PROJECT: ETHIOPIA INTEGRATED AGRO-INDUSTRIAL PARKS (SCPZ) SUPPORT PROJECT

COUNTRIES: ETHIOPIA

ESIA SUMMARY FOR THE 4 PROPOSED IAIPs AND RTCs LOCATED IN SOUTH WEST AMHARA REGION, CENTRAL EASTERN OROMIA REGION, WESTERN TIGRAY REGION AND EASTERN SNNP REGION, ETHIOPIA.

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1. INTRODUCTION

1.1. The Federal Democratic Republic of Ethiopia (FDRE) committed to a five-year undertaking, as part of the first Growth and Transformation Plan (GTP I) to build the foundation to launch the Country from a predominantly agrarian economy into industrialization. Among the sectors to which the second Growth and Transformation Plan (GTP II) gives emphasis is manufacturing and industrialization to provide the basis for economic structural change; and a central element in this strategy for transforming the industry sector is development and expansion of industrial parks and villages around the country.

1.2. The development of Integrated Agro Industrial Parks (IAIPs) and accompanying Rural Transformation Centres (RTCs) forms part of the government-run Industrial Parks Development Corporations (IPDC) strategy to make Ethiopia’s agricultural sector globally competitive. The concept is driven by a holistic approach to develop integrated Agro Commodity Procurement Zones (ACPZs) and IAIPs with state-of-the-art infrastructure with backward and forward linkages based on the Inclusive and Sustainable Industrial Development model. The concept of IAIPs is to integrate various value chain components via the cluster approach. Associated RTCs are to act as collection points for fresh farm feed and agricultural produce to be transported to the IAIPs where the processing, management, and distributing (including export) activities are to take place.

1.3. The purpose of IAIPs is to attract the private sector to set up food processing plants in areas of high agricultural production and thereby locally, add value to agricultural produce, link farmers to processing plants, reduce post-harvest losses and; create wealth for farmers, create jobs and drive rural economic growth in Ethiopia. The overall sector goal of the project is to help in poverty reduction, job creation and structural transformation of the Ethiopian economy through contributing to the development of the IAIPs. The specific objectives are to help facilitate substantial increase in agricultural value addition and drive productivity by supporting the establishment of modern agro-processing environments and build institutional capacity to manage agro industrial zones in Ethiopia.

1.4. An Integrated Agro-Industrial Park (IAIP) is a geographic cluster of independent firms grouped together to gain economies of scale and positive externalities by sharing infrastructure – roads, power, communication, specialized storage infrastructure, packaging, by-product utilization, effluent treatment, logistics and transport, quarantine facilities, quality control laboratory facilities, research facilities and knowledge hubs, etc. – and taking advantage of opportunities for bulk purchasing and selling, training courses and extension services. A network of Rural Transformation Centres (RTCs) which provides linkages between processors in IAIPs to producers and raw material supply will serve each IAIP. RTCs are intermediate infrastructure, placed closer to farming communities to provide services to the IAIPs and to the farmers. The RTC will provide integrated services to rural communities within a 100-kilometer radius of the proposed IAIP site. 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. Within the sphere of each RTCs are Agricultural Commercialization Centres (ACCs) located at the Kebeles to serve as bulking and sales points to farmer Cooperatives and Unions. The ACCs are, also aligned to the IAIPs and promote productivity by creating a pull effect to feed feedstock into RTCs or directly into IAIPs. The Ethiopian IAIP Programme therefore consists of modern agro ecosystems where farmers, processors, produce buyers, marketing institutions, exporters, research institutions, academic institutions, industrial bodies and government can engage in a seamless manner, for sustainable agro-business development.

1.5. The GoE is developing, concurrently, 4 IAIPs namely: Baeker (Western Tigray Region), Bulbula (Central Eastern Oromia Region), Bure (Southwest Amhara region) and Yirgalem (Eastern SNNP Region) and, with support from the Italian Development Cooperation Agency, the UNIDO and the FAO, has conducted various studies in respect of the four sites; culminating in Master plans, Feasibility Reports and Environmental and Social Impact Assessments/Resettlement Action Plans. Currently, the GoE and many Development Partners are engaged in various complementary activities towards the successful implementation and operation of the IAIPs.

1.6. The proposed Bank project, which will be implemented in the 4 pilot IAIPs and has, to date, mobilised co-financing of USD 63 million (more than 4 times Bank’s funding to the project), to complement the GoE in the development of physical infrastructure and in capacity development towards successful development of the IAIPs. The project will focus, especially, on infrastructure areas for which the GoE has been unable to finance and the critical development of the capacity of the young RIPCs to establish SCPZs and attract investors as well as the employability of young people in the IAIPs.

1.7. Categorization: The project is classified as Category 1 and under the Ethiopian Environmental Impact Assessment (EIA) Proclamation (No. 299/2002), the proposed Project requires an EIA and authorization by the Ministry of Environment, Forest and Climate Change (MEFCC) before any construction activities may commence. Due to the potential for international project financing the Environmental and Social Impact Assessment (ESIA) will be undertaken in line with the Ethiopian Environmental Legislation as well as the African Development Bank (AfDB) Integrated Safeguards System (ISS).

2. PROJECT SCOPE AND CHARACTERISTICS

2.1. AMHARA IAIP and RTC: The proposed Bure IAIP falls under the jurisdiction of Bure Town it is located approximately 2 km southwest of the town in the South West Amhara Region. While the RTC site falls under the jurisdiction of Motta town, in the Hulet Ej Enese Woreda which is located in the East Gojjam Zone of the Amhara Region. The site abuts the federal highway No. 3 which is approximately 400 km north of Addis Ababa and 150 km north of Bahir Dar. The site is part of the industrial master plan of Bure designated for industrial development, which renders the advantage of utilizing the industrial infrastructure such as power, water, storm water systems and road networks. The site is geographically located between 1182481.036 N to1184267.076 N, and 288737.915 E to 292314.594 E (UTM Coordinates) in the West Gojjam Zone of South West Amhara. The predominant land use on
the site is mixed farming. As per the land tenure of Ethiopia the land is owned by the government with land leased to farmers for agricultural and residential purposes.

2.1.1. The proposed Bure IAIP is a pilot facility with a site area of 260.56 hectares (ha) out of a total 1,000 ha of land that has been identified for potential use. Based on the success of the project the IAIP will be expanded within the remainder of the earmarked land. Note, this report only pertains to the assessment of the 260.56 ha pilot development. Future expansion of the IAIP will require separate environmental and social assessments to be undertaken. The growing area to be serviced by the IAIP is approximately 398,059 ha with the main farming activities in the area consisting of maize, sesame, potato, live animal (cattle, goat, sheep) dairy and meat, poultry and honey. The proposed Motta RTC site is located approximately 2 km west of the town of Motta 120 km southwest of Bahir Dar, and 266 km east of the Bure IAIP (by road via Bahir Dar). The proposed site falls under the jurisdiction of Motta town, in the Hulet Ej Enese Woreda, which is located in the East Gojjam Zone of the Amhara Region. The proposed RTC is located in close proximity to the federal highway no. 31 that links Dejen with Bahir Dar. The site is geographically located between 1224437.024 N to 1224883.549 N and 378948.322 E to 379342.918 E (UTM coordinates), with an elevation of approximately 2,487 m above sea level.

2.1.2. The Direct Impact Zone (DIZ) and the Area of Influence (AI) of the IAIP site consists of households, settlements and associated support infrastructure such as roads and electrical power lines as well as agricultural land including open grassland for grazing and production. The area includes mixed vegetation as well as the Yiser River, which runs parallel to the western boundary of the site as shown in the figure below.

The Motta RTC site is located approximately 100 m north of the Federal Highway No. 31 on the eastern edge of Motta. The site is surrounded by agricultural land (predominantly crops) to the north, east and south, with the area adjacent to the south west border of the site consisting of households, businesses and associated support infrastructure such as roads. A primary school is located adjacent to the western boundary of the proposed site. Additional settlements are located further north-west and west of the site.
2.1.3. The 260.56 ha IAIP is comprised of a processing area of 245.23 ha and a non-processing area of 15.33 ha. Most residents in the region are subsistence farmers with practices including the rearing of live animals as well as growing several crop types. The IAIP is designed to focus on processing cereals, sesame, vegetables, livestock as well as the brewery / malt processing industry. The IAIP includes the associated infrastructure required to effectively process all the materials. These include water and electrical supply infrastructure, sewage treatment works, roads and storage areas and the like. Quality control and assurance facilities are also included within the park along with support and training facilities. The non-processing area of the site includes a residential area as well as supporting facilities such as a school, places of worship and commercial areas. The park also includes greenery and open spaces making up approximately 12% of the total area. A site layout of the IAIP is shown in the figure below.

