B76>
- [78] Olam International Limited (2016). How does the private sector view agropoles and agrozones? African Development Bank, Abidjan. Available at: [https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/How\\_does\\_the\\_private\\_sector\\_view\\_agropoles\\_and\\_agrozones\\_by\\_Mr.\\_GUPTA.pdf](https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/How_does_the_private_sector_view_agropoles_and_agrozones_by_Mr._GUPTA.pdf)
- [79] Organization of Islamic Cooperation (2017). *Special Economic Zones in the OIC Region: Learning from Experience*. Ankara: Standing Committee for Economic and Commercial Cooperation (COMCEC). Available at [https://sbb.gov.tr/wp-content/uploads/2018/11/Special\\_Economic\\_Zones\\_in\\_the\\_OIC-Region.pdf](https://sbb.gov.tr/wp-content/uploads/2018/11/Special_Economic_Zones_in_the_OIC-Region.pdf)
- [80] Page, John, and Finn Tarp (eds.) (2017). *The Practice of Industrial Policy: Government—Business Coordination in Africa and East Asia*. United Nations World Institute for Development Economics Research. Oxford, Oxford University Press
- [81] Pais, Gillian, Kartik Jayaram and Arend van Wamelen (2020). Safeguarding Africa’s food systems through and beyond the crisis. McKinsey & Company. Available at <https://www.mckinsey.com/featured-insights/middle-east-and-africa/safeguarding-africas-food-systems-through-and-beyond-the-crisis>
- [82] Pasquinelli, Cecilia, and Renaud Vuignier (2020), Place marketing, policy integration and governance complexity: an analytical framework for FDI promotion. *European Planning Studies*, vol. 28, No. 7, pp. 1413-1430
- [83] PPP Knowledge Lab. (n.d). Finance structures for PPPs. Available at: <https://pppknowledgelab.org/guide/sections/17-finance-structures-for-ppp> [accessed January 2022]
- [84] PPP Knowledge Lab (n.d.). PPP Reference Guide, Version 3. Available at <https://pppknowledgelab.org/guide/sections/83-what-is-the-ppp-reference-guide>
- [85] Priyadarshini, Priya, and Purushothaman Chirakkuzhyil Abhilash (2021). Agro-food systems in India: concerns and policy recommendations for building resilience in post-COVID-19 pandemic times. *Global Food Security*, vol. 29
- [86] PWC (2018). *Invest Africa Regional Study: Planning, financing and managing industrial parks in sub-Saharan Africa*. Price Waterhouse Coopers
- [87] Radygin, Alexander, Yury Simachev and Revold Entov (2015). The state-owned company: “State failure” or “market failure”? *Russian Journal of Economics*, vol. 1, No. 1, pp. 55–80
- [88] Ravensbergen, P., P. Smeets, J. van der Riet and R. Deshpande (2013). Inception report for prefeasibility study on establishment of integrated agri-ood park in the Philippines. The Netherlands, Wageningen University. Unpublished
- [89] Roser, Max (2013). Employment in agriculture. *Our World In Data*. Available at <https://ourworldindata.org/employment-in-agriculture>
- [90] Satyasai, K.J.S., and Aparajita Singh (2021). The food processing industry in India: regional spread, linkages and space for farmer producer organisations. In: *Agro and Food Processing Industry in India: Inter-sectoral Linkages, Employment, Productivity and Competitiveness*, Seema Bathla and Elumalai Kannan (eds.). Singapore: Springer
- [91] Sciences Po (2018). Multinational Corporations. *World Atlas of Global Issues*, [online]. Available at <https://espace-mondial-atlas.sciencespo.fr/en/topic-strategies-of-transnational-actors/article-3A11-EN-multinational-corporations.html>. Accessed on 07/02/2022
- [92] Singla, Madan Lal (2016). Food Processing Industry in India: An Evaluation. *International Journal of Advanced Research in Management and Social Sciences*, vol. 5, No. 11, pp. 128–137
- [93] Smeets, Peter (2010). *Expedition agro-parks: research by design into sustainable development and agriculture in network society*. Wageningen, Wageningen Academic Publishers
- [94] Stein, Howard (2008). Africa, industrial policy and export processing zones: lessons from Asia. Institute for Policy Dialogue, Columbia University. Available at: [https://policydialogue.org/files/events/background-materials/Stein\\_africa\\_ind\\_policy\\_\\_export\\_processing\\_zones.pdf](https://policydialogue.org/files/events/background-materials/Stein_africa_ind_policy__export_processing_zones.pdf)
- [95] Stiglitz, Joseph, and Bruce Greenwald (2014). *Creating a Learning Society: a new approach to growth, development, and social progress*. New York, Columbia University Press
- [96] Sustainable Organic Agriculture Action Network (SOAAN) (2013). Best practice guideline for agriculture and value chains. Bonn, International Federation of Organic Agriculture Movements (IFOAM) e.V. Available at <https://www.fao.org/3/ax270e/ax270e.pdf>
- [97] Trendov, Nikola, Samuel Varas and Meng Zeng (2019). Digital technologies in agriculture and rural areas: status report. Rome, FAO
- [98] Toccaceli, Daniela (2015). Agricultural districts in the Italian regions: looking toward 2020. *Agricultural and Food Economics*, vol.3, No.1
- [99] Trienekens, Jaques (2011). Agricultural value chains in developing countries: a framework for analysis. *International Food and Agribusiness Management Review*, vol. 14, No. 2. Available at <https://edepot.wur.nl/189057>
- [100] Tyler, Geoff, and Grahame Dixie (2013). Investing in agribusiness: a retrospective view of a development bank’s investments in agribusiness in Africa and South-East Asia and the Pacific. Agriculture and environmental services discussion paper No. 1. Washington, D.C., World Bank
- [101] Tyson, Judith. (2018). Financing special economic zones: different models of financing and public policy support. Available at <https://odi.org/en/publications/financing-special-economic-zones-different-models-of-financing-and-public-policy-support/>
- [102] UNCTAD (2001). A Framework for Investment Promotion. *The Journal of Transnational Corporations*. Vol 10, no.1 (April 2001)
- [103] UNCTAD (2007). *Aftercare: A Core Function in Investment Promotion*. Investment Advisory Series A, No. 1, New York and Geneva, United Nations
- [104] UNCTAD (2015). Outward Investment Agencies: Partners in Promoting Sustainable Development. *Investment Promotion Observer*, no. 4. Available from: [https://unctad.org/system/files/official-document/webdiaepcb2015d4\\_en.pdf](https://unctad.org/system/files/official-document/webdiaepcb2015d4_en.pdf)
- [105] UNCTAD (2019). *World Investment Report 2019: Special Economic Zones*. Geneva, United Nations
- [106] UNCTAD (2021a). *World Investment Report: Investing in Sustainable Recovery*. Geneva, United Nations
- [107] UNCTAD (2021b) Handbook on Special Economic Zones in Africa, 2021: towards economic diversification across the continent
- [108] UNIDO (1997). Industrial estates: principles and practice. Available at <https://digitallibrary.un.org/record/414834>
- [109] UNIDO (2009a). Agro-Value Chain Analysis and Development: the UNIDO approach. A staff working paper. Vienna
- [110] UNIDO (2009b). Industrial Development Report: Breaking In and Moving Up: New Industrial Challenges for the Bottom Billion and the Middle-Income Countries. UNIDO
- [111] UNIDO (2011a). Industrial policy for prosperity: reasoning and approach, Working Paper 2/2011. Vienna. Available at <https://www.unido.org/api/opentext/documents/download/9928765/unido-file-9928765>
- [112] UNIDO (2011b). *Africa Investor Report: towards evidence-based investment promotion strategies*
- [113] UNIDO (2016). Feasibility Study for Integrated Agro-Industrial Parks in Ethiopia. Summary. Vienna
- [114] UNIDO (2017). Implementation handbook for eco-industrial parks
- [115] UNIDO (2018a). Leveraging a New Generation of Industrial Parks and Zones for Inclusive and Sustainable Development: strategic framework. Vienna. Available at [https://hub.unido.org/sites/default/files/publications/UNIDO\\_Strategic%20Framework\\_WEB.pdf](https://hub.unido.org/sites/default/files/publications/UNIDO_Strategic%20Framework_WEB.pdf)
- [116] UNIDO (2018b). First International Agro-Industry Investment Forum Ethiopia. Integrated Agro-Industrial Parks Feasibility Study and Business Plan

