INTEGRATED AGRO-INDUSTRIAL PARKS IN ETHIOPIA

PCP ETHIOPIA

UNIDO
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INDUSTRIAL DEVELOPMENT ORGANIZATION

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DEVELOPMENT CONTEXT

Economic context

Few countries in the world have reached a high level of economic and social development without having developed an advanced industrial sector. It contributes to poverty reduction by generating employment and creating income. The industrial sector also has extensive linkages with other sectors of the economy. Agriculture-based industry is particularly important for developing countries and is a first step towards the structural transformation of the economy.

Ethiopia is a country on the cusp of transformation. Economic growth averaged 10.9 per cent per year from 2003/04 to 2013/2014 compared to the regional sub-Saharan average of 5.4 per cent (World Bank). To sustain and translate this growth into structural transformation, the development of higher-productivity activities, such as manufacturing, is critical.

Agricultural sector context

Ethiopia's economy is predominantly agriculture-based. It directly supports 85 per cent of the population, constitutes 46 per cent of gross domestic product (GDP) and 90 per cent of export value. The agricultural sector is characterized by the presence of many smallholder farmers – with average land holdings of only 0.2 hectares – who account for an estimated 97 per cent of agricultural production in the country (Growth and Transformation Plan Progress Report 2013). However, the vast majority of farmers in Ethiopia are not integrated into commercial value chains.

Good climate, ample arable land and labour, adequate rainfall and a range of agro-ecological zones all contribute to the wide diversity of commodities which can be produced, making agricultural commercialization a very attractive proposition.

In the context of rising demand for processed food products, medium- and large-scale food processing companies in Ethiopia often cite a lack of raw material inputs as a main constraint hindering their ability to work at full capacity. This is the result of two issues: 1) poor quality inputs; and 2) collection inefficiencies due to the large number of smallholder farmers scattered over large areas. With expansive territories to cover, agricultural value chains are composed of a large number of private traders. Long handling chains between farmers in rural areas and processors in urban areas contribute to poor quality inputs, inefficient handling chains, as well as high post-harvest losses and higher prices. If these challenges can be overcome, the agricultural sector is well placed to drive agro-industrial development and underpin future economic growth.

Agribusiness sector context

While agriculture plays a central role in the Ethiopian economy, agro-industries accounted for only 5 per cent of GDP in 2012 (UNIDO 2012). In terms of contribution to the manufacturing sector, agro-industries – food and beverages – account for about 50 per cent, the largest share of manufactured goods. Ethiopia's agro-exports are currently almost entirely limited to primary and unprocessed products. The share of processed products in total agro-industry exports constitute only 1.3 per cent (2013) and import dependency remains strong (UNCTAD, forthcoming). At the same time, globally, the export of processed food products is growing at approximately 10 per cent annually, suggesting that market conditions for exports of processed food are favourable.

Despite excellent potential for growth, a critical constraint to agro-industrial development is the lack of infrastructure to support supply to processors. While Ethiopia possesses competitive advantages in several crops such as oil seeds and cotton, and horticultural crops such as fruits and vegetables, this advantage is often lost due to poor linkages with agro-industry and limited knowledge on the part of farmers regarding best agricultural practices. Moreover, the presence of numerous middlemen contributes to wastage and inefficiency. Wastage between the farm gate and the final consumer is often 40 per cent in fresh products and up to 20 per cent in cereal crops, contributing to unnecessarily high prices.

A long supply chain also means that each level of the supply chain is unaware of the requirements of the next level. Limited communication between farmers and processors means that farmers have little incentives to produce high quality products, employ best handling practice, invest in high quality inputs or adopt best agronomic practices.

It is difficult for processors to procure the appropriate quantity and quality of raw materials due to the fragmented nature of the Ethiopian agricultural system. This has repercussions for their businesses as the situation often leaves them unable to honour their marketing commitments. As a result, lenders are less willing to make loans to processors, harming business operations and growth.

Agro-industries are highly dependent on a network of close linkages with farmers that supply raw inputs. Despite the challenges outlined above, agro-industry companies must achieve adequate returns on invested capital by operating throughout the year.

The role of integrated agro-industrial parks in Ethiopia's development

The Government of Ethiopia (GoE) expects the industrial sector to play an important role in GDP growth, job creation, foreign exchange earnings, and small and medium-sized enterprise (SME) development over the coming years.

The overall goal of the Government's Industrial Development Strategy (IDS) is to bring about the accelerated structural transformation of the economy through enhancing industrialization, raising the share of the industrial sector of GDP from the current 13 per cent to 27 per cent by 2025, and the GDP share of the manufacturing sub-sector from the current 4 per cent to 18 per cent by 2025.

The development of agro-industries presents Ethiopia with an opportunity to accelerate economic development and achieve its industrial development goals. If addressed correctly, agro-industries can help fulfill the potential of agriculture and advance industrialization in the country.

Recognizing this opportunity, the GoE is spearheading the development of integrated agro-industrial parks (IAIPs) and accompanying rural transformation centres (RTCs) with the intention of better integrating agricultural value chain actors.

The development of IAIPs is prioritized in Ethiopia's national development strategy and is a core component of the current Growth and Transformation Plan (GTP II, 2015-2020)[1]. IAIPs are considered a vehicle for the structural transformation of the economy through the commercialization of the agricultural sector. They are also expected to help pave the way for the realization of the country's Vision 2025 of becoming a leading manufacturing hub in Africa.

UNIDO's Programme for Country Partnership for Ethiopia

The development of IAIPs is also a central objective of UNIDO's Programme for Country Partnership (PCP) for Ethiopia. The PCP for Ethiopia brings together development partners, UN agencies, development finance institutions and the private sector – under the ownership of the Ethiopian Government – to help achieve the goals set out in the country's IDS and Growth and Transformation Plans (GTP I and GTP II).

The PCP focuses on three light manufacturing sectors: agro-food processing; textiles and apparel; and leather and leather products. These sectors were selected due to their potential for job creation, strong linkages to the agricultural sector, high export potential and capacity to attract private sector investment. The development of these sectors will help transform Ethiopia's economy from one based on agriculture to one driven primarily by light industries.

1 Three key overarching policy documents guide interventions in the sector over a 13-year period (2013-2025). These are: the Industrial Development Roadmap (IDR), which provides a strategic framework for industrial development for the next ten years; the Industrial Development Strategic Plan (IDPS), which defines strategies, programmes and projects for the implementation of the IDR; and, the Industrial Development Institutional Setup (IDIS), which provides an institutional framework for industrial development. The strategic direction for industrial development elaborated in the IDR and IDS are encompassed in the Growth and Transformation Plan 2015/16-2019/20 (GTP II) and beyond up to 2025, by which time Ethiopia aims to become a middle-income country.

The objectives of the IAIP programme

The overall objectives of IAIPs are to: (a) drive the structural transformation of the Ethiopian economy; (b) to reduce rural poverty; and (c) to create a better environment for increased investment in agro-food and allied sectors.

Structural transformation will be driven by the development of the Ethiopian agricultural production system from its current fragmented and supply-driven practices, to one that is organized and based on quality and demand. Such a change will boost agro-processing and will help stimulate a shift in investment and human resources from agriculture to agro-industries.

Poverty reduction will be achieved through the integration of smallholder farmers, small-scale processing enterprises and allied industries in commercial value chains. This, in turn, will increase local value-addition, create additional jobs in rural areas and improve the overall efficiency of the agricultural value chain. Medium- and large-scale firms will also benefit from more efficient value chains, through reduced transaction costs, allowing for additional growth and job creation.

The development of IAIPs will produce an environment that is conducive to attracting investment in agro-food and allied sectors.

The IAIPs will:

- Create world class supply-chain infrastructure needed for agro-industrial development;
- Increase total flows of investment in agro-industry - both in terms of skills and capital - to establish backward and forward linkages;
- Foster strong linkages between agriculture and agro-industry;
- Provide a close interface between research, extension mechanisms, industry and farmers in the agricultural sector;
- Increase value addition and reduce wastages, thereby increasing the income of farmers;
- Produce better quality products;
- Create rural employment, off-farm income opportunities and improve quality of life in rural areas;
- Assist small-scale agro-industrial enterprises to remain competitive in global markets; and
- Facilitate commercialization of agriculture and increase exports of processed and value added agro-products.