2.1.4. Water Requirements: During the design process it was established that there is no existing water supply network available in the vicinity of the site. However, it was noted that the Yiser River flows in close proximity (approximately 100 m) to the western boundary of the site. Discussions with the authorities were undertaken and it was identified that there is no possibility for withdrawing water from the River to supply the IAIP due to the dependency of farmers in the lower areas on the river feeding the downstream agricultural areas. Water supply to the area is currently provided through a network of bore wells sunk in and around the town of Bure. There is no surplus water available from this existing scheme to supply the IAIP. A minimum of 6 bore wells, with a 300 mm diameter and depth of up to 100 m, are proposed be installed in the IAIP (or nearby depending on the yield of the bore wells). To facilitate the adequate supply of water to the IAIP suitable water storage structures, in the form of ground level storage reservoirs (GLSR) and elevated level storage reservoirs (ELSR) with associated pump house and water treatment plant, are to be established within the IAIP. The proposed infrastructure is to facilitate receiving raw water, treating the water, collecting and storing the treated water (in the GLSR and ELSR respectively) for further distribution.
within the IAIP. An area of 1.03 ha is earmarked for the construction of the water treatment plant, GLSR and ELSR and pump house within the eastern portion of the IAIP. The design also includes a ‘summer storage tank’ for the capturing and storage of summer rainfall for use in the IAIP. A suitable water treatment plant is to be established to treat the water supply in order to meet the acceptable limits of water quality as per Ethiopian drinking water standards.

2.1.5. A sewage treatment plant (STP) and common effluent treatment plant (CETP) are to be established within the western portion of the IAIP with a second STP located in the eastern portion of the site. It is anticipated that wastewater will be treated and recycled in the operational process. Furthermore, sanitary wastewater from toilets and urinals shall be collected in an underground sewer system that is to be constructed as part of the processing plant’s sanitary facilities. A self-contained treatment system is to be put in place to treat sanitary water. Treated wastewater is to be re-used in the production process as non-potable water.

2.1.6. Electricity: The anticipated total power demand for the IAIP during operation is anticipated to be 46.82 MVA. The total power demand is to be sourced from Ethiopian Electric Power (EEP) via the Bure substation, located approximately 4 km from the proposed site. To meet the required power demand it is proposed that a new 132 kV dedicated overhead power transmission line is established from Bure substation to the proposed substation within the IAIP eastern portion of the site.

2.1.7. Ancillary Facilities: The IAIP includes a truck lay bay, weighbridge and fuel station. The storage of fuel will therefore take place on site. The proposed site abuts the federal highway no. 3 connecting Addis Ababa and Bahir Dar. No specific infrastructure intervention is proposed regarding transportation routes and access roads. The site has no connectivity by railway and the nearest airports are Addis Ababa and Bahir Dar which are approximately 407 km and 156 km from the site respectively. All internal roads will be constructed and maintained by the IPDC while the FDRE is responsible for establishment and maintenance of the roads outside of the IAIP. It is proposed to bring in a 132 kV overhead power transmission line from the Bure substation, which is connected to the national grid, to a substation to be established on site for the provision of electrical supply to the IAIP.

2.1.8. The Motta RTC\(^1\) site covers an extent of 9.11 ha which mainly consists of agricultural land, predominantly teff. Two dwellings are noted to exist on the site along with a 33 kV power line that runs across the centre of the site in a southeast-northwest direction as well as a dirt track, which transects the site from the south-western corner to the north-eastern corner. A number of drainage lines cross the site, running in a north-westerly direction. A dirt track and drainage line run along the southern boundary of the site. The RTC is to be focused on fruits, vegetables, cereals, livestock, milk and honey. Furthermore, the RTC is planned to include a quality control laboratory, agri-input centre, and social infrastructure such as a training centre and crèche. The social infrastructure provides the necessary support for the occupant industries in the RTC. Layout of the RTC showing its boundaries is shown in the figure below.

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\(^1\) An RTC is a facility where rural communities are able to take their products (i.e. vegetables, fruits, coffee, livestock etc) for sale. The products are in turn forwarded in bulk to the IAIP for further processing.
2.1.9. In Motta, water is supplied to the town of Motta by the Motta Water Supply and Services Enterprise (MWSSE) supply network. The estimated water demand for the RTC is estimated to be 85 m$^3$/day, including potable and non-potable water requirements. To facilitate the continuous provision of water to the RTC it is proposed that suitable water treatment and storage structures (i.e. 90 m$^3$ underground sump, water treatment plant, 15 m$^3$ ELSR tank) and pump house be established within the site for receiving, treating and storing water for further distribution within the RTC. A Sewage Treatment Plant is to be established within the RTC which will treat the operational waste water generated within the RTC to a standard that is suitable for the treated waste water to be recycled in the operational processes. Furthermore, sanitary wastewater from toilets and urinals shall be collected in an underground sewer system that will be constructed as part of the processing plant’s sanitary facilities. A self-contained treatment system will be put in place to treat sanitary water. As part of this treatment process, sludge is to be removed and disposed of by a licensed contractor when required.

2.1.10. Motta town does not have an existing sanitary landfill facility. There are no immediate plans for Motta to develop a sanitary landfill facility however the Motta master plan does identify land for the construction of a formalized waste management site however specific detail as to the nature of waste to be handled at the facility is not provided. Sludge handling and the disposal thereof is to be addressed in the ESIA. Treated wastewater is to be re-used in the production process as non-potable water. The total power demand for the RTC is anticipated to be 1.2 MVA. It is proposed that the total power demand be sourced from the EEP via the existing 33 kV power line passing across the central section of the site. The existing 33 kV overhead power line is to be relocated to run around the site (i.e. not cross the RTC site). During this process electrical infrastructure is to be connected to the proposed substation to be established on site.
2.1.11. **Transport and Communication:** The RTC includes a truck lay bay area where it is anticipated that trucks will be able to refuel. Entrance to the RTC is to be obtained from the south-west corner of the site via a secondary road leading off the federal highway no. 31. Traffic will then exit the RTC from the southeast corner of the site. Two additional entry and exit points are identified for future establishment, along the northern boundary of the site. Communication facilities available in the town of Motta are to be extended to the site. The installation of pipelines or infrastructure associated with the communication facilities is to be undertaken by the FDRE.

2.2. **SNNP IAIA AND RTC:** The proposed Yirga Alem IAIP is located approximately 5 km to the southwest of the town of Yirga Alem in the Eastern SNNP Region, and approximately 1.5 km from the federal highway no. 8 which runs through the town of Aposto. The site is situated approximately 318 km from the capital city, Addis Ababa. Awassa is located approximately 45kms north of the site and Dilla approximately 52 km to the south. The location of the site affords it the opportunity to utilise the developed social infrastructure in terms of banking, financial, recreational and logistics support in the area. The site is geographically located between 742986.866 N to 745714.474 N, and 427277.856 E to 428892.869 E (UTM Coordinates) in the Sidama Zone and falls under the jurisdiction of Yirga Alem town.

2.2.1. **The proposed Yirga Alem IAIP is 214.86 hectares (ha) in extent.** The IAIP is anticipated to be a pilot facility with the intended extent of development to ultimately reach a total 1,000 ha. Based on the success of the project the IAIP will ultimately be expanded within the remainder of the earmarked land. Note, this report only pertains to the assessment of the 214.86 ha pilot development. Future expansion of the IAIP will require separate environmental and social assessments to be undertaken. The growing area to be serviced by the IAIP is approximately 163,461 ha with the main farming activities in the area consisting of cereals, coffee, fruits and vegetables, dairy and meat and other animal products. The predominant land uses on the site include farming (pastoral, crops and forestry) and residential activities. Large portions of the site consist of open grassland used for grazing with portions of the land containing dwellings and associated crops farming practices and plantations, predominantly *Eucalyptus*. There is an existing medical facility, school, agricultural training facility and agriculture cooperative facility situated on the proposed site.

