



POLICY BRIEF

## Potential of Integrated Agro-Food Parks for Rural Industrialization and Economic Transformation in Developing Countries

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## ABBREVIATIONS

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APH	Agroprocessing hub
ATVET	Agricultural technical and vocational education and training
CAAP	Common African Agro-Parks
CC	Collection centre
COMESA	Common Market for Eastern and Southern Africa
ECA	(United Nations) Economic Commission for Africa
FAO	(United Nations) Food and Agriculture Organization
GDP	Gross domestic product
IAFP	Integrated agro-food parks
ICT	Information and communication technology
RTC	Rural transformation centre
SDGs	Sustainable development goals
UNIDO	United Nations Industrial Development Organization
UNTAD	United Nations Conference on Trade and Development

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## EXECUTIVE SUMMARY



Global agricultural supply chains are changing rapidly, yet developing countries still lag behind in terms of agricultural output and other key productivity measures. Achieving the Sustainable Development Goals, including Goal 1 on no poverty, Goal 2 on zero hunger, and Goal 8 on decent work and economic growth, will require the transformation of the agribusiness sector in developing countries, to deal with problems of inadequate infrastructure, poor connectivity and integration of farmers with supply chains, and to respond to changing consumer demand created by an increasing global population and a shift in consumption behaviour.

Integrated agro-food parks (IAFPs) are proving a successful model to develop a robust agribusiness sector and tackle the sustainable economic transformation challenges facing many developing countries today.

The primary objective of IAFPs is to create investment opportunities in agribusiness. This is facilitated through increased scale and lower costs, stronger supply chain linkages and higher quality produce, by clustering firms through the provision of infrastructure and agribusiness-related services.

IAFPs have the potential to have a transformative impact by promoting innovation, contributing to climate-smart agricultural production, processing and marketing, while further integrating rural producers in regional and global supply chains, thus supporting rural development.

This policy brief focuses on the potential of IAFPs to elicit such change. It comprises the seven sections listed below.

**SECTION 1:** briefly introduces the **global context** of agribusiness development.

**SECTION 2:** highlights the **critical role of agribusiness** as a stepping stone to a robust manufacturing sector, with the infrastructure and skills to drive structural transformation and lift millions from poverty.

**SECTION 3:** outlines the **challenges facing the agrifood sector**, including underdeveloped agricultural value chains, high post-harvest losses, fragmented landholdings, limited common infrastructure, the absence of specialized industrial infrastructure, slow agro-mechanization uptake and technology adoption, the absence of educational institutions to keep pace with agricultural skills development demand, limited finance in rural areas, and institutional and policy-related inefficiencies.

**SECTION 4:** describes the **IAFP model**, including its three main components: the agroprocessing hub, the rural transformation centres and the collection centres. Surrounded by a catchment area, together these components make up the IAFP. The section also outlines the objectives of IAFPs, including their primary objective of creating investment opportunities in agribusiness. The section also outlines the sub-objectives to achieve this: provision of infrastructure and utilities and related shared services; integration of the supply chain to allow for efficient flow of produce from farmers to industry and market; provision of a platform for industry-agricultural interaction and trade facilitation year-round; provision of market information to traders and exporters; transfer of technologies of agriculture and agroprocessing; and measure to maximize resource efficiency across value chains and enable industrial symbiosis.

The section also summarizes the **benefits of IAFPs**, including: providing decent employment opportunities for the growing rural population; reducing rural-urban migration; improving agribusiness competitiveness; reducing post-harvest losses; promoting environmental sustainability in food systems; improving extension services with private sector participation; and disseminating innovation and technology transfer.

**SECTION 5:** briefly outlines the **growing interest in industrial parks** and related area based development approach. This is seen in the inclusion of industrial parks in regional and country development planning documents, and also in an increase in investment in the agribusiness sector.

**SECTION 6:** looks at ingredients for the **successful implementation of an IAFP programme**. These include: integration of IAFP initiatives as part of a country's long-term development vision; strong public sector support from planning to implementation to create an enabling environment for private sector investment; an inclusive stakeholder consultation process and IAFP management set-up; and the incorporation of sustainable food systems practices along value chains linked to the IAFP.

**SECTION 7:** sets out the **conclusions** drawn.

## 1 FAST-CHANGING GLOBAL CONTEXT FOR AGRICULTURAL DEVELOPMENT

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

New technologies, including agriculture-focused information and communications technology (ICT) and the digitization of the supply chain, are transforming food systems and offering new opportunities to improve policy.