Integrated agro-industrial parks

An IAIP is a geographic cluster of independent firms grouped together to gain economies of scale and positive externalities by sharing infrastructure – roads, power, communication, storage, packaging, by-product utilization, effluent treatment, logistics and transport, laboratory facilities, etc. – and taking advantage of opportunities for bulk purchasing and selling, training courses and extension services. Multiple agro-processing functions take place in the IAIPs, such as final processing, storage, packaging, marketing and distribution. Support businesses and social infrastructure are also present.

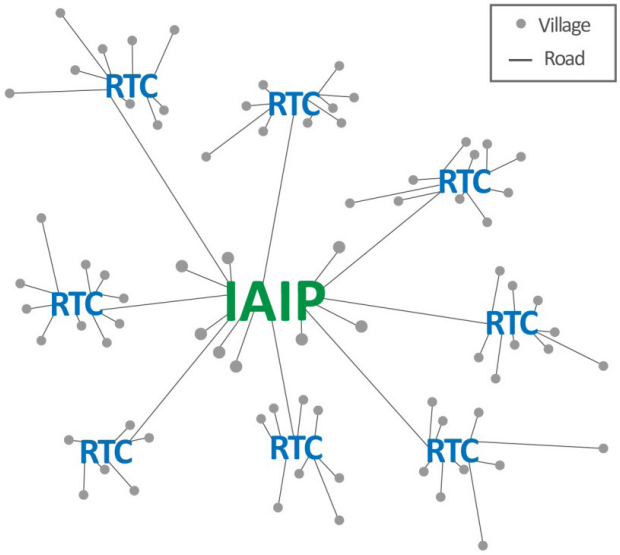
IAIPs will include open area production zones, controlled environment growing, precision farming, knowledge hubs and research facilities, rural hubs, agri-infrastructure, collection centres, primary processing hubs, RTCs, social infrastructure and agri-marketing infrastructure, among others.

IAIPs will have state of the art infrastructure. General infrastructure will include: roads, power, water, communications, drainage, sewerage, sewage treatment plant, effluent treatment plant, storm water drains, rain water harvesting, and firefighting facilities, among others. Specialized infrastructure will consist of cold storage units, quarantine facilities, quality control labs, quality certification centres, raw material storage, controlled and modified atmospheric storage, central processing centres, etc. In addition, infrastructure at the IAIPs will emphasize environmental sustainability.

Each IAIP is served by a network of rural transformation centres which provides linkages to producers. An RTC is a facility that provides integrated services to rural communities within a 100 kilometer radius of the proposed IAIP site. RTCs are rural development initiatives of the GoE which not only facilitate inclusive rural development, but also serve as a linkage to the IAIP in terms of raw material supply.

RTCs are geographic clusters of infrastructure and services, though on a smaller scale than IAIPs. Farmers and farmer groups deliver their produce and receive agricultural inputs. At the RTCs, agricultural produce is collected, sorted, stored and may undergo primary processing before onward transport to an IAIP. For most farmers, the RTCs are the main point of contact with commercial agricultural value chains. Apart from their primary functions, RTCs also offer small-scale financial services to farmers as well as basic social services.

Figure 1: IAIP and RTC connections



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 will cover 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 centers 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 will provide 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 will help rural communities to enhance productivity; produce premium vegetable, including high-demand vegetables such as capsicum; and cover areas such as dairy development, including raw milk marketing. These services will also target quality improvement by setting up agriculture input services, agriculture equipment support services, and agri-clinics, among others.
- Agro-food processing activities – Aims at developing food processing enterprises in rural areas, with an emphasis on improved agro-food product quality for local and overseas markets. This will 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.

The primary feature of IAIPs and RTCs is the clustering of essential infrastructure, utilities and services required by businesses to operate and grow. Clustering allows for economies of scale that lower transaction and overhead costs. In addition, economies of scale in terms of raw material inputs allow processing firms to operate at full capacity. 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. Furthermore, clustering allows the GoE to better introduce and monitor targeted incentive regimes to promote agro-industrial growth.

Clustering also lowers the overall cost of production by reducing post-harvest losses, transportation and energy costs, as well as ensuring higher returns due to high quality outputs, off season availability, better traceability and enhanced productivity.

Another key feature of the IAIPs and RTCs is innovation diffusion. IAIPs facilitate vertical and horizontal links between resident enterprises, as well as between enterprises and facilitating organizations, such as government support institutions, development partners and research institutes.

By disseminating knowledge, skills and innovation, the IAIPs and RTCs will contribute to the overall upgrading of the agro-industry sector and allow Ethiopian firms to compete more successfully at the regional and global levels. The benefits also reach the farmer and small-scale processor level, ensuring higher product quality from farm to fork, and integrating larger portions of the population into commercial agricultural value chains.

Increased integration with commercial value chains encourages the inclusion of informal economic actors into the formal system. IAIP and RTC facilities will also encourage SMEs to locate closer to the source of their raw materials, and ensure the spread of processing and manufacturing operations into less developed regions.

Linking smallholder farmers/producers

Linkage to smallholder farmers is a key feature of IAIPs and RTCs. Through aggregating produce from several farms into one location, IAIPs and RTCs are able to link smallholder farmers to large agricultural value chains. Such linkages serve two key functions: 1) to integrate raw material suppliers (smallholder farmers) with the demand side of the food chain in an efficient manner; and 2) to provide the appropriate raw materials to agro-industries (the major constraint affecting food processors in Ethiopia). This is essential for poverty reduction in rural areas and for the structural transformation of the economy.

The physical infrastructure of RTCs and IAIPs is complemented by contract farming. 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, and does 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 legally binding agreements with processors that cover production methods and technology; output quantity, quality and prices; and technical and financial support. 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 (e.g. seeds, fertilizers, equipment, finance and technical advice), and access to stable and more predictable markets, allowing for better expenditure planning and savings.

Integrating agro-allied industry companies

As commercial value chains become more integrated, there are greater benefits from specialization and an increasingly important role for agro-allied industry companies. Examples of such companies include those specialized in sales, distribution and transport, input supply, and food catering. By offering incentives, such as modest plot lease fees, financial assistance and training, the IAIPs or RTCs promote specialization and growth, generating important off-farm employment.

Lack of capital is currently the biggest challenge for these companies. Financial services for small-scale food processors to innovate or expand are only beginning to emerge, and credit from specialized banks remains minimal. IAIPs will facilitate access to finance through the presence of on-site financial institutions offering financial solutions catered specifically to agro-allied industry companies. Large-scale firms present in the IAIPs (and sometimes RTCs) can advance funds and operational equipment to smaller-scale firms, offering another option for access to finance.

Table 1: At a glance: Benefits of IAIPs and RTCs

Sectoral benefits	Types of benefits	Key beneficiaries		
		Farmers	Private companies	Government of Ethiopia
Agricultural inputs	• Timely availability of agricultural inputs of right quality and quantity	x	x	
	• Enhanced fodder and feed production	x	x	
	• Refined seed-production technologies	x	x	
	• Development of improved crop varieties/hybrids	x	x	
	• Development of improved cultivars and genetic resources	x		
	• Improved indigenous poultry breeds including strains	x		
	• Genetic up-gradation of indigenous /native cattle	x		x
	• Conservation and improvement of native animal genetic resources to maintain diversity of breeds	x		x
	• Improved production practices for focus crops	x	x	
Production and agro-processing	• High-density plantations, shade net cultivation, poly-house cultivation	x	x	x
	• Precision farming	x	x	
	• Diversification from traditional crops to plantations, orchards, vineyards, flowers and vegetable gardens	x	x	
	• Shift from subsistence to commercial farming	x	x	x
	• Increased milk production and milk processing capacity	x		
	• Energy management and utilization of both conventional and non-conventional energy sources in agricultural production and processing activities			x
	• Knowledge dissemination and technology transfer of international best practices and standards	x	x	x
	• Increased productivity of animal husbandry sector	x		x
	• Efficient, economic, eco-friendly and sustainable crop production and protection technologies	x		x
	• Implementation of international sanitary and hygiene standards and norms		x	x
	• Adoption of precision machinery and strategies for carrying out timely and efficient operations for agriculture, horticulture and livestock production			x