2.2.2. **The Direct Impact Zone (DIZ) and the Area of Influence (AI) of the IAIP site** consists of households, settlements and associated support infrastructure such as roads and electrical power lines as well as agricultural land. Furthermore the area includes mixed vegetation as well as the Gidabo River and large areas of barren land mainly associated with erosion. The image below gives an impression of the proposed site for the IAIA and RTC.
2.2.3. The 214.86 ha IAIP comprises a processing area of 195.68 ha and a non-processing area of 19.18 ha. Most residents in the region are subsistence farmers with practices including the rearing of cattle as well as growing several crop types, however coffee is the most popular agricultural product in the zone. The IAIP designed to focus on processing coffee along with vegetable and fruits, livestock, cereals, poultry and honey. The IAIP includes the associated infrastructure required to effectively process all the materials. These include water and electrical supply infrastructure, sewage treatment works, roads and storage areas and the like. Quality control and assurance facilities are also included within the park along with support and training facilities. The non-processing area of the site includes a residential area as well as supporting facilities such as a school, crèche, place of worship and health clinic. The park also includes greenery and open spaces making up approximately 15% of the total area. A proposed layout for the Yirga Alem IAIP is shown below.
2.2.4. **Water Requirements at the IAIP:** During the design process it has been established that there is no existing water supply network available in the vicinity of the site. It was noted that the Gidabo River flows parallel to the site in close proximity, approximately 500 m, of the western boundary. Discussions with the authorities were undertaken by MACE whereby it was identified that there is no possibility for withdrawing water from the Gidabo River due to the dependency of farmers in the lower areas on the river feeding the downstream agricultural areas. Furthermore, it was determined that the costs associated with the continuous electrical consumption required to pump the water to the site was economically not viable. Water supply to the area is currently provided through a network of bore wells sunk in and around the town of Yirga Alem. During discussions with authorities, undertaken by MACE, it was identified that there is no surplus water available from this existing scheme to supply the IAIP. It is proposed that 12 bore wells, with a 300 mm diameter and depth of 150 m, be installed in the proposed site (or nearby depending on the yield of the bore wells). The estimated average daily water demand for the IAIP was calculated, including...
potable1 and non-potable2 water requirements. The proposed bore wells are to be installed in a phased manner so as to meet the required water demand at the various phases of the development.

2.2.5. **To facilitate the adequate supply of water to the IAIP suitable water storage structures in the form of:**

- One ground level storage reservoirs (GLSR) with a capacity of 5000 m³ for the storage of potable water;
- Two elevated level storage reservoirs (ELSR) with a staging height of 16 m and storage capacities of 400 m³ and 200 m³ for the storage of potable and non-potable water respectively; and
- One underground sump (UGS), with a storage capacity of 1250 m³, for the storage of treated water (i.e. non-potable water) from the sewage treatment plant.

A pump house and water treatment plant, are to be established within the IAIP to facilitate receiving raw water, treating the water, collecting and storing the treated water in the GLSR and ELSR for further distribution. An area of 1.71 ha is earmarked for the construction of the water treatment plant, GLSR and ELSR and pump house within the central portion of the IAIP. The design also includes a ‘summer storage tank’ for the capturing and storage of summer rainfall for use in the IAIP. A suitable water treatment plant is to be established to treat the water supply in order to meet the acceptable limits of water quality as per Ethiopian drinking water standards.

2.2.6. **Waste Water:** A sewage treatment plant (STP) and common effluent treatment plant (CETP) are to be established within the south-eastern portion of the IAIP with a second STP located in the northern portion of the site. It is anticipated that wastewater generated by processing activities will be recycled. Sanitary wastewater from toilets and urinals shall be collected in an underground sewer system that is to be constructed as part of the processing plant’s sanitary facilities. A self-contained treatment system is to be put in place to treat sanitary water. Treated waste water is to be re-used in the production process as non-potable water.

2.2.7. **Solid waste:** Waste minimization, recycling and treatment processes shall be included in the IAIP facility operational requirements.

2.2.8. **Electricity:** The total power demand for the IAIP during operation is anticipated to be 38.10 MVA. The total power demand is to be sourced from Ethiopian Electric Power (EEP) via the existing Yirga Alem substation, located approximately 6 km north-west from the proposed IAIP, and a second 400 kV Yirga Alem substation (currently under construction), located approximately 6 km southeast of the site.

2.2.9. **The proposed Dilla RTC site is located approximately 4 km south of the town of Dilla and approximately 52 km south of the Yirga Alem IAIP.** The proposed site falls under the jurisdiction of Dilla town, in the Dillazuria Woreda which is located in the Gedeo Zone of the Eastern SNNP Region. The proposed RTC is located adjacent to the federal highway no.8 (Shashamane to Hagere Mariam) which is part of the Cairo-Cape Town Trans-African Highway 4. The site is geographically located between 704923.960 N to 705329.760 N and 423299.970 E to 423675.270 E (UTM Coordinates). The site abuts the federal highway no. 8, along the western boundary. The site is located just south of the edge of Dilla, and is surrounded by agricultural land, low to medium density residential areas. Associated support infrastructure, such as roads and electrical power lines, run adjacent to the site as well as north and south toward Dilla and Gwangwa respectively. The area includes agricultural land.
consisting or open grassland for grazing, integrated crop production and plantations (predominantly Eucalyptus) as well as natural vegetated areas. The area around the site is densely vegetated however mostly consists of various types of agricultural crops including coffee, avocados, mangoes, bananas and pineapples amongst others. There is a higher concentration of residential dwellings adjacent to the highway however dwellings are scattered in the area surrounding the site. The layout below shows the existing features at the proposed RTC.

### 2.2.10.

The RTC is to be focused on coffee, fruits, vegetables and cereals and livestock as well as milk, egg and honey. Furthermore the RTC contains agri-business, commercial and social infrastructure which includes processing facilities, training centres as well as health centres. The social infrastructure provides the necessary support for the occupant industries in the RTC. Water is supplied to the town of Dilla by the Ethiopian Water Supply and Services Enterprise (EWSSE) supply network. The total average daily water demand for the RTC is estimated to be 104 m³/day, including potable⁴ and non-potable⁵ water requirements. To
facilitate the continuous provision of water to the RTC it is proposed to construct an underground sump (UGS) with a capacity of 90 m$^3$ to receive and store the total daily requirement of potable water from the proposed water treatment plant. The water is to then be pumped and stored in an ELSR, with a staging height of 12 m and a storage capacity of 15 m$^3$. A second UGS with a capacity of 90 m$^3$ is to be constructed to receive and store the total daily requirement of non-potable water from the proposed sewage treatment plant. Associated with the second UGS it is proposed that a second ELSR, also with a storage capacity of 15 m$^3$, is to be established for non-potable water for further distribution. Two pump houses are to be constructed to accommodate the pumping requirements for the transfer of the potable and non-potable water. Two potential water sources have been identified for the supply of water to the RTC, these are namely the existing bore well, of 150mm diameter to a depth of 102 m, located within the site or a natural spring located approximately 3 km from the proposed site. The existing bore has however been indicated to not be in a working condition and would have to be restored to working order. The authorities are reportedly in the process of establishing infrastructure for the supply of water from the identified natural spring to the area. The establishment of such infrastructure would allow for the provision of water from the spring to the RTC site. A water treatment plant is to be established within the RTC to treat the water to meet the required water quality as per the Ethiopian drinking standard.

2.2.11. The total electrical power demand for the RTC is anticipated 1.157 MVA. It is proposed that the total power demand can be sourced from EEP via the existing 33 kV power line passing across the northern section of the site. The existing 33 kV overhead power line is to be moved to run around the site. During this process electrical infrastructure is to be connected to the proposed substation to be established on site.