With a growing population and limited natural resources, agrobusinesses are racing to increase productivity, with mounting attention given to innovation to help find a way to sustainably feed a growing population.

The global population is growing rapidly and expected to reach 8.5 billion by the end of this decade. A lack of opportunity in rural areas is leading to ever-increasing numbers of young people migrating to cities and across borders in search of a better life. The sustained high level of rural to urban migration means that by 2030 the proportion of urban dwellers is expected to reach 60 per cent. Alongside economic growth, such demographic shifts bring significant changes in consumption patterns, at a time when food prices are rapidly increasing.



## 2 IMPORTANCE OF AGRO-INDUSTRIALIZATION FOR GROWTH AND SUSTAINABLE DEVELOPMENT

Agro-industrialization has a pivotal role to play in the growth of developing countries and countries with 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 in meeting urgent development challenges.



Historically, no country or region in the world has achieved a decent standard of living for its citizens without a robust industrial sector. With many developing countries or countries with economies in transition characterized by a large agricultural share in the gross domestic product (GDP) and employment, agro-industries provide a critical stepping-stone to industrialization. Agro-industries produce economic activities that enable emerging economies to expand their manufacturing potential and industrial output. The growth of agro-industries is essential for skilled and semi-skilled employment creation, absorbing surplus labour from agriculture. This is of particular importance, given the urbanization trends under way in developing countries.

Industrialization generates economies of scale in national output, increases household income with stable manufacturing jobs, and expands consumption, setting economies on a virtuous growth cycle.

National efforts to increase manufacturing and spur rural development require well designed strategies and policies. These strategies comprise a wide variety of approaches and instruments, depending on the level of industrial development and the overall economic context for which they are designed. IAFPs are the starting point and provide a potential highly effective tool in the long-term process of economic structural transformation.



### 3 CHALLENGES OF AGRO-INDUSTRIALIZATION AND RURAL TRANSFORMATION

Feeding a rapidly growing global population requires a system-wide shift in agriculture and agrobusiness. Agriculture is the most important economic sector and greatest source of employment in many countries, in particular in Africa and Asia.<sup>1</sup> It contributes up to 23 per cent the GDP of Africa and provides work for nearly 60 per cent of the economically active population in sub-Saharan Africa.<sup>2</sup> The food-processing and beverages subsector accounts for more than 50 per cent of total manufacturing value added in low and middle-income countries.<sup>3</sup> 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.<sup>4</sup>

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.



1) Max Roser, "Employment in agriculture", Our World In Data, 2013. Available at <https://ourworldindata.org/employment-in-agriculture>  
 2) Gillian Pais, Kartik Jayaram and Arend van Wamelen, "Safeguarding Africa's food systems through and beyond the crisis", *McKinsey & Company*, 5 June 2020. Available at <https://www.mckinsey.com/featured-insights/middle-east-and-africa/safeguarding-africas-food-systems-through-and-beyond-the-crisis>.  
 3) African Development Bank Group, "Africa's agricultural transformation: identifying priority areas and overcoming challenges", *Africa Economic Brief*, vol. 8, No. 3, (2017).  
 4) Gillian Pais, Kartik Jayaram and Arend van Wamelen, "Safeguarding Africa's food systems through and beyond the crisis".

#### UNDERDEVELOPED AGRICULTURAL VALUE CHAINS



Underdeveloped agricultural value chains limit agricultural efficiency and growth even where competitive advantages exist. Large numbers of smallholder farmers scattered over vast areas together with supply-driven agricultural practices lead to collection inefficiencies, a proliferation of traders, high post-harvest losses and higher prices. Farmers produce inconsistent quantities and qualities and this affects their efficiency and ability to compete in regional and international markets. Limited means of communication leave farmers with little knowledge of buyer expectations and insufficient incentive to produce high-quality products. As a consequence, agroprocessors are unable to procure locally the appropriate quantity and quality of raw materials. Lack of scale creates high overhead and transaction costs, and agricultural and agrobusiness services, such as eco-friendly waste recycling and disposal, cannot be efficiently provided to widely dispersed firms lacking a critical mass.