Sectoral benefits	Types of benefits	Key beneficiaries		
		Farmers	Private companies	Government of Ethiopia
Market and linkages	• Linkages among stakeholders such as farmers, industry, research and extension service providers	x	x	x
	• Supply chain alignment with domestic and international requirements	x	x	x
	• Improved branding and marketing	x	x	
	• Competitive and efficient marketing arrangements	x	x	x
	• Addressing the growing domestic and overseas markets for obtaining better prices	x	x	
	• Access to capital, technology, and support services such as credit, marketing, research and extension	x	x	
	• Minimized post-harvest losses and reduced wastage	x		
Investors	• World-class facilities at an affordable cost structure		x	
	• Access to common infrastructure facilities		x	x
	• Excellent facility management in IAIP		x	x
	• IAIP clusters create enabling institutional structures, facilitate flows of investment, technology, skill sets and modern management practices		x	x
	• IAIP brings together farmers, processors and retailers and links agricultural production to the market to ensure maximum value addition and minimal wastage	x	x	x
	• Research and development (R&D) in food processing for product and process development encouraged		x	x
	• Implementation of modern food processing technologies		x	
	• Special IAIP incentives provided by the Government		x	
Local economy	• Possibility to apply targeted policy towards achieving the GTP II vision and Sustainable Development Goal 9			x
	• Improved food security for the country and region			x
	• Increased industrial output and economies of scale		x	
	• Rural growth and employment for local population	x		x
	• Demand for ancillary jobs required for the IAIP's activity will help in development of industry in and around the area, and further advance industrialization of Ethiopia		x	x
	• IAIP clusters will attract agribusiness investment, creating employment opportunities for the local population and fostering sustainable inclusive economic growth	x	x	x

GENERAL DESCRIPTION OF SITES

The next section provides a general description of IAIP sites. This covers feasibility studies, site selection criteria, as well as options for the management, operations and governance of an IAIP. An outline of the features of the four pilot IAIP sites in Central Eastern Oromia, Southwest Amhara, Eastern SNNP and Western Tigray follows. The last section provides an overview of the financial costs for IAIP and RTC development.

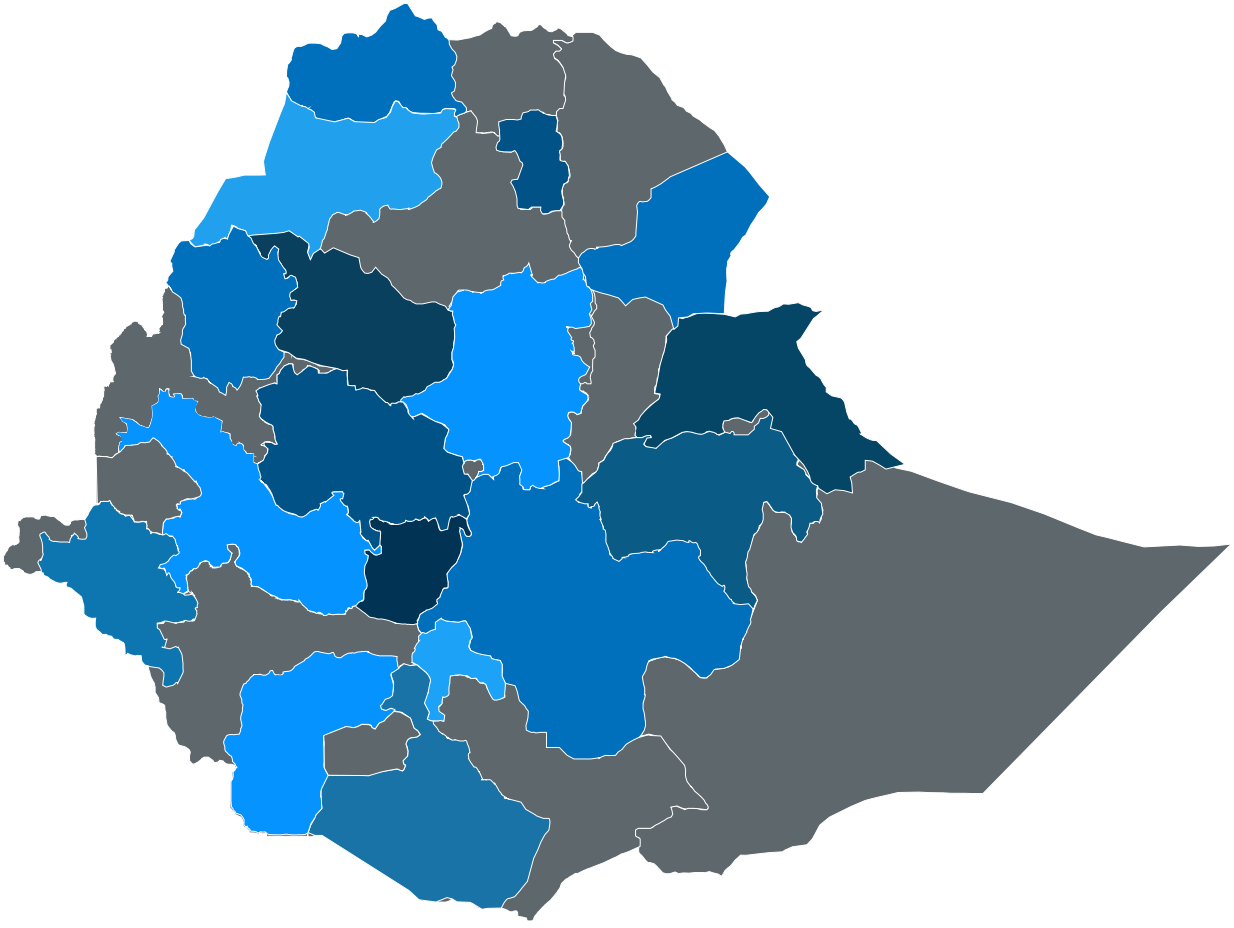
Feasibility studies

Feasibility studies for the establishment of four pilot IAIPs and 28 RTCs were undertaken. The feasibility studies were carried out as a collaborative effort between UNIDO, the Food and Agriculture Organization (FAO), the United Nations Development Programme (UNDP) and the GoE (comprising the Ministry of Industry, Ministry of Agriculture, and the Ministry of Finance and Economic Cooperation), with support from the Italian Development Cooperation.

The studies cover a range of aspects, including: agro- and allied sector potential in the selected areas; value chain analysis of prospective agriculture goods; conceptualization and configuration of IAIPs and RTCs; land selection for IAIPs and RTCs; zone definition, including land use patterns and agricultural production in the areas; analysis of commodity volumes; masterplans for the IAIPs and RTCs; list of infrastructure and facilities for IAIPs and RTCs, including gaps; preliminary environmental and social impact assessments; options for IAIP/RTC development and operations; cost of establishing IAIPs and RTCs, and revenue sources; means of finance; marketing and branding strategies for the IAIPs and RTCs; and risk mapping and risk mitigation strategies.

As part of the feasibility studies, 17 agro-industrial growth corridors (AIGC) were identified. One IAIP is planned to be developed in each of the AIGCs. Based on the results of the feasibility studies, the development of IAIPs and RTCs will take place in two phases. The first implementation phase began in February 2016 and will see four pilot IAIPs and 28 RTCs developed. The selected sites are in Central Eastern Oromia, Southwest Amhara, Eastern SNNP and in Western Tigray.

Figure 2: Agro-industrial growth corridors in Ethiopia



Site selection process

The four pilot IAIPs were selected on the basis of six broad criteria as described below.

1. *Agricultural production potential for strategic commodities:*

   The priority selection criterion was the availability and supply of raw materials – livestock, coffee, sesame, cereals, pulses, fruits and vegetables, and honey. Under this criterion, current and potential production, as well as the surplus of targeted commodities, was assessed.