- [117] UNIDO (2018c). Integrated Agro-Industrial Parks in Ethiopia. Available at <https://www.unido.org/sites/default/files/files/2018-08/Integrated-Agro-Industrial-Parks-in-Ethiopia-Overview-document.pdf>
- [118] UNIDO (2019a). International guidelines for industrial parks. Available at [https://www.unido.org/sites/default/files/files/2020-05/International\\_Guidelines\\_for\\_Industrial\\_Parks\\_EN\\_o.pdf](https://www.unido.org/sites/default/files/files/2020-05/International_Guidelines_for_Industrial_Parks_EN_o.pdf)
- [119] UNIDO (2019b). Manual for UNIDO Toolbox on Eco-Industrial Parks. Available at <https://open.unido.org/api/documents/14300149/download/EIP%20Toolbox%20Manual.pdf>
- [120] UNIDO (2019c). Integrated Agro-Industrial Parks in Egypt- Piloting the concept in Qalyoubia Governorate
- [121] UNIDO (2020). Independent Terminal Evaluation of the Programme for Country Partnership in Ethiopia (2015–2019). Vienna
- [122] UNIDO (2022). Inclusive and Sustainable Industrial Development. Available at <https://www.unido.org/inclusive-and-sustainable-industrial-development> Accessed on 13 April 2022
- [123] UNIDO, IBRD and GIZ. (2019). A Practitioner's Handbook for Eco-Industrial Parks: Implementing the International Eco-Industrial Parks Framework. Toolbox
- [124] UNIDO, World Bank Group, and GIZ. (2017; 2021). An International Framework for Eco-Industrial Parks
- [125] United States Agency for International Development (2015). Operational Guidelines for Responsible Land-Based Investment., 2015 ([https://www.land-links.org/wp-content/uploads/2016/09/USAID\\_Operational\\_Guidelines\\_updated.pdf](https://www.land-links.org/wp-content/uploads/2016/09/USAID_Operational_Guidelines_updated.pdf))
- [126] USA Competes (n.d.): International engagement. Available at <https://www.usacompetes.com/>. Accessed September 2022
- [127] Walter, Max, Kulani McCartan-Demie and Keffey Kebede (2021). Agro-industrial parks: success factors, incentive mechanisms and donor roles. United Kingdom Foreign, Commonwealth and Development Office (FCDO), Commercial Agriculture for Smallholders and Agribusiness (CASA)
- [128] Walter, Peter, and Mark Herther (2017). Nine trends transforming the agribusiness industry. *Executive Insights*, vol. XIX, No. 62
- [129] WAVTEQ (2019). Guidelines for investment promotion strategy development. Available at <http://www.tpsaproject.com/wp-content/uploads/2019-02-28-Manual-1124.o8c.pdf>
- [130] Woodburn. Allan (2005). Overview of consolidation centres for urban and specialist use. Workshop presentation. University of Westminster
- [131] World Bank (2004). Unpublished research
- [132] World Bank (2005). *Ghana – Trade Gateway and Investment Project*. Washington D.C
- [133] World Bank (2008). *Special Economic Zones: performance, lessons learned, and implications for zone development*. Washington, D.C., FIAS – the multi-donor investment climate advisor service of the World Bank Group
- [134] World Bank (2012). Global Investment Promotion Best Practices 2012. Washington, D.C.; Chapter 4: Focus on Attracting FDI into Agribusiness
- [135] World Bank (2014). *A Guide to Investor Targeting in Agribusiness*. Available at <https://openknowledge.worldbank.org/handle/10986/21720>
- [136] World Bank (2014b). The practice of responsible investment principles in larger-scale agricultural investment. World Bank Report No. 86175-GLB. Available at 2014 [https://unctad.org/system/files/official-document/wb\\_unctad\\_2014\\_en.pdf](https://unctad.org/system/files/official-document/wb_unctad_2014_en.pdf)
- [137] World Bank (2016a). Special economic Zones in the Dominican Republic: policy considerations for a more competitive and inclusive sector. Washington, D.C
- [138] World Bank (2016b). *Doing Business 2016: measuring regulatory quality and efficiency*. Washington, D.C. p.247
- [139] World Bank (2017). *Special Economic Zones: an operational review of their impacts*. Washington D.C., World Bank Group
- [140] World Bank (2020). The Comprehensive Investor Services Framework: Strengthening Service Delivery of Investment Promotion Agencies. World Bank
- [141] World Bank (n.d). Concessions, Build-Operate-Transfer (BOT) and Design-Build-Operate (DBO) Projects. World Bank PPP Legal Resource Centre. Available at: <https://ppp.worldbank.org/public-private-partnership/agreements/concessions-bots-dbos> [accessed January 2022]
- [142] Yoshino, Naoyuki, and Farhad Taghizadeh-Hesary (2016). Major challenges facing small and medium-sized enterprises in Asia and solutions for mitigating them. ADBI Working Paper Series, No. 564. Tokyo: Asian Development Bank Institute
- [143] Zeng, Douglas Zhihua (2015). Global experiences with special economic zones: with a focus on China and Africa. World Bank, Washington, D.C
- [144] Zeng, Douglas Zhihua (2019). Special economic zones: Lessons from the global experience. London: PEDL Synthesis Paper Series