#### FRAGMENTATION OF LANDHOLDINGS



Fragmentation of landholdings occurs as a result of a growing rural population that has limited opportunities for off-farm employment. Fragmentation decreases per capita income and leads to disguised unemployment in the agriculture and agrobusiness sectors in rural areas of developing countries. Fragmentation and low per capita productivity lead to high aggregation costs of surplus production to meet the scale required by industries.

#### SPECIALIZED AROBUSINESS INFRASTRUCTURE



Many developing countries lack specialized agrobusiness infrastructure, including cold storage units, quarantine facilities, quality control laboratories, quality certification centres, raw material storage, and controlled and modified atmospheric storage. Environment-related infrastructure such as sewage and effluent treatment plants are not available for small and medium-sized enterprises. The absence of shared infrastructure, combined with limited utilities and business development services, increases initial investment costs and keeps the barrier to entry high. For those businesses that do get off the ground, the context entails higher operational costs and higher unit prices, leaving them less competitive at the regional and global levels and less able to expand.

#### AGRICULTURAL TECHNOLOGY ADOPTION AND MECHANIZATION UPTAKE



Agricultural technology adoption and mechanization uptake is slow as a result of four main factors: availability is often limited in developing countries; access to hard currency or lines of credit to purchase quality inputs and technologies is difficult; distribution mechanisms are often poorly developed or absent; and utilization is low as the knowledge and skills to make the best use of inputs and technologies is often absent or underdeveloped. Public extension services that could play a role in the supply of quality agricultural inputs and services are often ineffective or have limited capacity. Strategies for the intensification of food production often require agricultural inputs of the right quality and quantity. This emphasizes the role of extension services and farmers' cooperatives in the supply and uptake of appropriate inputs and technologies.

#### ANNUAL POST-HARVEST LOSSES



Annual post-harvest losses account for approximately 30 per cent of food produced for human consumption; fruit and vegetable losses are estimated at 50 per cent or more. Losses occur at every stage of the value chain and have significant economic and environmental impacts. Poor quality inputs and limited use of agronomical best practices increase losses at the farm level, while further losses occur through inefficient processing technologies and practices, insufficient packaging, poor storage and inadequate logistics.

### SKILLS SHORTAGES



Skills shortages in many developing countries affect the ability to make use of new agricultural technologies and services. The agricultural sector continues to employ a significant proportion of the workforce, but most knowledge is gained through the intergenerational transfer of skills. The vast majority of workers in the agricultural sector are without adequate vocational training and education to support the adoption of new technologies and services or to 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 technical skills, knowledge and pedagogy 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 youth, as a livelihood option of last resort, making it difficult to recruit young people for ATVET programmes.<sup>5</sup>

### LIMITED FINANCIAL RESOURCES



Limited financial resources mean that smallholders, especially women and youth, are unable to expand agricultural activities (through the purchase of equipment and inputs, infrastructure maintenance, transport of products to markets, and others). Farmers' access to rural financial services is constrained by socio-cultural, economic, legal and educational barriers. 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 because of collateral requirements. The lack of financial institutions leaves farmers and agribusinesses unable to access savings, insurance and credit products. Moreover, many of the rural poor wanting to borrow from a bank or microfinance organization lack the experience and skills necessary to process loans, while the social stigma attached to loans also constrains access to financial resources. On the supply side, the presence of system-wide risk characterizing agricultural activities, lack of general understanding of the sector and limited financial infrastructure (for such purposes as tracking the identity of clients or monitoring outcomes) constrains the provision of financial services in rural areas.<sup>6</sup>

### INSTITUTIONAL AND POLICY-RELATED INEFFICIENCY



Institutional and policy-related inefficiency has a direct impact on the emergence of a strong agribusiness sector. Agribusiness or even park-specific policies, including regulations and implementation road maps, provide frameworks for the development of the sector. Such documents are often not available. Institutions are often under-equipped to develop policy and oversee its implementation, and face a wide range of barriers, including gaps in financial and human resources, difficulty coordinating across implementing agencies, and interference from interest groups.

5) Trent Brown and Shyamal Majumdar, "Agricultural TVET in developing economies: challenges and possibilities", *UNEVOC Network discussion paper*, 2020. Available at [https://unevoc.unesco.org/pub/discussion\\_paper\\_agricultural\\_tvete.pdf](https://unevoc.unesco.org/pub/discussion_paper_agricultural_tvete.pdf)

6) Claudia Ruiz, "How can finance influence productivity of agricultural firms?", *World Bank blog*, 13 January 2014. Available at <https://blogs.worldbank.org/allaboutfinance/how-can-finance-influence-productivity-agricultural-firms>.