2. *Inter-industry linkages and triggering effect:*

   This criterion focused on capturing the potential linkages with existing industries that could trigger further industrial development. Specifically, the existence of sugar plantation projects and factories, and exportable cash crop commodities were taken into account for the analysis.

3. *Infrastructure facilities:*

   The presence of power, road network, water, railways, airport terminals and telecommunication infrastructure were taken into account.

   - ***Power*** – Availability of power in the growth corridors was assessed based on the presence of power stations, sub-stations and transmission lines within or near the parks.

   - ***Road network*** – Road network densities for the corridors were assessed by examining national road network data from official national zonal administration boundaries.

   - ***Water*** – The availability of water was analyzed for both agriculture and industrial processing by considering the mean annual rainfall, availability of river systems, availability of natural and artificial reservoirs, and groundwater potential.

   - ***Railways, dry port, airport terminals and telecommunication*** – Railways and dry ports were evaluated considering the current and oncoming national networks/projects.

4. *Market potential:*

   A viable market for the products and services available in the park is essential for the successful establishment of enterprises and the long-term commercial viability of the park. The urban sector is assumed to be the prime market for industrial agro-processed products. Thus, the urban population size of each corridor and proximity of parks to urban centers is assessed.

5. *Access to commercial and support services:* Commercial and support services such as universities, research centers, technical vocational education and training centres; farmers' cooperatives and unions; and financial institutions are very important in providing services demanded by the park. Their proximity to the parks was assessed.

6. *Concentration of enterprises and attractiveness for investors:*

   The existence of an industrial base and facilities such as import/export logistics, housing, recreation centres, schools and other social facilities are very important for attracting investors/manpower and retaining those that may establish firms or work there. The density and proximity of these facilities was taken into account.

Figure 3: Location and key information for selected IAIPs

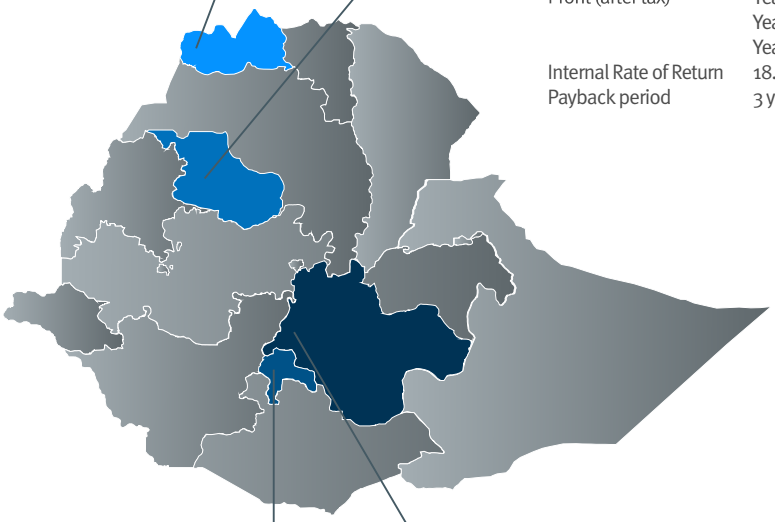
INTEGRATED AGRO-INDUSTRIAL PARKS (IAIPs)

TIGRAY - WESTERN TIGRAY (BAEKER IAIP)

Crop and livestock	Sorghum and sesame, fruits and vegetables, dairy, meat and other animal products.
Total Area of IAIP	258.62 Ha
Population	4.3 million
Grand total cost	US$ 232.83
Initial Investment	US$ 72.67 million
Investment over 4 years	US$ 181.18 million
Profit (after tax)	Year 1: US$ 122.48 million Year 2: US$ 54.49 million Year 3: US$ 6.04 million
Internal Rate of Return	17.09 % (13 years of operation)
Payback period	3 years

AMHARA - SOUTH WEST AMHARA (BURE IAIP)

Crop and livestock	Sorghum and sesame, fruits and vegetables, dairy, meat and other animal products.
Total Area of IAIP	260.35 Ha
Population	17.2 million
Grand total cost	US$ 227.58
Initial Investment	US$ 69.71 million
Investment over 4 years	US$ 173.81 million
Profit (after tax)	Year 1: US$ 84.7 million Year 2: US$ 53.8 million Year 3: US$ 5.9 million
Internal Rate of Return	18.23% (13 years operation period)
Payback period	3 years



OROMIA - CENTRAL EASTERN OROMIA (BULBULA IAIP)

Crop and livestock	Wheat, barley, haricots bean, fava bean, tomato, potato, fruits and vegetables, dairy, meat and other animal products.
Total Area of IAIP	263 Ha
Population	27.16 million
Grand total cost	US$ 233.12 million
Initial Investment	US$ 72.1 million
Investment over 4 years	US$ 69.71 million
Profit (after tax)	Year 1: US$ 84.4 million Year 2: US$ 53.9 million Year 3: US$ 5.96 million
Internal Rate of Return	18.23% (13 years operation period)
Payback period	3 years

SNNP - EASTERN SNNP (YIRGALEM IAIP)

Crop and livestock	Cereals, coffee, fruits and vegetables dairy, meat and other animal products.
Total Area of IAIP	214.86 Ha
Population	15.04 million
Grand total cost	US$ 176.21
Initial Investment	US$ 51.55 million
Investment over 4 years	US$ 128.53 million
Profit (after tax)	Year 1: US$ 61.42 Year 2: US$ 39.17 million Year 3: US$ 4.53 million
Internal Rate of Return	17.03% (13 years of operation)
Payback period	3 years

214.86 Ha

Management and operations options

The IAIPs are to be developed, managed and operated under investment-driven partnerships with the private sector. A corporation will be established at the regional level of each IAIP. These corporations will be registered as special purpose vehicles (SPVs). They can be a private company, a public company, or a public-private partnership.

SPVs can provide all or a combination of the following services based on the interests of the SPV participants:

a) On-site infrastructure development, including the rehabilitation, modernization, expansion, development and distribution of infrastructure and utilities, including gas, water, electricity, communication and roads, as well as:

   i. Provision of specialized agriculture infrastructure and services, including primary processing centres, storage facilities, etc.;

   ii. Provision of general services, including warehousing, transport, etc.; and

   iii. Provision of support infrastructure, social infrastructure and real estate services;

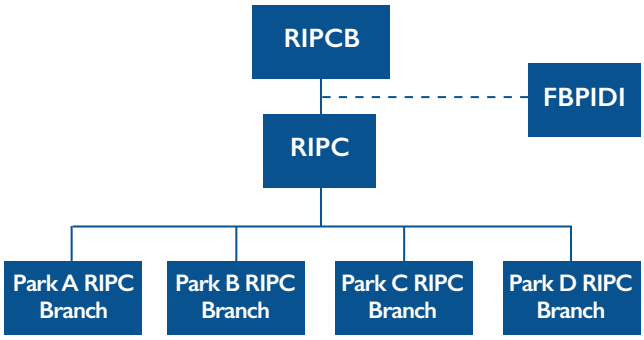
b) Overall IAIP site management, including management of various infrastructure on the site;

c) Collection of rent and fees for infrastructure utilization, specialized and general service provision, and facilities management; and

d) Promotion of the park to attract further investment.

Governance structure

Figure 4: Organigram of IAIP oversight structure



The Regional Industrial Park Corporation (RIPC) is the principal body and agency of the Regional Government, for the promotion, implementation and regulation of IAIPs and will be represented in each IAIP through a branch office. The RICPs will be responsible for developing a regional IAIP plan and regularly review; regulating and overseeing the development and operations of the IAIPs directly and through its IAIP offices; identifying and selecting actors (private and public) for the formation of the SPV; and developing and issuing guidelines and standards for the operations of the parks. The RIPCs are supported by the Food, Beverages and Pharmaceuticals Industry Development Institute (FBPIDI) under which a unit is established to provide capacity-building, resource mobilization and technical backstopping services.