## ANNEX I

### Benefits of IAFPs to people, nature and the economy

Sector	Benefits to people, environment and economy
Improve agricultural inputs and services	<ul style="list-style-type: none"> <li>▪ Timely availability of agricultural inputs of right quality and quantity</li> <li>▪ Enhanced fodder and feed production</li> <li>▪ Refined seed-production technologies</li> <li>▪ Development of improved crop varieties and hybrids</li> <li>▪ Development of improved cultivars and genetic resources</li> <li>▪ Improved indigenous poultry breeds including strains</li> <li>▪ Genetic up-gradation and conservation of native animal genetic resources.</li> </ul>
Facilitate linkages and market	<ul style="list-style-type: none"> <li>▪ Linkages among stakeholders such as farmers, industry, research and extension</li> <li>▪ Service providers</li> <li>▪ Supply chain alignment with domestic and international requirements</li> <li>▪ Improved branding and marketing</li> <li>▪ Competitive and efficient marketing arrangements</li> <li>▪ Dealing with the growing domestic and overseas markets for obtaining better prices</li> <li>▪ Access to capital, technology, and support services such as credit, marketing, research and extension</li> <li>▪ Minimized post-harvest losses and reduced wastage.</li> </ul>
Modernize agro-production	<ul style="list-style-type: none"> <li>▪ High-density plantations, shade net cultivation, poly-house cultivation</li> <li>▪ Precision farming</li> <li>▪ Diversification from traditional crops to plantations, orchards, vineyards, flowers and vegetable gardens</li> <li>▪ Shift from subsistence to commercial farming</li> <li>▪ Increased milk production and milk processing capacity</li> <li>▪ Energy management and utilization of both conventional and non-conventional energy sources in agricultural production and processing activities</li> <li>▪ Knowledge dissemination and technology transfer of international best practices and standards</li> <li>▪ Increased productivity of animal husbandry sector</li> <li>▪ Efficient, economic, eco-friendly and sustainable crop production and protection technologies</li> <li>▪ Implementation of international sanitary, phytosanitary and hygiene standards and norms</li> <li>▪ Adoption of precision machinery and strategies for carrying out timely and efficient operations for agriculture, horticulture and livestock production.</li> </ul>

#### Provide integrated infrastructure for processing

- World-class facilities at an affordable cost structure
- Access to common infrastructure facilities
- Excellent facility management in IAFP
- IAFP clusters create enabling institutional structures, facilitate flows of investment, technology, skill sets and modern management practices
- IAFP brings together farmers, processors and retailers and links agricultural production to the market to ensure maximum value addition and minimal wastage
- Research and development in food processing for product and process development encouraged
- Implementation of modern food processing technologies
- Special IAFP incentives provided by the Government.