2.3. OROMIA IAIA AND RTC: The proposed Bulbulla IAIP site is located within the Oromia Region, which is one of the nine regional state members of the FDRE established by the 1995 constitution provisions. Administratively, Oromia is divided into 20 administrative zones and 261 Woredas. Important cities and towns in the Oromia region include: Adama, Ambo, Asella, Bishoftu, Chiro, Dembidolo, Fiche, Gimbi, Robe, Goba, Dello Buna, Jimma, Metu, Negele Boran, Moyale, Nekemte, Shashamane, Haramaaya and Waliso. The IAIP site falls under the jurisdiction of Bulbulla Town within the East Shewa administrative zone which is located in the Central Eastern Oromia Region, connecting the western regions to the eastern ones. This zone is bordered on the south by the West Arsi Zone, on the southwest by the SNNP Region, on the west by South west Shewa and Oromia Special Zone Surrounding Finfinne, on the northwest by North Shewa, on the north by the Amhara Region, on the northeast by the Afar Region, and on the southeast by Arsi. The main towns and cities in East Shewa include: Bishoftu (Debre Zeit), Metehara, and Ziway and 12 Woredas: Ada’a, Adama Zuria, Adami Tullu and Jido Kombolcha, Bora, Boset, Dugda, Fentale, Gambichu, Liben, Lome, Ziway Town.

2.3.1. The proposed Bulbulla IAIP falls under the jurisdiction of Bulbulla Town within the East Shewa administrative zone in the Central Eastern Oromia Region. The site abuts the federal highway No. 7 connecting Addis Ababa and Awassa which are approximately 180 km north and 85 km south of the site respectively. As the proposed site is located approximately 4 km north of Bulbulla town, and approximately 20 km south of Ziway Town, it allows the proposed development to make use of the existing social infrastructure in terms
of banking, financial, recreational and logistics support. The site is geographically located between 856019.4476 N to 858304.6467 N, and 458642.0520 E to 460744.7941 E. The proposed Bulbulla IAIP is 263.007 hectares (ha) in extent. The IAIP is anticipated to be a pilot facility with the intended extent of development to ultimately reach a total 1,000 ha. The extension of the IAIP area will be based on the success of the project. This report only pertains to the assessment of the 263 ha pilot development. Future expansion of the IAIP will require separate environmental and social assessments to be undertaken. The growing area to be serviced by the IAIP is approximately 334,971 ha with the main farming activities in the area consisting of wheat, barley, haricot bean, fava bean, tomato, potato as well as dairy, fish, poultry, honey and meat production. The predominant land uses on the site include farming (pastoral and crops) and residential activities with dwellings distributed across the site.

2.3.2. The Direct Impact Zone (DIZ) and the Area of Influence (AI) of the IAIP site consists of households, settlements and associated support infrastructure such as roads and electrical power lines as well as agricultural land including land for crop production and open grassland for grazing. The area includes mixed vegetation as well as the Bulbulla River, located approximately 1 km east of the proposed site. The figure below shows the location of the IAIP.

2.3.3. Water supply to Bulbulla town is currently provided through a network of bore wells sunk in and around the town. The Bulbulla River flowing to the south of the site supplies the nearby agricultural fields. It was identified that there is no existing water supply network available in the vicinity of the site and that the river water is meant only for agricultural purposes and cannot be used for industrial purposes. To meet the water demand it was proposed that a minimum of 15 bore wells, with a 300 mm diameter and depth of up to 150 m, be installed in the IAIP or nearby vicinity depending on the actual yield of the bore wells. The IPDC undertook a drilling programme at the beginning of 2018 as a potential means of water supply for the Bulbulla IAIP site. Upon completion of the
drilling, a pump test was conducted on the borehole in order to determine the hydraulic parameters of the aquifer units intersected and the safe abstraction yield for the borehole. A water quality sample was collected at the end of the constant discharge test and submitted to Oromia Water Works Design and Supervision Enterprise laboratory for chemical analysis. The proposal is to install the required bore wells in a phased manner so as to meet the required water demand at the various phases of the development.

2.3.4. To facilitate the adequate supply of water to the IAIP suitable water storage structures in the form of ground level storage reservoirs (GLSR) and elevated level storage reservoirs (ELSR), with associated pump house and water treatment plant, are to be established within the IAIP to facilitate receiving raw water, treating the water, collecting and storing the treated water (in the GLSR and ELSR respectively) for further distribution. An area of 2.52 ha is earmarked for the construction of the water treatment plant, GLSR and ELSR and Pump House within the IAIP. The design also includes a ‘summer storage tank’ for the capturing and storage of summer rainfall for use in the IAIP. A suitable water treatment plant is to be established to treat the water supply in order to meet the acceptable limits of water quality as per Ethiopian drinking water standards.

2.3.5. The proposed Shashemene RTC site is located on the northern edge of the town of Shashemene, 27 km north of Awassa, and 65 km south of the Bulbulla IAIP. The proposed site falls under the jurisdiction of Shashemene town, in the Shashemene Woreda which is located in the West Arsi Zone of the Central Eastern Oromia Region. The proposed RTC is located in close proximity to the federal highway no. 7 that links Addis Ababa with Awassa. The site is geographically located between 798692.665 N to 799112.659 N and 455882.924 E to 456165.923 E (UTM coordinates). The location of the RTC is shown in the figure below.

2.3.6. The Shashemene RTC site covers an area of 10.108 ha which consists of agricultural land (crops), occasional trees and a dirt cart track that runs through the centre of the site in a north-south direction. No dwellings are noted to exist on the site, however a grave site / tomb is located in the south-eastern portion of the site. The RTC is to be focused on
fruits, vegetables, cereals, livestock, milk, eggs and honey. Furthermore, the RTC contains a quality control laboratory and other social infrastructure such as a rural market, training centre and crèche. The social infrastructure provides the necessary support for the occupant industries in the RTC. Water is supplied to the town of Shashemene by a series of 3 bore wells. It has been identified that there is no surplus water available in the existing scheme to supply the RTC. The estimated water demand for the RTC is expected to be 107 m$^3$/day, including potable$^5$ and non-potable$^6$ water requirements. It is therefore proposed to sink one deep bore well within the RTC site to meet the required demand. To facilitate the adequate supply of water to the RTC suitable water storage structures in the form of an underground sump, elevated level storage reservoirs (ELSR) and pump house are to be established within the RTC to facilitate receiving raw water, treating the water, collecting the treated water and storing the water in an ELSR for further distribution. An area of 0.12 ha is earmarked for the construction of the water treatment plant, underground sump, pump house and ELSR within the RTC.

2.4. TIGRAY IAIA AND RTC: The proposed Baeker IAIP site is located within the Tigray Region, which is the northernmost of the nine regions of Ethiopia. Tigray is known as Region 1 according to the constitution provisions established by the FDRE in 1995. Its capital and largest city is Mekele. The Tigray Region includes seven administrative zones, namely; the Southern Admin Zone, Eastern Admin Zone, South-East Admin Zone, Mekelle Admin Zone, Central Admin Zone, Western Admin Zone and North-west Admin Zone. The project area falls within the Western Admin Zone in the Kafta Humera Woreda which covers both Baeker and Mai Kadra towns. As the IAIP and RTC sites are located in Baeker and Mai Kadra towns respectively, the Project area is in close proximity to the Eritrean and Sudanese Borders.

2.4.1. The proposed Baeker IAIP falls under the jurisdiction of Baeker Town of the Kafta Humera Woreda within the Western administrative zone in the Tigray Region. The site abuts the highway which connects Gondar and Humera which are approximately 220 km southeast and 35 km northwest of the site respectively. As the proposed site is located close to Humera, the major town of the zone, it allows the proposed development to tap into the existing social infrastructure in terms of banking, financial, recreational and logistics support. The town of Baeker, located approximately 10 km southeast of the site, has also been identified to provide support to a limited extent. The site is geographically located between 1551441.444 N to 1553690.188 N, and 258456.447 E to 260555.195 E (UTM coordinates).