The RIPC will be subject to oversight from the Regional Industrial Park Corporation Board (RIPCB), which will also be responsible for providing guidance, reviewing and approving plans and strategies, and overseeing the operations of the RIPCs. The RIPC branch office will undertake many of the RIPC duties at the park level and coordinate between actors at the regional IAIP level.

Features of the selected four IAIP sites

Information specific to each of the four selected sites is presented in the following tables.

Oromia – Central Eastern Oromia – Bulbula IAIP		
Location of IAIP		• Bulbulla town in East Shewa administrative zone
Size of IAIP		• 263 hectares considered for initial development
RTCs location		• Shashemene, Dodola, Robe, Bekoji, Eteya, Welenchiti, Meki & Biyo Biske
Agricultural potential and agri-facilities		• Availability of two operational sugar plantations • Concentration of fattening, dairy farms, abattoirs • Fishery potential, Koka dam, rift valley lakes (Zeway, Langano) • Wheat, barley, haricot bean, fava bean, tomato, potato, fruits and vegetables, dairy, fish, poultry, honey and meat
External infrastructure	*Energy*	• Substation at Ziway town at a distance of approximately 17.5 kms
	Water	• Water source – River Bulbulla – it is proposed to provide infiltration well, collection well and pump house near the river basin at an approximate distance of 2 kms • Concentration of lakes, surface water, water supply
	Road network	• The site abuts the federal highway connecting Addis Ababa & Awasa
	Railways, dry port, airport terminals	• Proximity to biggest airport terminal, dry port & Djibouti port • Bole International airport, Addis Ababa – 180 kms
	Telecommunication	• Telecom – communication facilities available in Bulbulla town can be extended
IAIP internal infrastructure details	*Raw materials required*	859,354 MTPA
	Growing area required	334,971 hectares
	Total processing area	239.73 hectares
	Total non-processing area	23.36 hectares
	Total area	263.09 hectares
	Length of road	14.06 km
	Total water demand	6,660 m^3/day
	Wastewater generation	4,504.77 m^3/day
	MSW generation	59.38 TPD
	Power demand	45.951 MVA

Amhara – South West Amhara – Bure IAIP		
Location of IAIP		• Bure town in West Gojjam administrative zone • The site is part of the proposed industrial master plan of Bure which renders the advantage of utilizing the industrial infrastructure
Size of IAIP		• 260.35 hectares considered for initial development • 1000 hectares identified in total
RTC locations		• Merawi, Finote Selam, Dangila, Enjibara, Chagni, Amanuel and Motta
Agricultural potential and agri-facilities		• Maize, sesame, potato, live animal (cattle, sheep, goat) dairy, meat, poultry and honey
External infrastructure	*Energy*	• The total estimated power demand of 46.82 MVA is to be met from Bure substation connected to the national grid situated at a distance of 4 kms from the proposed IAIP site
	Water	• Water demand will be met from the proposed infiltration gallery and pump house at River Yisr located at 3.5 kms from the project site
	Road network	• The site abuts the federal highway connecting Addis Ababa and Bahirdar
	Railways, dry port, airport terminals	• Airport – Bole International airport, Addis Ababa – 407 kms & Bahirdar airport – 156 kms
	Telecommunication	• Communication facilities available in Bure towncan be extended.
IAIP internal infrastructure details	*Raw materials required*	824,476 MTPA
	Growing area required	398,059 hectares
	Total processing area	245.11 hectares
	Total non-processing area	15.24 hectares
	Total area	260.35 hectares
	Length of road	9.31 km
	Total water demand	7,381 m^3/day
	Wastewater generation	4,928.73 m^3/day
	MSW generation	63.47 TPD
	Power demand	46.82 MVA

Tigray – Western Tigray – Baeker IAIP		
Location of IAIP		• Baeker town in Western Tigray administrative zone
Size of IAIP		• 258.62 hectares considered for initial development
RTC locations		• Maykadra, Setit-humera, Adigoshu, Adi-hirdi, Maygaba, Dansheha and Shire-Indaselassie
Agricultural potential and agri-facilities		• Sorghum, sesame, fruits and vegetables, dairy, meat and other animal products
External infrastructure	*Energy*	• Power source available – Humera substation – 34.8 kms
	Water	• River Samina – it is proposed to provide infiltration well, collection well and pump house near the river basin at an approximate distance of 1.6 kms
	Road network	• The site abuts the Gondar to Humera highway
	Railways, dry port, airport terminals	• Airport – Bole International airport, Addis Ababa – 951 kms, domestic Humera airport – 25 kms and Alula Aba Nega Airport, Mekele – 630 kms
	Telecommunication	• Communication facilities available in Humera town can be extended
IAIP internal infrastructure details	*Raw materials required*	897,522 MTPA
	Growing area required	52,4706 hectares
	Total processing area	233.18 hectares
	Total non-processing area	25.44 hectares
	Total area	258.62 hectares
	Length of road	13.87 km
	Total water demand	6,777.10 m^3/day
	Wastewater generation	4,659.68 m^3/day
	MSW generation	55.07 TPD
	Power demand	45.473 MVA

SNNP – Eastern SNNP – Yirgalem IAIP		
Location of IAIP		• Yirgalem in Sidama Adminstrative zone
Size of IAIP		• 214.86 hectares considered for initial development
Location of RTCs		• Dilla, Yirgachefe, Bule, Daye, Aletawondo and Hawela Tula
Agricultural Potential and agri-facilities		• Cereals, coffee, fruits and vegetables, dairy and meat and other animal products
External infrastructure	*Energy*	• Substation at Yirga Alem town at a distance of approximately 6 kms
	Water	• River Lagadara – it is proposed to provide infiltration well, collection well and pump house near the river basin at an approximate distance of 0.8 kms
	Road network	• The site abuts federal highway connecting Addis Ababa & Awasa
	Railways, dry port, airport terminals	• Bole International airport – 318 kms and Awasa airport – 50 kms
	Telecommunication	• Communication facilities available in Yirga Alem town can be extended.
IAIP internal infrastructure details	*Raw materials required*	387,305 MTPA
	Growing area required	163,461 hectares
	Total processing area	197.25 hectares
	Total non-processing area	17.61 hectares
	Total area	214.86 hectares
	Length of road	8.23 km
	Total water demand	4,634 m^3/day
	Wastewater generation	3,202.06 m^3/day
	MSW generation	44.93 TPD
	Power demand	36.46 MVA

Financial overview of IAIPs and RTCs

Table 2 presents the costs for the establishment of the four pilot IAIPs.

Table 2: Categories and indicative costs of IAIP development

Description	Park cost (US$ million)			
	Oromia	SNNP	Amhara	Tigray
Cost of land (land lease amount)	0.00	0.00	0.00	0.00
Site grading and other land development expenses	0.25	0.21	0.25	0.25
Compound wall, fencing and gates	0.57	0.80	0.52	0.52
Roads, culverts and drainage	9.57	5.30	8.07	11.52
Decentralized water supply, treatment and distribution	3.56	2.23	3.27	3.63
Electrical, street and fire lighting	1.17	0.94	0.90	1.07
Telecom and communications systems	0.22	0.13	0.15	0.22
Sustainable infrastructure elements, rain water harvesting, summer tank storage and greenery	0.49	0.38	0.40	0.52
Decentralized waste water, network and solid waste management	3.89	2.72	3.99	3.88
Buildings - Industrial/business	110.03	79.32	113.00	101.07
Buildings - Commercial	7.17	6.25	6.06	7.60
Buildings - Residential	11.58	7.31	6.98	19.24
Buildings - MEP	0.43	0.28	0.31	0.51
Buildings - Social infrastructure development	0.20	0.18	0.13	0.19
Specialized agri-infrastructure facilities within IAIP	1.58	1.58	1.58	1.58
Miscellaneous fixed assets	0.24	0.24	0.24	0.24
Manpower costs during pre-operation period	0.38	0.27	0.36	0.38
Preliminary expenses and company formation expenses	1.13	0.81	1.09	1.14
Project consultancy, detailed engineering and project supervision costs	2.26	1.62	2.19	2.28
Initial marketing and project launch costs	3.40	2.43	3.28	3.42
Pre-operation and other expenses	3.40	2.43	3.28	3.42
Contingency	15.09	10.79	14.59	15.20
Interest during construction	3.27	2.34	3.16	3.29
Total	**179.88**	**128.56**	**173.80**	**181.17**

Revenue streams

As part of the feasibility studies, an assessment of each site was undertaken in order to ascertain detailed estimated figures for business development. The below section outlines the results of the assessment, illustrating general revenue streams for IAIPs and RTCs (Table 3). These are general revenue streams common to all IAIPs and RTCs.