#### Support national, regional and global development goals

- Possibility to apply targeted policy towards achieving national development vision and Sustainable Development Goal 9
- Improved food security at country and region level
- Increased industrial output and economies of scale
- Rural growth and employment for local population
- Demand for ancillary jobs required for the IAFP's activity will help in development of industry in and around the area, and further advance rural industrialization
- IAFP clusters will attract agribusiness investment, creating employment opportunities for the local population and fostering sustainable inclusive economic growth.

## ANNEX II

### Sustainability and smart initiatives

#### Site planning and management

S. No.	Features	Detailing of green aspects
1	<b>Green buildings within IAFP</b>	<ul style="list-style-type: none"> <li>▪ Design and construction of high-performance buildings within IAFP to minimize negative environmental impacts resulting from development</li> <li>▪ Building in IAFP shall be registered and certified under appropriate green building rating systems to maximum extent                             <ul style="list-style-type: none"> <li>› Designing individual buildings with the following green features: Passive architecture                                     <ul style="list-style-type: none"> <li>- <b>Exterior openings:</b> at least 50 per cent of the buildings in the IAFP shall have projection factor of 0.5 or more for the exterior openings (fenestration). At least 75 per cent of the exterior openings in each building shall comply with this requirement</li> <li>- <b>Skylights:</b> at least 5 per cent of the total roof area of all the buildings on campus (in aggregate) shall have skylights. (Includes all enclosed roof areas, including podium, covered surface parking and utility blocks, exposed to the sky (at and above ground level). Exposed roof area need not include equipment platforms, areas covered with solar photovoltaic and solar water heaters, water body, driveways, pathways, roads, play areas)</li> <li>- <b>Passive cooling and heating technology:</b> At least 10 per cent of the built-up area (excluding service areas) shall have passive cooling and heating technology such as wind tower, earth tunnel, and geothermal technology</li> </ul> </li> <li>› Heat island effect, roof                                     <ul style="list-style-type: none"> <li>- <b>Highly reflective materials:</b> usage of material with a high solar reflective index to cover at least 75 per cent of the total exposed roof area of all the buildings (in aggregate), including covered parking</li> <li>- <b>Vegetation:</b> providing vegetation to cover at least 50 per cent of the total exposed roof area of all the buildings (in aggregate), including covered parking</li> <li>- <b>Combination of highly reflective materials and vegetation:</b> installing a combination of materials with a high solar reflective index and vegetation to cover at least 75 per cent of the total exposed roof area of all the buildings (in aggregate), including covered parking</li> </ul> </li> <li>› Water-efficient plumbing fixtures: at least 50 per cent of the buildings use water-efficient plumbing fixtures</li> <li>› Wastewater reuse: (for flushing and individual heating, ventilation and air-conditioning (HVAC) systems cooling tower make-up): at least 50 per cent of buildings use treated wastewater for at least 25 per cent of the total water required for flushing and cooling tower make-up water of the buildings</li> <li>› Eco-friendly refrigerants: at least 50 per cent of the buildings' HVAC equipment is eco-friendly and has low or no ozone depletion potential and global warming potential</li> <li>› Energy-efficient lighting: at least 50 per cent of the buildings with higher energy demand have reduced the lighting power density at least 20 per cent over the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) standard.</li> </ul> </li> </ul>

#### Site planning and management

S. No.	Features	Detailing of green aspects
		<ul style="list-style-type: none"> <li>› High-performance HVAC equipment (applicable to appropriate buildings and industrial units): at least 50 per cent of the buildings with high energy demand which have installed HVAC equipment, shall have an efficiency and coefficient of performance of at least 10 per cent over ASHRAE standard</li> <li>› On-site renewable energy (for building requirements): at least 50 per cent of the buildings (with higher energy demand) have on-site renewable energy generation for at least 1 per cent of total annual lighting energy consumption of the buildings considered, including interior and common areas</li> <li>› Daylighting                             <ul style="list-style-type: none"> <li>- <b>Simulation approach:</b> 75 per cent of the regularly occupied spaces in at least 50 per cent of the buildings achieve daylight illuminance levels for the accepted levels in the country</li> <li>- <b>Measurement approach:</b> 75 per cent of the regularly occupied spaces in at least 50 per cent of the buildings achieve daylight illuminance levels for a minimum of 110 Lux. The considerations include areas with 2,200 Lux or more daylight illumination levels</li> </ul> </li> <li>▪ Outdoor views: Achieve direct line of sight to vision glazing between 0.9 m (3 feet) and 2.1 m (7 feet) above the finished floor level, for building occupants in at least 75 per cent of all regularly occupied spaces in at least 50 per cent of the buildings. The building occupants must not have any obstruction of views at least 8 m (26.2 feet) from the exterior vision glazing. The building occupants must have access either to the sky or flora and fauna or both.</li> </ul>
2	<b>Soil erosion</b>	<ul style="list-style-type: none"> <li>▪ Reducing negative impacts to the site and surroundings by controlling soil erosion and sedimentation</li> <li>▪ Soil erosion control measures shall conform to the best management practices highlighted in the appropriate code</li> <li>▪ Fertile topsoil to be stockpiled before construction, for future reuse or donation.</li> </ul>
3	<b>Site preservation</b>	<ul style="list-style-type: none"> <li>▪ Retaining the site features to minimize site damage and associated negative environmental impacts</li> <li>▪ Retain at least 10 per cent of the existing landscape, without any disturbance whatsoever (disturbance in this context refers to the stacking of construction materials, pedestrian and vehicular movement)</li> <li>▪ Retain acceptable level of natural rocks (by surface area), excluding building footprint</li> <li>▪ Preserve or transplant at least 75 per cent of existing fully-grown trees (If the statutory authorities or local authorities prescribe stringent criteria, then IAFP shall comply with the respective criteria. Existing fully grown trees need not include those meant for harvesting.)</li> <li>▪ Retain site contour to the extent of at least 50 per cent of the site, including building footprint area</li> <li>▪ Retain 100 per cent of existing water bodies and channels.</li> </ul>
4	<b>Green cover or vegetation</b>	<ul style="list-style-type: none"> <li>▪ Minimizing disturbance or restoring green cover and vegetation on the site to promote habitat and biodiversity</li> <li>▪ IAFP shall retain or restore green cover or vegetation to a recommendable level of the site area</li> <li>▪ The green cover shall have minimum of ten trees per acre or plant tree saplings that can mature into fully grown-up trees with a large canopy in the next five years.</li> </ul>