2.4.2. The proposed Baeker IAIP is 255.14 hectares (ha) in extent. The IAIP is anticipated to be a pilot facility with the intended extent of development to ultimately reach a total 1,000 ha. Based on the success of the project the IAIP will ultimately be expanded within the remainder of the earmarked land. Note, this report only pertains to the assessment of the 255.14 ha pilot development. Currently the land is used solely for agricultural purposes, predominantly the production of sesame and sorghum crops. There are no dwellings on the site nor other social infrastructure (see image below)
2.4.3. The 255.14 ha IAIP is comprised of a processing area of 226.74 ha, a non-processing area of 23.04 ha, an existing stream bed of 2.72 ha and a green buffer area on either side of the stream bed of 2.64 ha. Most residents in the region are subsistence farmers with practices including the rearing of live animals as well as growing several crop types. The IAIP is designed to focus on processing cereals, sesame, livestock as well as fruits and vegetables and the brewery processing industry. The IAIP includes the associated infrastructure required to effectively process all the materials. These include water and electrical supply infrastructure, sewage treatment works, roads and storage areas. Quality control and assurance facilities are also included within the park along with support and training facilities. The non-processing area of the site includes a residential with supporting facilities such as a school, places of worship and commercial areas. The park also includes communal greenery and open spaces making up approximately 16% of the total area. The total greenery and open space area across the overall masterplan will be significantly higher than this as every development parcel may only make use of a maximum of 75% of the land under possession. Below is the site layout for Baeker IAIP.
2.4.4. The proposed Mai Kadra RTC site is located approximately 1.5 km south of town of Mai Kadra, 25 km south of Humera, and approximately 23 km west of the Baeker IAIP (50 km by road via Humera). The proposed site falls under the jurisdiction of Mai Kadra town, located in the Western Zone of the Tigray Region. The proposed RTC abuts the highway that connects Humera and Sudan. The site is geographically located between 1554941.124 N to 1555276.552 N and 237326.294 E to 237636.305 E (UTM coordinates). The site is located on the eastern side of the highway and is surrounded by agricultural land (predominantly crops). The development edge of Mai Kadra commences approximately 500 m north of the site. A 33 kV overhead power line runs parallel to the site on the western side of the highway. The RTC is to be focused on fruits, vegetables, cereals, livestock, milk, eggs and honey. Furthermore the RTC contains a quality control laboratory and other social infrastructure such as a rural market, training centre and crèche. The social infrastructure provides the necessary support for the occupant industries in the RTC. The figure below provides a layout of the proposed master plan for the Mai Kadra.
2.4.5. The total estimated water demand for the RTC was calculated to be 78.54 m³/day, including potable and non-potable water requirements. Presently water is supplied to the town of Mai Kadra by a water supply scheme located approximately 1 km from the proposed site, however; based on discussions with the regional authorities it was identified that there is no surplus water available in the existing scheme to supply the RTC. It is therefore proposed to sink two deep bore wells within the RTC site to meet the required demand. To facilitate the continuous provision of water supply to the RTC, suitable water storage structures in the form of an underground sump, elevated level storage reservoirs (ELSR) with a 12 m staging height, and pump house are to be established within the RTC to facilitate receiving raw water, treating the water, collecting the treated water and storing the water in an ELSR for further distribution. An area of 0.18 ha is earmarked for the construction of the water utilities within the RTC. A suitable water treatment plant is to be established to treat the water in order to meet the acceptable limits of water quality as per Ethiopian drinking water standards.

2.4.6. A STP is to be established within the RTC. It is anticipated that waste water produced by equipment and regular maintenance will be recycled in the operational process.
Furthermore sanitary wastewater from toilets and urinals shall be collected in an underground sewer system that will be constructed as part of the processing plants sanitary facilities. A self-contained treatment system will be put in place to treat sanitary water. Mai Kadra town does not have an existing sanitary landfill facility. The next closest town is Humera which, as indicated above, only possess a controlled dump site which is not fit for receiving STP sludge waste. There are no immediate plans in either Mai Kadra or Humera towns to develop a sanitary landfill facility. Sludge handling and the disposal thereof must be addressed within the RTC in order to ensure a zero waste discharge facility. A solid waste management area has been identified within the RTC master plan.

2.4.7. Electricity: It is proposed that the EEP provide power to the site from the existing 33 kV power line passing on the western side of the highway. This process is to be undertaken by the EEP.

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1. Sustainability Triggers: The following policies and legal frameworks are identified to be relevant to the proposed Project and associated ESIA.

- Environmental Policy of Ethiopia (1997).
- Environmental Impact Assessment Proclamation (299/2002), which makes EIAs a mandatory requirement for the implementation of major development projects, programs and plans in Ethiopia.
- Ethiopian Water Sector Policy (2001), whereby the Ministry of Water, Irrigation and Electricity will need to be consulted with regards to what water permitting/licensing requirements will be necessary for the successful implementation of the proposed Project.
- Water Resources Management Proclamation (197/2000). For the protection of water resources (both surface- and groundwater) of Ethiopia
- Water Resources Management Regulation (115/2005), which provides detailed provisions for the effective implementation of its parent legislation, the Water Resources Management Proclamation.
- Water Resources Utilization Proclamation (92/1994), regulating the use of water resources, by requiring a government permit in respect of most water uses.
- River Basin Councils and Authorities Proclamation (534/2007), for the promotion and monitoring of integrated water resources management for Ethiopia’s river basins.
- Environmental Pollution Control Proclamation (300/2002), which restricts release of gaseous, liquid or solid wastes to the environment exceeding the environmental standards and advocates a “polluter pays” policy
- Prevention of Industrial Pollution Council of Ministers Regulation (159/2008), which is directed to detail the implementation of pollution control proclamation with focus on industry.
- Solid Waste Management Proclamation 513/2007, which aims to promote community participation to prevent adverse impacts and enhance benefits resulting from solid waste management.
• Policy for Rural Development (2003), given the dominance of agriculture in the Ethiopian economy, the rural development effort is presently associated with agricultural development. In order to facilitate agricultural development, there is a need to undertake rural infrastructure and social development programmes.

• Labor Proclamation (377/2003) as amended, requiring that the employer takes the necessary measures to adequately safeguard the health and safety of their workers.

• Public Health Proclamation (200/2000), which disallows the discharge of untreated effluent waste generated from septic tanks, seepage pits and industries into water resource. It also prohibits the disposal of solid or liquid wastes or any other waste in a manner which contaminates the biophysical, physical or social environments.

• The Federal Democratic Republic of Ethiopia Rural Land Administration and Land Use Proclamation (456/2005), which applies to all rural land in Ethiopia. The proclamation aims to conserve and develop natural resources through the development of and implementation of sustainable land use planning.

• Payment of Compensation for Property Situated on Landholding Expropriated for Public Purposes Regulation (135/2007), which provides a formal approach for the payment of compensation and to assist livelihood restoration for displaced persons.

• Accession to African Human and People’s Rights Charter Proclamation (114/1998), formalizing the Ethiopian Governments support for regional and international efforts to achieve normative standards for basic human rights.


3.2. The following national standards, directives and guidelines have been identified to be relevant to the proposed Project and associated ESIA.

• Environmental Standards for Industrial Pollution Control in Ethiopia - These standards present pollution limits for emissions to (i) atmosphere, (ii) water resources and (iii) noise emissions for identified industrial sectors.

• EIA Directive No. 1/ 2008, A Directive to Determine Projects Subject to Environmental Impact Assessment - The directive lists the various activities that require the undertaking of an EIA prior to the commencement of that specific activity. This includes the construction of tanneries, abattoirs, industrial waste disposal facilities and industrial zones.

• Draft Guideline for Environmental Management Plan for the Identified Sectorial Developments in the Ethiopian Sustainable Development & Poverty Reduction Programme (ESDPRP), May 2004 - The guideline outlines the necessary measures for the preparation of an EMP for proposed developments in Ethiopia and the institutional arrangements for implementation of EMPs.

• EIA Guideline, July 2000, - This guideline provides a background to environmental impact assessments and environmental management in Ethiopia.

• The Federal Environmental Protection Authority, Environmental Assessment Reporting Guide, 2004, Addis Ababa - The guideline provides a standardized reporting framework
for environmental assessments. It is however the responsibility of proponents and associated assessors to ensure that sufficient information is included in environmental assessments and that this information is forwarded onto all concerned and interested environmental agencies for review and consideration.

3.3. The project triggers all the Operational Standards in the African Development Bank’s Integrated Safeguard Policy including

- **Operational Safeguard 1**: Environmental and social assessment – The project is Category 1 requiring a full environmental and social assessment.
- **Operational Safeguard 2**: Involuntary resettlement land acquisition, population displacement and compensation – The project will lead to involuntary resettlement and a resettlement action plan has been developed.
- **Operational Safeguard 3**: Biodiversity and ecosystem services – The project location includes water systems, forests and communities, the application of the mitigation hierarchy is key in ensuring the sustainability of the project.
- **Operational Safeguard 4**: Pollution prevention and control, hazardous materials and resource efficiency – The project will handle hazardous waste that has to handled well in order to minimize pollution.
- **Operational Safeguard 5**: Labor conditions, health and safety – The project is implemented through a contract and workers welfare and safety is key to the successful implementation process.