Table 3: Revenue streams for IAIPs and RTCs

Category	Details
Revenue from developed plots – industrial, residential, commercial and social zones	• The IAIP SPV offers a long-term leasehold /short-term lease/yearly lease/ monthly lease rental with the occupant industries /residential /commercial/ institutional area users. • Income generation from undeveloped land long-term leasehold /developed land – long- term leasehold, developed land-short term lease.
Revenue from built up space – Industrial, residential, commercial and social zones	• The IAIP SPV would enter into long-term leasehold /short-term lease/ monthly lease rental for usage of built up space with the occupant industries/ residential/commercial/institutional area users. • Income generation from built up space – long-term leasehold, built up space – short-term lease, built up space - monthly lease rentals are computed.
Revenue from facility management	• Fees collected for operation and maintenance from facility management of IAIP and RTCs.
Income generation from operations of specialized agri-infrastructure facilities	• Income from operations of specialized agri-infrastructure within IAIP covering a R&D hub, innovation centre and knowledge hub, warehouses, procurement centres, packing and labelling, grading and sorting, QA & QC lab, administrative building, R&D centre, etc. are computed.
Income generation from interest on deposits	• Interest income will also accrue to the IAIP SPV based on the deposits collected from occupant units and other deposits.

Table 4 outlines the main estimated sources of revenue for the four IAIPs.

Table 4: Indicative total revenue for IAIPs

Description	Park revenue (US$ million)			
	Oromia	SNNP	Amhara	Tigray
Undeveloped land long-term leasehold	0.00	0.00	0.00	0.00
Developed land long-term leasehold	25.24	15.44	24.65	27.05
Developed land yearly lease	8.90	6.35	9.04	8.41
Built-up space long-term leasehold	184.64	133.28	182.09	181.10
Monthly lease rental	98.13	70.87	96.72	96.19
Facility management	26.63	20.74	24.31	28.91
Other income	10.01	7.23	9.87	9.81
Income from direct operation of specialized services	14.50	14.50	14.50	14.50
Total	**368.05**	**268.41**	**361.17**	**365.98**

Means of finance

As part of the feasibility studies, means of finance and financial and investment models were addressed. Below is a general description of the financial resources for undertaking IAIP and RTC development.

Table 5: Financial details for IAIPs and RTCs

Category	Details
Means of finance	• The IAIP programme will be funded through several components: in the initial phase through equity and a term loan, and in the subsequent phases through internal accrual. Equity and term loan will vary depending on the park and investors business plan. • The term loan may 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.
Costs of operations	• The major components involved in the costs of operation are utility cost, 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 for power, water and fuel is considered in the overall costs of operation.
Financial expenses	• The interest rate considered for a term loan is 8.5 per cent per annum and is repaid in the 1st, 2nd, 3rd and 4th year of operation (i.e. two years after phase I development period). • Depreciation is calculated on a straight-line method and written down value method (income tax purpose) for determining the costs of operation and profitability. • The operating profit is positive right from the first year of operation. The amount spent on preliminary expenses is written off over a period of 13 years.
Internal rate of return	• By discounting the cash flows to the present value, the internal rate of return after tax is 17.09 per cent based on a 13-year operational period. The project equity and term loan are required only for phase I. Phases II and III are funded through internal accrual. • The internal rate of return calculation includes the cost of major maintenance and/or rehabilitation expected to be incurred during the period of assessment.
Debt service coverage ratio/ repayment of term loan	• The average ratio works out to 2.34 for the repayment period. The analysis indicates that the repaying capacity is satisfactory.
Projected cash flow statement	• During the construction period, funds are available as term loans and equity capital. In the 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 long-term loan. The surplus remains as cash bank balance and is deployed for meeting the capital expenditure of subsequent phases.
Payback period	• The payback period for the proposed IAIP would be three years for phase I investments, considering the investment for phases II and III through internal accrual.

Promotion

As part of the IAIP development, a promotional campaign will be carried out for IAIPs and RTCs to attract domestic and foreign investment.

A branding and advertising campaign will target potential actors, including IAIP and RTC developers and tenants interested in investing in the various components of the park, including the industrial zone/commercial zone, business zone, education zone, as well as specialized agri-infrastructure.

Branding is an important component of the marketing strategy. It will enhance the visibility of products made in an IAIP and will set it apart from other similar products; branding can communicate the type of business the IAIP is; and a strong brand can create loyalty and let customers know what to expect.

Marketing materials will be printed in various languages, such as Amharic, Arabic, Chinese, English, French, German, Italian, Korean and regional languages. Multiple modes of communication will be utilized to promote the IAIPs, including: website development; information packages for interested investors; branding for all communication and office supplies; promotional videos; articles in print media; and news stories on television and radio.

The GoE will play an important role in marketing the IAIPs. Ethiopian missions around the world will promote the IAIPs. Diplomatic missions in Addis Ababa will also be invited to briefing seminars on the IAIPs.

Environmental and social impact assessments

Another important component of IAIP and RTC development is the preparation of an environmental impact assessment report covering the following aspects:

- An environmental assessment of the IAIP and RTC areas, based on secondary data, and;
- A collection of primary data of the study area, including:
  - Establishment of baseline environmental conditions;
  - Identification and prediction of impacts;
  - Evaluation of impacts; and
  - Preparation of environment management plan.

A social impact assessment report will also be prepared covering the following aspects:

- Secondary data (social) of the study area;
- Collection of primary data of the study area, including:
  - Identification of project affected persons (PAPs) and project affected families (PAFs);
  - Establishing the socio-economic profile of the PAPs and PAFs;
  - Evaluation of resettlement and rehabilitation (R&R) aspects;
  - Suggestions on income restoration plan in line with the R&R policy guidelines of Ethiopia; and
  - Identifying employment and business potential opportunities for PAPs, PAFs and host communities in RTCs, IAIPs and in procurement and marketing activities.

Programme implementation

The implementation of the IAIP/RTC development programme will be led by the Government of Ethiopia, with UNIDO and other development partners playing support roles.

The programme will be guided by a Progamme Steering Committee (PSC). The PSC will provide overall strategic direction, decide on major issues and guide policy matters. The PSC will be composed of senior officials from the Ministry of Industry, the Ministry of Agriculture, the Ministry of Finance and Economic Cooperation, the Bureaus of Industry (BoI) from each region, the Agricultural Transformation Agency (ATA), private sector representatives, UNIDO, FAO and will be chaired by the State Minister of Industry.

A technical task force (TF) will be formed in each region. The TF will be composed of senior officials from BoI, Bureau of Agriculture (BoA), Bureau of Finance and Economic Development (BoFED), ATA, Cooperative Promotion Agency, and selected universities. The TF will be actively engaged in all regional matters in the implementation of the IAIP; it will be chaired by the Vice President and Head of the BoI of the region. UNIDO and FAO will assign a focal point for day-to-day activities in each region.

Specific roles are as follows:

The **Ministry of Industry (MoI)** leads the programme. Through the PCP framework, UNIDO will support the Ministry of Industry in their leadership role. The Ministry already assigned one senior official for daily follow-up and coordination of the activities of the programme. activities The Ethiopian Food, Beverage and Pharmaceutical Industry Development Institute and the Ethiopian Meat and Dairy Industry Development Institute, both under the MoI, will also play roles.

The **Ministry of Agriculture (MoA)** will play an important role in aligning the ongoing projects related to agricultural and rural transformation with those that provide support to the smallholder farmers. The MoA will assign focal points at the federal level to closely monitor the progress of the project. The focal points will be members of the PSC.