**Site planning and management**

S. No.	Features	Detailing of green aspects
5	<b>Heat island reduction</b>	<ul style="list-style-type: none"> <li>▪ Minimizing heat island effect to reduce the negative impact on the microclimate</li> <li>▪ Providing one or more of the following measures, for at least 50 per cent of exposed non-roof impervious areas within the IAFP:                             <ul style="list-style-type: none"> <li>› Shade from existing tree cover or newly planted saplings within 5 to 8 years of planting</li> <li>› Open grid pavers or grass pavers</li> <li>› Hardscape materials (including pavers) with solar reflective index of at least 29 (and not higher than 64)</li> </ul> </li> <li>▪ Providing at least 50 per cent of the parking spaces under cover.</li> </ul>
6	<b>Outdoor light pollution reduction</b>	<ul style="list-style-type: none"> <li>▪ The activity includes a reduction in light pollution to increase night sky access and enhance the nocturnal environment</li> <li>▪ Upward lighting:                             <ul style="list-style-type: none"> <li>› Designing exterior lighting such that no external light fixture emits more than 5 per cent of the total initial designed fixture Lumens at an angle of 90 degrees or higher from nadir (straight down)</li> <li>› Design exterior lighting such that all site luminaires produce a maximum initial illuminance value, as defined in the ASHRAE standard</li> </ul> </li> <li>▪ Lighting power density: Should be at recommendable levels.</li> </ul>

**Sustainable transport**

S. No.	Features	Detailing of green aspects
1	<b>Pedestrian network</b>	<ul style="list-style-type: none"> <li>▪ Encouraging safe and comfortable walking experience by providing well-designed interconnected pedestrian network</li> <li>▪ Planning of the pedestrian network with proper shading and adequate illumination levels between main buildings and essential amenities                             <ul style="list-style-type: none"> <li>› Providing shade for pedestrian network areas through tree cover or structured cover for comfortable pedestrian access</li> <li>› Providing adequate illumination (Lux levels) for the pedestrian network as per statutory codes.</li> </ul> </li> </ul>
2	<b>Bicycle lane network</b>	<ul style="list-style-type: none"> <li>▪ Reducing automobile dependency for short-distance commuting and fuel consumption and vehicular emissions, thereby promoting physical activity and health</li> <li>▪ Design a bicycle lane network to connect to all main buildings and essential amenities</li> <li>▪ Providing bicycle parking within walking distance of 100 metres at all main buildings and basic amenities</li> <li>▪ Bicycles shall be provided as an environmentally friendly transportation facility for occupants to commute within or outside the IAFP</li> <li>▪ Providing one bicycle for every 75 occupants within the IAFP</li> <li>▪ An alternative servicing facility shall also be provided to ensure that the bicycles would be in working condition.</li> </ul>

**Sustainable transport**

S. No.	Features	Detailing of green aspects
3	<b>Access to sustainable transport</b>	<ul style="list-style-type: none"> <li>▪ Encouraging the use of public transport, to reduce negative impacts caused by automobile use</li> <li>▪ Providing access to a public transportation facility within 800 metres walking distance</li> <li>▪ Operating or at least having a contract in place for electric-powered vehicles within or outside as shuttle services, to cater for at least 10 per cent of the occupants during peak hours</li> <li>▪ Also, IAFP shall install electric charging facilities within the parking area to cater for the electric vehicles</li> <li>▪ Operating conventional fossil fuel vehicles in place for shuttle services within or outside to cater for at least 20 per cent of the occupants during the peak hours.</li> </ul>