## 4 INTEGRATED AGRO-FOOD PARKS: CONCEPTS, OBJECTIVES AND BENEFITS

### 4.1 DEFINING THE IAFP MODEL

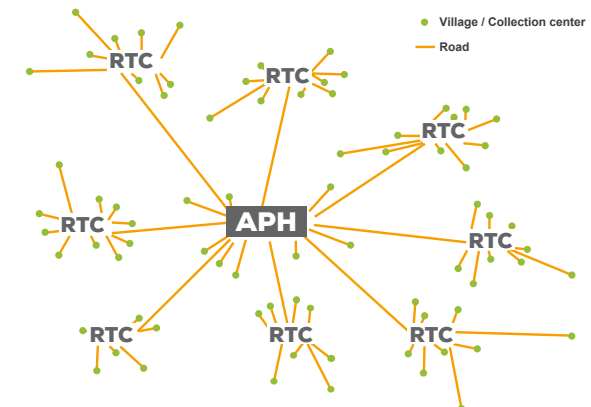
The integrated agro-food park, a form of industrial park, is increasingly viewed around the world today as a tool to support the growth of a robust agro-industrial sector. The United Nations Industrial Development Organization (UNIDO) defines IAFPs as an agribusiness development corridor integrating 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. IAFPs also seek to generate spillover and multiplier effects in surrounding rural populations (UNIDO, 2019). IAFPs typically comprise three distinct yet integrated components, as set out below.<sup>7</sup>

#### 1 Agroprocessing hubs

Agroprocessing hubs (APHs) are the first such component. At the heart of the IAFP, APHs are centrally managed clusters of agro-industrial and allied firms grouped to gain economies of scale and positive externalities by sharing utilities, common and specialized infrastructure, and taking advantage of opportunities for bulk purchasing and selling, and also business services.

Multiple functions take place in APHs, such as final processing, storage, packaging, marketing and distribution.<sup>8</sup> The APHs house purpose-built shared facilities to enable processors and distributors to operate in the same location, thus reducing transaction costs and sharing services for increased productivity and competitiveness. APHs are supported by adequate 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 and waste treatment, among others).



Source: Authors' own elaboration

FIGURE 3: Spatial relationship between agroprocessing hubs, rural transformation centres and collection centres

7) The concept of IAFP is sometimes mistakenly used interchangeably with APH. In practice, however, the IAFP model comprises three integrated components

8) Agroprocessing activities may be demarcated into three main categories based on the level of technology used: primary agroprocessing (such as washing, cleaning, grading and labelling); secondary agroprocessing (such as milling grain, grinding groundnuts, pressing oil and pressing juice); and advanced agroprocessing (such as product transformation, baking and extractive activities).

## 2 Rural transformation centres

The second component is the rural transformation centre. Each APH is served by a network of such centres, which link producers to the agro-industries at APHs. Each centre comprises a physical complex of facilities that serves as an aggregation point where agricultural produce from farming communities or collection centres is collected, sorted, stored and may undergo primary processing (according to product-specific need), before onward transport to the APH, or direct marketing to consumers (as may be the case for fresh fruits and vegetables). Beyond their primary functions, rural transformation centres also provide farmers with microfinance services, market information and extension services, along with training and other social amenities such as health care services. Rural transformation centres serve both as primary processing hubs and storage points, and also as centres for capacity-building, knowledge dissemination, market intelligence and other rural services. For most producers, the centres are the main point of contact with commercial agricultural value chains (see the text box below).

## 3 Collection centres

Collection centres (CC), the third component, are located in villages close to the source of production, within feeder catchment zones, to ensure a steady supply of raw materials to regional transformation centres and APHs. Such centres are village-level small-scale aggregation points with basic infrastructure used to consolidate produce from large numbers of small-scale suppliers.

The three components together can cover thousands of hectares surrounding the APH, and also the wider catchment area, sometimes called an agro-crop procurement zone. The IAFP comprises the APH, rural transformation centres and collection centres and covers the full area that supplies the APH with raw materials. The agro-crop procurement zone (IAFP catchment area) can range in size depending on several factors, including the processing capacity of the site, total raw material requirements and productivity of the land.