3.4. The administrative and institutional arrangements for environmental management: The current system of government in Ethiopia is organized into a federal structure, comprised of the federal government, nine regional states and two city administrations. EIA administration in Ethiopia is shared between the federal government and regional states. The Environmental Protection Organs Establishment Proclamation (295/2002) established the institutions responsible for the enforcement and regulation of EIAs; these include the Federal Ministry of Environment, Forestry and Climate Change (MEFCC), Regional Environmental Agencies and the Sector Environmental Units. In addition the delegated sector Ministries which, through Federal MEFCC delegation, have been assigned the dual role of ensuring timely and effective enforcement for preparation of sector specific EIAs authorized/licensed at Federal level as well as of reviewing EIA reports.

3.5. The Ministry of Environment, Forest and Climate Change is the lead agency responsible for formulating policies, strategies, laws and standards to ensure social and economic development activities sustainably enhance human welfare and safety of the environment (Article 6, Proclamation 295/2002). The enforcement and administration of EIAs is one of the key responsibilities entrusted to the MEFCC. In this respect, the MEFCC is responsible for establishing and updating the system for undertaking EIAs in public and private sector projects. The Federal MEFCC is responsible for developing directives that identify categories of projects likely to generate adverse impacts and require a full EIA, and for issuing guidelines that direct preparation and evaluation of EIA reports (Proclamation 299/2002, Articles 5 and 8). As per proclamation 916/2015, the MEFCC have bestowed among others with the following powers and duties:

- Coordinate activities to ensure that the environmental objectives provided under the Constitution and the basic principles set out in the Environmental Policy of the Country are realized;
• Establish a system for evaluating and decision making, in accordance with the Environmental Impact Assessment Proclamation, the impacts of implementation of investment programs and projects on environment prior to approvals of their implementation by the concerned sectoral licensing organ or the concerned regional organ;
• Coordinate actions on soliciting the resources required for building a climate resilient green economy in all sectors and at all Regional levels; as well as provide capacity building support and advisory services;
• Establish an environmental information system that promotes efficiency in environmental data collection, management and use
• Enforcing and ensuring compliance to the EIA proclamation which currently is being implemented through delegated authority provided to sector ministries;
• Reviewing EIAs and monitoring the implementation of EIA recommendations which is also in part being implemented through delegated authority provided to sector ministries;
Regulating environmental compliance and developing legal instruments that ensure the protection of the environment;
• Ensuring that environmental concerns are mainstreamed into sector activities; and Coordinating, advising, assessing, monitoring and reporting on environment-related aspects and activities.

3.6. In addition, the Federal MEFCC is responsible for evaluating EIA reports of projects that need to be licensed and executed by the federal government and projects that are likely to generate interregional impacts. The Federal MEFCC is also responsible for monitoring and auditing the implementation and performance of such projects. The Federal MEFCC holds primary responsibility for providing technical support on environmental protection and management to regional states and sector institutions.

3.7. Regional Environment, Forest and Climate change bodies: Proclamation 295/2002 requires regional states to establish or designate their own regional environmental agencies. The regional environmental agencies are responsible for coordination, formulation, implementation, review and revision of regional conservation strategies as well as environmental monitoring, protection and regulation (Article 15). Relating to EIA specifically, Proclamation 299/2002 gives regional environmental agencies the responsibility to evaluate EIA reports of projects that are licensed, executed or supervised by regional states. Regional environmental agencies are also responsible for monitoring, auditing and regulating implementation of such projects.

3.8. Sector Environment Units: The other environmental organs stipulated in the Environmental Protection Organs Establishment Proclamation (295/2002) are ‘Sector Environmental Units’ which have been established in some of the line Ministries. These Sector Environment Units have the responsibility of coordinating and implementing activities in line with environmental protection laws and requirements (Article 14, Proclamation 295/2002). To this end, Sector Environmental Units play an important role in ensuring that EIA is carried out on projects initiated by their respective sector institution.

3.9. Delegated authority: The MEFCC has delegated authority to sector institutions to ensure implementation of EIAs in their sector and to undertake EIA reviews. For instance, the Federal Ministry of Industry, Agriculture, Mining as well as Water, Energy and Irrigation are responsible for ensuring that an EIA is undertaken on their sectoral projects and to review the EIA.
4. DESCRIPTION OF PROJECT

4.1. Construction activities are to be undertaken in a phased manner. Construction activities commenced in 2016 with the construction of the temporary building camp for the Bure IAIP. Construction of the IAIP and RTC boundary walls commenced in January 2017 and is scheduled to continue for a period of 12 months from commencement. The construction process of horizontal infrastructure for the IAIP, including internal roads and water supply infrastructure, is scheduled to be undertaken within a period of 12 months from commencement. While the construction of horizontal infrastructure for the RTC, including internal roads and water supply infrastructure, is scheduled to be undertaken within a period of 5 months from commencement.

4.2. Once the construction phase of the Project is complete, the operational phase will commence. The Project will consist of one IAIP and one RTC with additional RTCs to be established in surrounding areas in the future based on the success of the pilot facilities. An IAIP is essentially a geographic cluster of independent firms grouped together to gain economies of scale and positive externalities by sharing infrastructure (i.e. 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 an IAIP, such as final processing, storage, packaging, marketing and distribution. Support businesses and social infrastructure are also present. IAIPs include open area production zones, controlled environment growing, precision farming, knowledge hubs and research facilities, rural hubs, agri-infrastructure, collection centers, primary processing hubs, social infrastructure and agri-marketing infrastructure, among others. IAIPs are proposed to consist of state-of-the-art infrastructure including general infrastructure such as roads, power, water, communications, sewerage, sewage/effluent treatment plant, storm water systems, rain water harvesting, firefighting, etc., and specialized infrastructure such as cold storages, quarantine facilities, quality control labs, quality certification centers, raw material storage, controlled and modified atmospheric storage, central processing centers, etc. RTCs also represent 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 are also intended to offer small-scale financial services to farmers as well as basic social services. RTCs are to include warehouses, input supply, sorting, grading, extension services, pre-processing activities and microfinance commercial activities. Via the FDRE and partners the RTCs will support farmers to increase productivity to supply raw material of required quantity and quality to the industries in the IAIPs. The centers will provide information on agro-food, business development, prices, market trend and current market demand in terms of products and quality, among other services. The operational phase involves the day-to-day management of all operations undertaken at the Bure IAIP and Motta RTC site and associated activities.

4.3. Decommissioning Phase: The proposed IAIPs and associated RTCs are intended to be long term operational facilities (i.e. are not intended to be decommissioned in the near future). The developments are anticipated to be a permanent part of the industrialized agricultural sector going forward and are to be expanded upon. Decommissioning requirements and activities
should be considered in the planning process, however, the facilities are not anticipated to be decommissioned in the near future is more appropriate that detailed decommissioning requirements should be addressed in the future when / if decommission of the facilities is required.

5. PROJECT JUSTIFICATION

5.1. The agricultural industry in Ethiopia faces the following challenges: Disorganized and fragmented land holdings; Absence of an integrated channel to link ‘farm gate to food plate’; Weak infrastructure, limited support services to farmers; > 50% of Food Industries concentrated in & around Addis Ababa; Inability to tap the growing domestic & international markets; and Lack of coordination of value chain and actors. The challenge is that approximately 65 million farmers are not currently linked to industry. Ethiopia has a competitive advantage in several crops such as oil seeds and cotton, and horticultural crops such as fruits and vegetables that is often lost due to poor linkages with agro-industry and limited knowledge of efficient farming practices. The fragmented nature of the agricultural sector further compounds the inefficiencies inherent in the current market.

5.2. Although food-processing industries are present in Ethiopia, they are currently restricted in production by the availability of raw materials. The restriction on raw material input is related mainly to access, but also to the quality of the produce, which results in inefficient handling chains, post-harvest losses and higher prices. Investment and development of the agro industrial sector will in turn improve the economy by converting the agro-export from primary, unprocessed products to processed products, which will underpin economic growth for this sector and the country as a whole. The primary limitation to this proposed agro-industrial growth is the lack of adequate infrastructure. The development of agro-industries presents Ethiopia with an opportunity to accelerate economic development and achieve its industrial development goals.