**Water conservation**

S. No.	Features	Detailing of green aspects
1	<b>Rainwater harvesting</b>	<ul style="list-style-type: none"> <li>▪ Enhancing the groundwater table and reducing water demand through effective rainwater management</li> <li>▪ The activity includes designing a rainwater harvesting system to capture or percolate at least one-day rainfall runoff volume from the roof and non-roof areas.</li> </ul>
2	<b>Landscape design</b>	<ul style="list-style-type: none"> <li>▪ Designing landscape to ensure minimum water consumption</li> <li>▪ The activity includes limiting the use of turf with drought-tolerant, native adaptive species.</li> </ul>
3	<b>Management of irrigation systems</b>	<ul style="list-style-type: none"> <li>▪ Reducing water demand for irrigation through water-efficient management systems and techniques</li> <li>▪ Provision of highly efficient irrigation systems and techniques incorporating the following features:                             <ul style="list-style-type: none"> <li>› Central shut-off valve</li> <li>› Soil moisture sensors integrated with irrigation system</li> <li>› Segregation of turf and each type of bedding area into independent zones based on watering needs</li> <li>› At least 50 per cent of landscape planting beds must have a drip irrigation system to reduce evaporation</li> <li>› At least 75 per cent of the turf area must have a sprinkler irrigation system to reduce water loss</li> <li>› Minimization of evaporation through the time-based controller for the valves and ensuring plant health</li> <li>› Pressure regulating devices to maintain optimal pressure to prevent water loss</li> <li>› Any other innovative methods for watering.</li> </ul> </li> </ul>
4	<b>Wastewater treatment and reuse</b>	<ul style="list-style-type: none"> <li>▪ Treating wastewater generated on site, to avoid polluting the receiving streams by safe disposal</li> <li>▪ Using treated wastewater, thereby reducing dependence on potable water</li> <li>▪ Having an on-site treatment system to handle 100 per cent of the wastewater generated to the quality standards suitable for reuse, as prescribed by the applicable statutory boards</li> <li>▪ Using treated wastewater for landscaping and centralized HVAC cooling tower make-up water to the extent possible</li> <li>▪ (Wastewater in this context refers to grey, black, and industrial water. In case the local authorities insist that the IAFP divert wastewater to a centralized, or common wastewater treatment plant outside the IAFP, then IAFP shall reuse the treated wastewater from the centralized, common or any other wastewater treatment plant. Potable water includes water from sources such as boreholes, natural wells, surface water intake, and domestic water systems.</li> </ul>

Water conservation		
S. No.	Features	Detailing of green aspects
5	<b>Optimize water use for construction</b>	<ul style="list-style-type: none"> <li>▪ Enhancing water use efficiency, thereby minimizing the use of potable water for construction activities</li> <li>▪ IAFP to demonstrate (as compared to national and international standards) that at least 50 per cent of the potable water required for IAFP infrastructural construction activities (concrete mixing, plastering works and curing) with the use of                             <ul style="list-style-type: none"> <li>› Treated wastewater</li> <li>› Admixtures and curing compounds</li> <li>› Any other innovative measures</li> </ul> </li> <li>▪ Ensuring that the quality of construction is not compromised by reducing potable water requirements or by reusing treated wastewater</li> <li>▪ The treated wastewater shall meet the quality standards suitable for reuse during construction, as prescribed by applicable local statutory requirements.</li> </ul>
6	<b>Water metering</b>	<ul style="list-style-type: none"> <li>▪ Encouraging submetering to improve water performance and thereby save potable water</li> <li>▪ Demonstrating submetering for at least three of the following water use applications:                             <ul style="list-style-type: none"> <li>› Domestic and industrial water supply</li> <li>› Borehole water consumption</li> <li>› Treated wastewater consumption</li> <li>› Water consumption for landscaping requirements</li> <li>› Water consumption for centralized HVAC cooling tower makeup (if the occupant industry or unit uses centralized water-cooled chillers)</li> <li>› Building-level water consumption</li> <li>› Moreover, the other main source of water consumption.</li> </ul> </li> </ul>

Energy efficiency		
S. No.	Features	Detailing of green aspects
1	<b>Energy efficiency in infrastructural equipment</b>	<ul style="list-style-type: none"> <li>▪ Enhancing energy efficiency, thereby reducing the environmental impacts resulting from energy use</li> <li>▪ Achieving energy efficiency for all infrastructural equipment and systems as follows:                             <ul style="list-style-type: none"> <li>› Reducing lighting power density by at least 30 per cent for exterior areas over the ASHRAE standard</li> <li>› All non-emergency exterior and common area lighting such as landscaping, surface and covered parking, pathways, bicycle lanes, street lighting should have daylight sensor or timer-based control</li> <li>› Pumps with the efficiency of at least 85 per cent</li> <li>› Motors (&gt; 3.5 HP) with the efficiency of at least 85 per cent</li> <li>› Occupant units which have installed centralized HVAC systems shall have an efficiency and coefficient of performance of at least 10 per cent over the ASHRAE standard.</li> </ul> </li> </ul>
2	<b>On-site renewable energy</b>	<ul style="list-style-type: none"> <li>▪ Encouraging the use of on-site renewable technologies, to minimize environmental impacts associated with the use of fossil fuel energy</li> <li>▪ The activity includes demonstrating on-site renewable energy generation for at least 5 per cent of total annual energy consumption of infrastructural equipment and systems excluding buildings (renewable energy sources include solar energy, wind power, biomass, biogas, geothermal energy).</li> </ul>

Energy efficiency		
S. No.	Features	Detailing of green aspects
3	<b>Off-site renewable energy</b>	<ul style="list-style-type: none"> <li>▪ Encouraging the use of off-site renewable technologies, to minimize the environmental impacts associated with fossil fuel energy use</li> <li>▪ Individual occupant units and industries are to demonstrate that they have purchased renewable energy certificates equivalent to at least 20 per cent of total annual energy consumption of infrastructural equipment and systems, excluding buildings</li> <li>▪ The activity includes individual occupant units and industries demonstrating that they have invested in off-site renewable energy equivalent to at least 20 per cent of total annual energy consumption of infrastructural equipment and systems, excluding buildings.</li> </ul>
4	<b>Energy metering</b>	<ul style="list-style-type: none"> <li>▪ Encouraging submetering to improve energy performance, and thereby save energy</li> <li>▪ Individual occupant units and industries to demonstrate submetering for the following energy use applications, as applicable:                             <ul style="list-style-type: none"> <li>› Domestic water pumping</li> <li>› Groundwater pumping</li> <li>› Treated wastewater pumping</li> <li>› Exterior area lighting, including landscapes</li> <li>› Centralized HVAC systems</li> <li>› Renewable energy generation</li> <li>› Power backup systems (such as generators set)</li> <li>› Building-level energy consumption</li> <li>› Any other energy-consuming equipment and systems.</li> </ul> </li> </ul>