The **Ministry of Finance and Economic Cooperation (MoFEC),** in collaboration with the MoI and the MoA, will be responsible for the allocation of financial resources for project infrastructure development; coordination with regional governments to align their infrastructure towards the development of IAIPs; and for mobilization of financial resources from the Government and development partners for the implementation of the programme.

Each of the **regional governments** will play a crucial role in approving specific project documents, working with partners to develop incentive regimes for investors, appointing a focal point for the programme from the BoA, as well as providing financial support for the development of the IAIPs, supporting farmers through the regional BoA and land allocation. The regional BoAs will lead implementation of agricultural value chain-related activities, including the establishment and provision of technical support to smallholder farmers. The BoAs will also assign a focal point for the PSC.

The **Chamber of Industries** will represent the private sector and will support the mapping of the enterprises.

UNIDO and **FAO,** under the overall ownership and leadership of the MoI and MoA, will support the management of the programme. In this capacity, UNIDO will provide overall leadership for programme management and implementation, including the recruitment of a Programme Coordinator. UNIDO will also support the establishment of the Integrated Agro-Industrial Park Agency (IAIPA) to coordinate and design the IAIPs; build capacity of the IAIPA to manage and oversee operations of the IAIPs; allocate the land for the IAIPs; establish an implementation framework for the operation of the IAIPs and form SPVs for park management; and provide guidance for constructing the park, finalizing management and operations modalities, as well as incentives regime for the establishment of the IAIPs.

The activities of FAO will focus on building market linkages and strengthening the capacities of value chain actors to ensure a consistent supply of raw materials according to quantity and quality specifications. This will provide incentives for private sector actors to invest in IAIP development and/or to relocate to the park, once the enabling environment and infrastructures are in place. Value chains to be targeted will be selected from a short-list of value chains already identified as promising.

The way forward

Regional governments are responsible for the development of off-site infrastructure, the cost of which is estimated at US$ 35.19 million. Resources required for the development of the four IAIPs amount to US$ 663.41 million.

The Italian Development Cooperation is contributing EUR 1.45 million to a project jointly initiated by UNIDO and FAO, coordinated by UNIDO, which will support the establishment of the Bulbula IAIP in the Oromia region. Similar financial amounts are needed for the technical assistance required for the establishment of three IAIPs in South West Amhara (Bure IAIP), Eastern SNNP (Yirgalem IAIP) and Western Tigray (Baeker IAIP).

To meet these costs, the federal Government and the four regional Governments, with support from UNIDO and FAO, will mobilize resources from development finance institutions and the private sector.

If Ethiopia is to compete in an increasingly globalized market for agro-industrial products, it needs to create a favourable environment for the establishment and growth of agro-industrial firms. It is important that the Government facilitates private sector growth by providing incentives for domestic and foreign investors and for the development of supply chain infrastructure. This would have multiplier effects and greatly increase competitiveness across the entire agricultural sector. A well-integrated and coordinated approach to infrastructure development will be necessary to ensure proper utilization of infrastructure facilities across the supply chain.

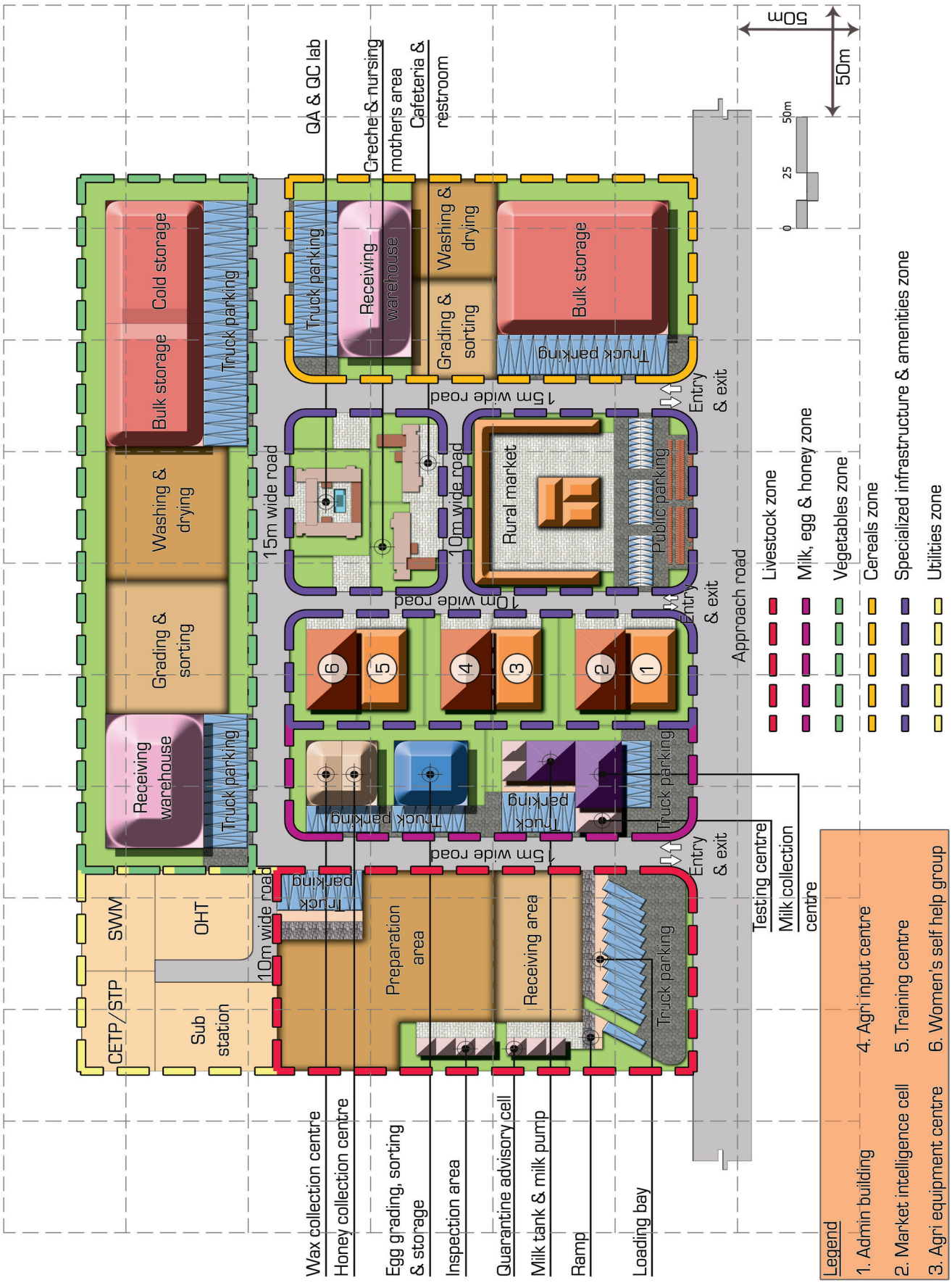
The Government, in conjunction with appropriate private sector agencies and development partners, will market this supply chain infrastructure opportunity to multilateral financial agencies and other infrastructure investors. Global processors and retailers need to be targeted, as they create linkages with the consumer, a feature that has previously been missing in Ethiopia's agribusiness development. The responsibility for such marketing will lie with the Ethiopian Investment Commission, the MoA, the MoI and the Ministry of Foreign Affairs. In the short- to medium- term, significant investments need to be made in construction, cold storage, value added centres, irrigation and agronomic practices.