5.3. In addition, Ethiopia benefits from the United States’ (US) African Growth and Opportunity Act, a law that gives many African countries duty-free export privileges to the US market. Opportunities also exist to obtain duty-free entry into the European Union (EU) countries, Canada and Japan. If addressed correctly, agro-industries can help fulfill the potential of agriculture and advance industrialization in the country. The production of higher value products has been identified to be critical to achieving this transformation. The IAIPs will have comparative advantages in terms of cost and efficiency allowing industries to ‘pool resources and curb shortages’ in the course of production. The intention is for the IAIPs to be a ‘one stop-shop’ for agricultural industries and to facilitate and boost the export earnings for Ethiopia, which is currently restricted to coffee and vegetable product exports. Investors, both local and foreign, will also be attracted to incentives ranging from 70% loans from state banks without collateral, duty free import of machineries and spare parts, to export tax exemption. The FDRE will be seeking to attract Ethiopian diaspora business investment into the IAIPs through incentives such as offering up to 85% loans without collateral allowing the Diaspora to place only 15% of financing at risk.

5.4. The overall objectives of the IAIPs are to: drive the structural transformation of the Ethiopian economy; reduce rural poverty through the integration of smallholder farmers, small-scale processing enterprises and allied industries in commercial value chains; and create a better environment for increased investment in agro-food and allied sectors. The IAIPs will: create supply-chain infrastructure; increase total flows of investment in agro-industry - both
in terms of skills and capital; foster 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 to increase Ethiopia’s share in manufacturing value addition in the GDP; create rural employment, off farm broad based income opportunities and improve quality of life in rural areas; assist small scale agro-industrial enterprises to remain competitive in the global markets; and facilitate commercialization of agriculture and increase exports of processed and value added agro-products.

6. PROJECT ALTERNATIVES

6.1. Consideration of Alternatives: The key consideration for identifying alternatives is understanding what the primary agricultural products are in the Amhara Region, such as maize, sesame, potato, live animals (cattle, sheep, goats) dairy, meat, poultry and honey. Once this criteria was understood, the production potential for the region was calculated to assist in developing an understanding of the land requirements for the industrial park. Consideration was also made for potential linkages with existing thriving industries that could trigger further industrial development. Specifically exportable cash crop commodities were identified to help in the site selection process. Furthermore, available infrastructure was an important consideration in the location and scaling of industrial parks. Therefore the presence of power, road network, water, railways, airport terminals and telecommunication infrastructure were taken into account. Also considered was a viable market for the products and services available in the park is essential for the successful establishment 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 was considered. Proximity to commercial and support services such as universities, research centres, technical vocational education and training centres; farmers’ cooperatives and unions; and financial institutions was considered as they are very important in providing services demanded by the park. Finally also considered was the existence of an industrial base and facilities such as import/export logistics, housing, recreation centres, schools and other social facilities which are very important for attracting investors/manpower and retaining those that may establish firms or work within the Park. The density and proximity of these facilities was taken into account.

6.2. Site Alternatives: The site selection process was undertaken by the MoI in collaboration with the local authorities. The original number and location of potential sites identified for the location of the Bure IAIP is unknown while it has been indicated that 26 initial sites were identified for the location of RTCs. This was limited to 7 sites following assessment. This process was undertaken at a high level and little documentation exists on the process and methods used to determine the most preferred sites.

6.3. Site layout alternatives have been considered for the Bure IAIP site. Following site selection, a site survey was undertaken to determine the sites opportunities and constraints. Based on the findings of the initial site screening assessment an initial site plan layout was prepared. The initial site layout resulted in the full extent of the proposed footprint being developed. During the environmental site investigations undertaken in August 2017, by the ESIA team, it was identified that an extensive wetland system was located within the proposed IAIP footprint, extending form the north of the site to the south. Following the EIA
investigations it was recommended that this wetland system remain in-situ and the site plan design seek to incorporate this natural feature in order to limit the impact on the surrounding natural features and function of the system in providing water to farmers on the southern side of the site. A design review process was then undertaken which resulted in the amendment of the site layout plan to incorporate the identified wetland system into the site layout, with the inclusion of a green buffer area around the system. The amended site layout is the current design proposed for the project.

6.4. **Site alternatives for Baeker IAIP, Tigray Region** included avoiding the perennial stream in the western corner of the site and instead provides for the stream to pass through the IAIP site with a suitable green buffer area adjacent to the stream to maintain its natural features. The revised master plan represents an improvement on the initial masterplan and provides a more environmentally sensitive design.

6.5. **Technology Alternatives**: Various sewage treatment options were considered for the all the IAIP sites. Overall the Sequencing Batch Reactor system was identified as the preferred option as it has the lowest construction costs although the mechanical instrumentation cost is higher. In addition, the operating costs are low but this will depend on the inflow capacity of the system. The SBR system has very minimal fouling with a constant output quality. Furthermore, the system is partially automatic with low power requirements.

6.6. **Access Alternatives for Bure IAIP**: During consultation it was identified that the development of the IAIP and associated boundary wall will result in a main access road and several foot paths being obstructed. These access routes are utilized by the local communities residing to the south of the IAIP site, on a daily basis, to gain access to services in Bure such as schools, medical facilities, markets etc. An alternative access road is being proposed to wrap around the western edge of the IAIP site connecting the communities in the south with those in the north. The proposed access road runs from the existing gravel road from the south of the site, around the western boundary of the IAIP to connect to the existing gravel road at the North West corner of the site. This road will be a permanent engineered road resulting in an improved access road. An additional stretch of road is being proposed along the south eastern boundary of the site. It is understood that this section of road is intended to be a temporary gravel road to provide access for the communities to the highway at the eastern boundary of the IAIP.

6.7. **The development of the Motta RTC and associated boundary wall** has resulted in an access road, utilized by communities residing to the north east of the site, being obstructed. This access route was utilized by the local communities, on a daily basis, to gain access to services in Motta such as schools, medical facilities, markets etc. An alternative access road is being proposed to connect the existing roads / gravel tracks to the highway on the south eastern side of the site. The proposed road forms part of the local administrations plans in terms of future development in the area as new residential areas are proposed to be established towards the north east of the RTC site.

6.8. **The NO - Go Alternative**: In the event of abandonment of the Project, especially because it requires investment from international financial institutions, it could send a negative message to other international investors as to the capacity of the FDRE to accommodate this type of industrial park project. In turn this could reduce the take up and success of other mega projects being planned / implemented in Ethiopia. Without the Amhara IAIP and RTC project, economic development of the Amhara Region will be compromised in the short term. The Ethiopian Agricultural sector’s potential to support the next generation will remain
constrained as a result of restrictions in available land and limited diversity of income sources. The lack of industrialization of the agricultural sector will limit the revenue base which would leave the GDP of the country still heavily dependent on the agricultural sector. Finally, without the Project, there would be no additional impacts, either positive or negative, on the physical, biological and social environments, although existing pressures on resources and infrastructure will continue, in some cases leading to the deterioration of the quality of life for future generations. Since the ESIA demonstrates that the overall balance of impacts is positive, primarily as a result of the employment opportunities for the current and future generations and the anticipated contribution these projects will make to the Ethiopian GDP. Therefore the abandonment of the Project would deprive the country and local communities of these benefits. Job creation expected during the construction and operational phases, as well as the positive outfalls on the health and education sectors would also not materialize.

7. SUMMARY OF COMMUNITY AND STAKEHOLDER CONSULTATIONS

7.1. Consultations were undertaken in Baeker and Mai Kadra areas in November 2017 and the issues raised included the following:

- The community were generally concerned with potential impacts that may result from the RTC such as how the RTC will relate to future planned development in the Town as the RTC is not included within the Town’s Masterplan.

- Another issue raised related to the drainage system and how it is going to be incorporated into the towns plan to be prepared in the future.

- The community would like to see all employment opportunities created by the RTC primarily benefit the unemployed youths in the town rather than people who will migrate to the area in search of job opportunities.