Material and resource management		
S. No.	Features	Detailing of green aspects
1	<b>Segregation of waste, post-occupancy</b>	<ul style="list-style-type: none"> <li>▪ Facilitating segregation of waste at source to encourage reuse or recycling of materials, thereby avoiding waste in the form of landfills</li> <li>▪ Provision of separate bins to collect dry waste (paper, plastic, metals, glass) and wet waste (food), at all the common exterior areas, as applicable</li> <li>▪ Diverting the collected waste to a centralized facility, which is easily accessible for hauling</li> <li>▪ Separate bins for safe disposal of the following hazardous waste, at the centralized facility, shall also be provided:                             <ul style="list-style-type: none"> <li>› Batteries</li> <li>› e-waste</li> <li>› Lamps</li> <li>› Medical waste if any.</li> </ul> </li> </ul>
2	<b>Organic waste management, post-occupancy</b>	<ul style="list-style-type: none"> <li>▪ Ensuring effective waste management, to avoid organic waste in landfills and to improve sanitation and health</li> <li>▪ Installing an on-site waste treatment system for handling organic (food and garden) waste generated including buildings. Appropriate utilization of the generated manure or biogas.</li> </ul>

Material and resource management		
S. No.	Features	Detailing of green aspects
3	<b>Handling of waste materials during construction</b>	<ul style="list-style-type: none"> <li>▪ Facilitation of segregation of construction and demolition waste at source, to encourage reuse or recycling of materials, thereby avoiding waste as landfills disposal</li> <li>▪ The activity includes demonstrating diversion from landfills of at least 75 per cent of the waste generated during construction and demolition by the individual occupant units or industry, for reuse or recycling.</li> </ul>
4	<b>Local materials</b>	<ul style="list-style-type: none"> <li>▪ Encouraging the use of building materials available locally, thereby minimizing the associated environmental impacts of non-local sourcing</li> <li>▪ Ensuring that at least 50 per cent of the total building materials (by cost) used in infrastructural facilities are manufactured locally within a radius of 400 km.</li> </ul>

Health and well-being		
S. No.	Features	Detailing of green aspects
1	<b>Tobacco smoke control</b>	<ul style="list-style-type: none"> <li>▪ Minimizing exposure of non-smokers to adverse health impacts arising from passive smoking</li> <li>▪ Prohibition of smoking on premises as demonstrated by the individual occupant unit or industry</li> <li>▪ In case IAFP has outdoor smoking areas, such areas shall be located at a minimum of 7.6 meters away from all outdoor air intakes (such as entrance doors, window openings). (Compliance shall be in accordance with local regulations of concerned statutory authorities).</li> </ul>
2	<b>Basic amenities</b>	<ul style="list-style-type: none"> <li>▪ Providing access to basic amenities to encourage walking and thereby improve the quality of life</li> <li>▪ The activity includes providing at least seven basic amenities with pedestrian access</li> <li>▪ Provision of the following basic amenities:                             <ul style="list-style-type: none"> <li>› Accommodation facilities (guest house, service apartment)</li> <li>› ATM and bank</li> <li>› Automobile refuelling station</li> <li>› Cafeteria and restaurant</li> <li>› Educational facilities</li> <li>› Hospital</li> <li>› Laundry and dry cleaners</li> <li>› Leisure and entertainment facilities (auditorium, amphitheatre, theatre)</li> <li>› Park or garden</li> <li>› Post office and courier service</li> <li>› Retail stores (grocery store, supermarket)</li> <li>› Saloon.</li> </ul> </li> </ul>

Health and well-being		
S. No.	Features	Detailing of green aspects
3	<b>Health and well-being facilities</b>	<ul style="list-style-type: none"> <li>▪ Providing health and well-being facilities, to enhance the physical, emotional and spiritual well-being of occupants</li> <li>▪ Individual occupant units or industry to demonstrate that their respective unit or industry has health and well-being facilities to cater to at least 10 per cent of needs, through the day</li> <li>▪ Health and well-being facilities to include but not limited to aerobics, gymnasium, swimming pool, meditation, indoor games, outdoor games, playground</li> <li>▪ Additional healthcare, emergency and security facilities within the IAFP such as a first-aid and clinic, pharmacy, emergency alarm, a surveillance system in common exterior areas, shall also be provided.</li> </ul>
4	<b>Universal design</b>	<ul style="list-style-type: none"> <li>▪ Ensuring that the design caters to differently abled and senior citizens</li> <li>▪ Creating IAFP to provide the following measures as applicable, for differently abled and senior citizens in accordance with the guidelines of the appropriate local statutory regulations:                             <ul style="list-style-type: none"> <li>› Easy access to the main entrance of the buildings</li> <li>› Appropriately, designed preferred car park spaces with easy access to the building's main entrance or closer to the lift lobby</li> <li>› Non-slippery ramps, with handrails on at least one side (as applicable)</li> <li>› Uniformity in floor level for hindrance-free movement in common exterior areas</li> <li>› Restrooms (toilets) in building common areas designed for differently abled people</li> <li>› Main walkways and pathways with an adequate width in common exterior areas</li> <li>› Visual warning and wayfinding signage in common exterior areas.</li> </ul> </li> </ul>
5	<b>Basic facilities for the construction workforce</b>	<ul style="list-style-type: none"> <li>▪ Promoting the welfare of the construction workforce by providing safe and healthy work conditions</li> <li>▪ Provision of following basic services for the construction workforce:                             <ul style="list-style-type: none"> <li>› Adequate housing to meet or exceed local labour bylaw requirements:</li> <li>› Sanitary facilities: Individual occupant unit or industry's contractor to provide at least three toilet seats and three urinals for the first 100 workers and one additional toilet seat and urinal for every 100 workers after that; or as defined by local labour laws</li> <li>› The sanitary facilities should be provided separately for men and women</li> <li>› First-aid and emergency facilities</li> <li>› Adequate drinking water facilities</li> <li>› Personal protective equipment (by owner or contractor)</li> <li>› Dust suppression measures</li> <li>› Adequate illumination levels in construction work areas</li> <li>› Site emergency alarm</li> <li>› Day-care or crèche facility for workers' children (Only if, more than 50 female workers are employed full time).</li> </ul> </li> </ul>