Confined to geographical limits, agro-food parks allow governments to pilot new policies for agro-industrialization that cut across sectors, including agriculture, industry, finance, environment, labour, investment and research and development, among others.

were established and 78,000 smallholder farmers, 22 per cent of them women, from seven districts are presently supplying produce to the Sunvado factory. Sunvado also established two avocado seedling nursery sites, owned by smallholder farmers, to introduce improved varieties. The new varieties significantly reduce the pre-production period of avocado trees to satisfy future demand. To further improve quality, the company is working with Hawassa University to introduce additional improved varieties and further research and development services.

Also operating at the Yirgalem integrated agro-industrial park is the Jojo natural milk processing factory owned by Duoley Food Processing PLC. The factory has a processing

capacity of 30,000 litres of milk per day and collects milk from farmers residing within a 60-kilometre radius of the hub. The processing facility established links with approximately 15,000 smallholder farmers to supply milk. The company provides training courses, concentrated feed inputs, together with interest-free credit to boost the capacity of its suppliers. The processing facility has plans to expand its capacity to 100,000 litres per day and expand its procurement area to a 100-kilometre radius. The expansion is expected to double the number of direct jobs and further increase the number of indirect jobs in and around the park. The factory sells its dairy products to the local market and is working towards export to nearby African markets.

Source: Authors' own elaboration

### 4.2 IAFP OBJECTIVES

IAFPs have multiple objectives that combine business opportunities with economic development and poverty reduction needs to create win-win solutions for sustainable agro-industrial growth. The primary

objective of IAFP is to create investment opportunities in agrobusiness. Figure 3 outlines seven key objectives that make IAFP a unique agro-industrial development model.

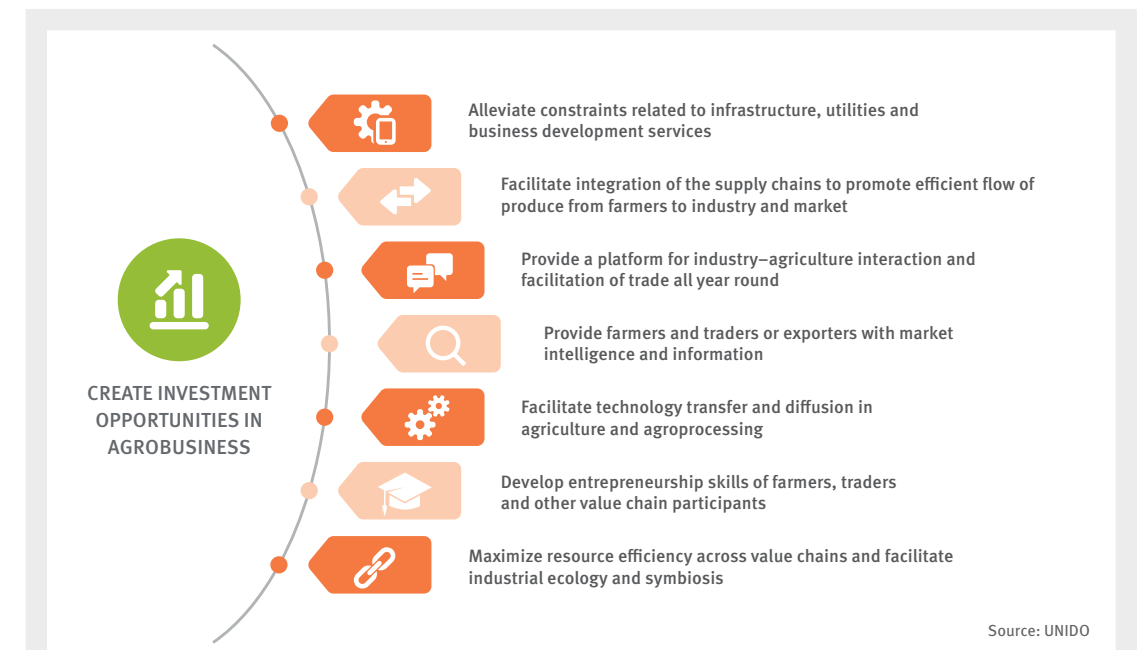


FIGURE 4: Integrated agro-food park objectives

### IAFPs, rural translation centres and the benefits of increased commercialization of farming

In Ethiopia, UNIDO is supporting the development of four integrated agro-industrial parks. These are home to numerous companies, including many food processing

America and other areas. Working together with the avocado farmer cooperatives, Sunvado employs field extension workers to support the supply chain. The

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