Sample masterplan for integrated agro-industrial park – Bulbula IAIP, Oromia

Overall landuse pattern - Central Eastern Oromia - IAIP				
S.No	Particulars	Area in sqm	Area in hectares	Percentage
1	Total site area	2630898	263.09	100.00%
2	Processing zone	2397271	239.73	91.12%
3	Non processing zone	233627	23.36	8.88%
Landuse calculation				
S.No	Particulars		Area in hectares	Overall percentage
Processing zone		Area in sqm		
1. Functional area				
	Vegetables - raw material storage	12524	1.25	0.48%
	Vegetables - grading, packing & labeling	25047	2.50	0.95%
	Vegetables - finished goods storage	12524	1.25	0.48%
	Vegetable - anchor units	138574	13.86	5.27%
	Vegetable - processing units	326961	32.70	12.43%
	Vegetable - ancillary units	125848	12.58	4.78%
	Cereals - raw material storage	23297	2.33	0.89%
	Cereals - grading, packing & labeling	25047	2.50	0.95%
	Cereals - finished goods storage	25047	2.50	0.95%
	Cereals - anchor units	36504	3.65	1.39%
	Cereals - processing units	160377	16.04	6.10%
	Cereals - ancillary units	116651	11.67	4.43%
	Malt plant/ brewery intermediatory	62106	6.21	2.36%
	Livestock - rendering plant	40069	4.01	1.52%
	Livestock - anchor units	45310	4.53	1.72%
	Livestock - meat processing units	128313	12.83	4.88%
	Livestock - deep freeze cold storage	64651	6.47	2.46%
	Livestock - milk & dairy plant	47106	4.71	1.79%
	Livestock - value added dairy products	23553	2.36	0.90%
	Poultry- egg processing unit	29208	2.92	1.11%
	Poultry - egg storage	17898	1.79	0.68%
	Sub total	1486615.19	148.66	56.51%
2. Specialized infrastructure				
	CPC - centralized processing centre-pulping, aseptic packaging, botteling, canning, common packing & honey processing	37459.7823	3.75	1.42%
	IQF - individual quick frozen facility	18557.2655	1.86	0.71%
	Multi chamber cold storage	9278.6327	0.93	0.35%
	Boiler, chiller & compressor	18557	1.86	0.71%
	Pre cooling chambers	6261.7959	0.63	0.24%
	Vegetable preparation area	6261.7959	0.63	0.24%
	Potato cold storage	11927.4483	1.19	0.45%
	Sub total	108303.98	10.83	4.12%
3. Amenities				
	Q C & Q A lab	13997	1.40	0.53%
	Certification lab	13997	1.40	0.53%
	Truck lay bay, fuel station & weigh bridge	43285	4.33	1.65%
	Admin office & R&D centre	15474	1.55	0.59%
	Information kiosk & market intelligence cell	11349	1.13	0.43%
	Training centre	8551	0.86	0.33%
	Polyclinic	8616	0.86	0.33%
	Extension centre	34814	3.48	1.32%
	Car parking lots	8953	0.90	0.34%
	Sub total	159034.19	15.90	6.04%

5. Green space				
	Green buffer	264950.27	26.50	10.07%
	Sub total	264950.27	26.50	10.07%
6. Roads				
	30m wide road	135260	13.53	5.14%
	24m wide road	71508	7.15	2.72%
	18m wide road	25909	2.59	0.98%
	Sub total	232677.61	23.27	8.84%
	Total processing area	2397271.37	239.73	91.12%
S.No	Particulars			
	Non Processing zone	Area in sqm	Area in hectares	Overall percentage
1. Residential area				
	3 Bedroom units - 64 numbers	22523	2.25	0.86%
	2 Bedroom units - 48numbers	9243	0.92	0.35%
	Sub total	31765.85	3.18	1.21%
2. Amenities				
	School	25379	2.54	0.96%
	Crèche	14102	1.41	0.54%
	Places of worship	20112	2.01	0.76%
	Retail space	21079	2.11	0.80%
	Sub total	80671.39	8.07	3.07%
3. Utilities				
	Substation	20561	2.06	0.78%
	Sub total	20561.20	2.06	0.78%
4. Green space				
	Green buffer, park and play ground	59841	5.98	2.27%
	Sub total	59841.00	5.98	2.27%
5. Roads				
	30m wide road	3203	0.32	0.12%
	24m wide road	15785	1.58	0.60%
	10m wide road	21799	2.18	0.83%
	Sub total	40787.12	4.08	1.55%
	Total non processing area	233627	23.36	8.88%
	Grand total of IAIP area	2630898	263.09	100.00%

Sample masterplan for rural transformation centre – Bulbula IAIP, Oromia



Overall landuse pattern - Rural transformation centre - RTC				
S.No	Particulars	Area in sqm	Area in hectares	Percentage
1	Total site area	100000	10.00	100.00%
Landuse calculation				
Particulars		Area in sqm	Area in hectares	Overall percentage
1	Livestock zone	10165.00	1.02	10.16%
2	Milk, egg & honey zone	3657.48	0.37	3.66%
3	Vegetables zone	10700.00	1.07	10.70%
4	Cereals zone	5850.00	0.58	5.85%
5	Storage facility	12432.00	1.24	12.43%
6	Specialized infrastructure zone	14580.11	1.46	14.58%
7	Amenities zone	19008.82	1.90	19.01%
8	Utilities zone	6294.64	0.63	6.29%
9	Roads	13189.71	1.32	13.19%
10	Open space / greenery	4122.24	0.41	4.12%
1. Livestock zone		Built up area in sqm	Plot area in sqm	Type of structure
	Quarantine advisory cell	192	682.00	RCC structure
	Inspection area	256	968.00	RCC structure
	Receiving area	0	2448.00	Open yard
	Preparation area	0	6067.00	Open yard
	Sub total	448.00	10165.00	
2. Milk, egg & honey zone		Built up area in sqm	Plot area in sqm	Type of structure
	Milk collection centre & testing area	779	912.00	RCC structure
	Milk tank & milk pump	690	1110.00	RCC structure
	Honey & wax collection centre	840	1635.48	PEB structure
	Sub total	2309.00	3657.48	
3. Vegetables zone		Built up area in sqm	Plot area in sqm	Type of structure
	Receiving warehouse	2400	3500.00	PEB structure
	Grading & sorting shed	3000	3600.00	PEB structure
	Washing and drying	0	3600.00	Open yard
	Sub total	5400.00	10700.00	
4. Cereals zone		Built up area in sqm	Plot area in sqm	Type of structure
	Receiving warehouse	2099	2700.00	PEB structure
	Grading & sorting shed	1575	1575.00	PEB structure
	Washing and drying	0	1575.00	Open yard
	Sub total	3674.00	5850.00	
5. Storage facility		Built up area in sqm	Plot area in sqm	Type of structure
	Egg grading, sorting & storage	870	1332.00	PEB structure
	Bulk storage - Vegetables	2200	2750.07	PEB structure
	Cold storage - Vegetables	2200	2749.93	PEB structure
	Bulk storage - Cereals	4200	5600.00	PEB structure
	Sub total	9469.99	12432.00	

6. Specialized infrastructure zone		Built up area in sqm	Plot area in sqm	Type of structure
	Rural market	1636	4778.97	Open & paved area
	Admin building	738	1353.53	RCC structure
	Market intelligence cell	738	1375.00	RCC structure
	Agri equipment centre	738	1375.00	RCC structure
	Agri input centre	738	1375.00	RCC structure
	Training centre	738	1375.00	RCC structure
	Women's self help group	738	1364.48	RCC structure
	QA & QC labs	950	1583.13	RCC structure
	Sub total	7013.88	14580.11	
7. Amenities		Built up area in sqm	Plot area in sqm	Type of structure
	Truck parking	14105	14105	Open & paved area
	Public parking space	2533	2533.07	Open & paved area
	Crèche, & nursing mothers area	711	1185.48	RCC structure
	Cafeteria & restroom	711	1185.48	RCC structure
	Sub total	18060.44	19008.82	
8. Utilities		Built up area in sqm	Plot area in sqm	Type of structure
	Common effluent treatment plant & sewage treatment plant	0	1350	RCC structure
	Solid waste management	0	1350	RCC structure
	OHT - over head storage tank	0	1594.635	RCC structure
	Substation	0	2000	
	Sub total	0.00	6294.64	
9. Roads		Built up area in sqm	Plot area in sqm	Type of structure
	15m wide road	9728	9728.33	Bt road
	10 m wide road	3461	3461.38	Bt road
	Sub total	13189.71	13189.71	
10. Open space / greenery		Built up area in sqm	Plot area in sqm	Type of structure
.	Open space / greenery	0	4122.24	Landscaping
	Sub total	0.00	4122.24	
Total area		34490.70	100000.00	

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