Green education		
S. No.	Features	Detailing of green aspects
1	Green education	<ul style="list-style-type: none"> <li>Promoting green education by involving occupant units and industries, local communities and NGOs, to increase awareness levels and encourage implementation of eco-friendly practices</li> <li>Organizing at least three outreach or educational programmes in a year with the involvement of occupant units and industries, local communities and NGOs, to increase public awareness of environmental sustainability and green features of the IAFP</li> <li>The outreach or educational programmes can include, but not be limited to, promotional materials (posters, brochures), information portals, awareness programmes</li> <li>Constitute a formal committee or forum with the involvement of occupant units and industries, local communities and NGOs, to identify and implement at least two eco-friendly practices and green initiatives within and outside the IAFP. Define roles and responsibilities for the committee or forum members with an action plan for the implementation of eco-friendly practices and green initiatives</li> <li>The eco-friendly practices and green initiatives can include, but not be limited to, clean and green campaigns on waste segregation and recycling, water conservation, energy conservation, use of public transportation, bicycles, carpooling, world green building week, earth hour</li> <li>Institute awards to acknowledge the efforts of IAFP occupants, local communities, NGOs for implementing eco-friendly practices and green initiatives.</li> </ul>
2	Green IAFP guidelines	<ul style="list-style-type: none"> <li>Providing occupant units and industries and the facility team with descriptive guidelines that educate and help them implement and maintain green design and construction features</li> <li>Projecting specific green guidelines providing information that helps occupant units and industries to implement and utilize the green features, post-occupancy</li> <li>Planning specific green operations and maintenance and renovation guidelines, providing information that helps facilities team to implement green features, during operation and renovation process and to have an operations and maintenance plan with role responsibilities.</li> </ul>

## ANNEX III

### Field manual for construction supervision services and pre-construction tests

#### A. Various registers to be maintained at the site

- Drawing inward register
- Drawing outward register – contract-wise
- Hindrance register – contract-wise
- Extra work register – contract-wise
- Steel receipt register – contract-wise and summary of all contracts
- Extra steel consumption register - contract-wise
- Cement receipt register - contract-wise and summary of all contracts
- Cement consumption register – for specific jobs, major jobs, pours – contract-wise
- Concrete cube register – contract-wise
- Site visit and instruction register
- For other materials procured by the client and issued free of cost to the contractors, the format for receipt and issue and consumption registers shall be prepared at a later stage.

#### B. Reports to be generated at the site

- Work done in this week
- Labour report
- Materials report (only major materials to be specified)
- Cement consumption (bags)
- Site visits
- Hindrances in the week, if any
- Urgent follow-ups required
- Activities planned for the next week (only major activities).

#### C. Site meetings to be held

- Weekly site meeting: For better and effective management it should be exclusively meant for project monitoring and other project-related issues such as close coordination between the various departments and agencies, to avoid red-flag reporting, corrective actions if deemed necessary, monitoring progress and cost and implementing management information system
- Quality audit meeting for ensuring quality, corrective actions for improving quality, implementing quality checks at the site and ensuring proper documentation at site
- Monthly review meeting with agenda of project review in terms of progress, quality and cost (specific discussions about areas of concern, future line of action and list of decisions awaited) and weekly and monthly progress review meeting.

**D. Amendment to work order or purchase order in case of variations due to:**

1. Quantity variations
2. Additional items
3. Time period and delays.

**E. Other formats to be adopted at the site**

1. Format for concrete pour card – checklist and control
2. Checklist for various construction items
3. Format for steel reconciliation statement
4. Format for cement reconciliation statement
5. Format for the detailed break-up of cement consumption
6. Format for document transmittal
7. Formats for a request for information and distribution sheet
8. Formats regarding intimation of the slow progress of work and reminder
9. Formats regarding intimation of defective works, reminder and final warning
10. Formats regarding approval of contractor's materials.

**F. Checklist to be adopted at the site for various works**

1. Checklist for earthworks
2. Checklist for backfilling
3. Checklist for concrete pour card
4. Checklist for pouring
5. Checklist for brickwork
6. Checklist for plastering
7. Checklist for pipework
8. Checklist for roadworks (subgrade, subbase, water-bound macadam)
9. Checklist for water supply network
10. Checklist for drain work – pitching and coping
11. Checklist for sewerage pipe laying.

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INDUSTRIAL DEVELOPMENT ORGANIZATION

**United Nations Industrial Development Organization**  
Vienna International Centre  
P.O. Box 300, 1400 Vienna, Austria  
Telephone +43 1 260260  
[www.unido.org](http://www.unido.org)