- Some of the PAPs who were participating at the consultation meeting also mentioned that some farmers who are displaced from their land and used to have more than two hectare of land have received replacement land but some others who had less than that haven’t received any and asked to get a solution.

- Concerns were raised regarding access to drinking water for livestock in the area since some of the boreholes dug to provide water to the livestock are within the proposed IAIP compound

- Availability of water to the community with the IAIP in place is a concern.

- Participants raised that air pollution and soil erosion be considered as high significance

- The PAPs who were participating at the consultation meeting mentioned that some of the big commercial farmers (investors) who are displaced from their land have received replacement land and started production. However, the small farmers have not received their replacement and therefore have not yet started production. In addition, their complaint and grievances have not yet been resolved. Some of the small farmers who obey to receive replacement land were facing problem with enforcement of their entitlement to the land over its previous users. A government representatives stated that, there are complains that haven’t been resolved yet and they will discuss the issues with the displaced farmers and will try to solve them. It was made clear that for the PAPs who are
willing to take their compensation in kind i.e. replacement land and not cash compensation, the replacement land is ready and available.

7.2. **Consultations were undertaken in Yirga Alem and Dilla towns between 2014 and 2017** and major issues raised included:

- As long as PAPs and the local inhabitants are treated properly that community would be happy with the project (sustained livelihood restoration, job priority, better income, etc.);
- Method of compensation, in cash or in-kind was not clear to all participants;
- When the project will be started - clarifications were requested;
- The need to ensure access to the local health centre;
- Query regarding the youth group who do not have their own land, but used to cultivate on their family’s farm;
- How to address issues related to the church that found in the proposed area?
- The need to avoid bad experiences related with compensation due to projects’ PAPs;
- The need to start the project as soon as possible;
- Doubt about realization of the project as per the presented / promised strategy, doubts if any benefit will go to the people, concerns about timely project accomplishment, satisfactory compensation and livelihood restoration, etc.
- RTC site has no sensitive public facilities like on the IAIP site;
- Participants want the concerned government authority to **pay compensation in cash and not in kind** as they are doubtful about getting substitute land of good quality and in favorable location and in a timely manner because population density of the area is very high and land is scarce.

7.3. **Consultations in Oromia generated the following issues:**

- PAPs requested to get substitute land in addition to cash compensation (IAIP / Bulbulla: particularly those who are living on the site. # 84 households). Provision of substitute land for those who don’t have alternative land and whose houses are built in the project site (IAIP / Bulbulla) were to be considered.
- Concern about adequacy of the local water resource both for the domestic demand and the anticipated project. (IAIP / Bulbulla)
- Concern, among some PAPs, both from Bulbulla and Shashemene that the estimated compensation is minimal.
- Requested to get priority regarding job opportunities to be created as a result of the project. The project will consider provide training related with entrepreneurship, technical skill in addition to in kind and in cash compensation.
- Asked about the possibility or opportunity of being shareholder of the proposed industry.
- The need to give value and pay respect to cemeteries in the proposed sites.

7.4. **Consultations in Amhara generated the following issues that have been integrated in the design of the project:**

- Compensation to be held in kind not in cash;
• A waste management system shall be implemented within the Park;
• The locally found church shall be well protected;
• In order to maintain the social ties or values, PAPs were given land in one cluster at a site not more than 300 meter from the main road;
• Training on technical skills to be provided;
• Priority to the PAPs regarding job opportunity;
• No vulnerable or destitute PAPs were identified at the Amhara site; and
• No special sensitive areas within the proposed site were raised by community.

8. PROJECT IMPACTS
8.1. The 4 projects also has a number of broader benefits that have been identified, mainly associated with economic well-being of the local community. The industrialization of the agricultural sector provides employment transition opportunities for farmers and their children. The projects will increase incomes, provide greater food security and more employment opportunities. It must be noted that during this ESIA process, construction works for the boundary wall had already commenced and therefore some of the impacts included in this report include impacts from existing construction activities. Key significant changes to the design which occurred as a result of the ESIA relate to the protection and retention of the eastern drainage line which crosses the site in a north to south direction and segregation of the primary access route for communities located to the south of the identified site to get to Bure; the IPDC is providing an access road to service the community’s needs. (Amhara).

8.2. The 4 ESMPs represents Industrial Parks Development Corporation’s commitment to address and manage the potential negative and positive impacts associated with the IAIP and RTC projects. The key intent of the ESMP is to ensure that the environmental and social objectives of the project are met and it is based on the various components of the Project throughout design, construction and operational phases. The ESIA has not identified any fatal flaws which would restrict the development of the proposed projects.

8.3. AMHARA SPECIFIC IMPACTS: The majority of impacts were assessed to be of minor negative significance with mitigation. The major and moderate residual negative effects of the project arise from the risk of soil erosion, sedimentation, soil compaction, ground water contamination and degradation of noise climate during construction. These impacts are anticipated to occur during the construction period but most will be removed during operation all will be removed with the exception of sedimentation and groundwater contamination. Both sedimentation and groundwater contamination remain risks throughout the life of the project. Ongoing monitoring of surface and groundwater will ensure these impacts are identified in a timely manner and dealt with immediately if they occur. Therefore these impacts are deemed appropriate for the size and extend of the project proposed and are accepted impacts of construction which if managed well can be minimized. The remaining moderate impact relates to loss of access to agricultural land plots and in some cases, loss of residential buildings and other assets (crops). These impacts have occurred as a result of the proposed site supporting existing agricultural practices. These impacts are being mitigated through payment of compensation, access to training and reallocation of land.

8.3.1. The major negative impacts identified relate to change in surface profile, land use and land capability. These impacts are expected and irreversible following development but are considered acceptable consequences of a transformation project such as this. In addition,
the anticipated significant negative impact identified in relation to the potential lack of jobs in the even that the IAIP is decommissioned, highlights the value the employment opportunities being offered by this project are to the economy and the local communities. There will be a negative impact on the livelihoods of the local community gaining employment from the facility. The major and moderate residual positive effects of the project arise from the revegetation of indigenous plant specialist in the buffer and greenery areas and an increase in employment opportunities and demand for goods and services in the region. In addition, there is a further positive impact associated with the IAIP and that relates to sense of place. Overall the community consultation process undertaken as part of this ESIA has shown an overwhelming support of the Amhara Regional project even by the project affected people. The visual impact of the park is seen as positive, representing progression and advancement in the agricultural sector through industrialization. A number of measures have been identified as necessary to minimize and control the risk of erosion and water pollution to surrounding farming activities. Water use and pollution would need to be monitored in the future to limit residual effects on other water users and aquatic ecosystems.

8.3.2. The proposed Amhara Project, including the Bure IAIP and Motta RTC, will result in 369 individual parties being affected by the proposed development, including:
- 31 individuals whose residential properties will need to be moved (physical displacement),
- 2 Government entities’ offices will also need to be moved (physical displacement),
- 263 individuals whose by-product and main season crops are going to be lost due to land take by the project (economic displacement),
- 35 individuals whose eucalyptus trees will be affected (economic displacement),
- 26 individuals whose high intensity/irrigated crops are going to be affected (economic displacement), and
- 3 individuals whose perennial crops will be affected (economic displacement).
- Additionally, 9 individuals were by mistake omitted by the local government officials from the PAPs list and had been added to the list with full compensation for their affected crops (economic displacement).

8.4. OROMIA PROJECT SPECIFIC IMPACTS: The project also has a number of broader benefits that have been identified, mainly associated with economic well-being of the local communities. The industrialisation of the agricultural sector provides employment transition opportunities for farmers and their children. The Bulbulla IAIP and Shashemene RTC are anticipated to increase incomes, provide greater food security and more employment opportunities.

8.4.1. The majority of impacts were assessed to be of minor negative significance with implementation of the recommended mitigation measures. During the construction phase, six moderate residual negative effects of the project have been identified resulting from the proposed project. The physical environmental impacts include soil erosion, soil compaction and degradation of noise climate. Implementation of mitigation measures as contained in the ESMP as well as ongoing environmental noise monitoring will prevent these impacts from occurring and when identified can be dealt with in a timely manner. Therefore these impacts are deemed appropriate for the size and extend of the project proposed and are acceptable impacts of construction which if managed well can be minimized.
8.4.2. The remaining moderate impacts relate to loss of access to agricultural land plots and in some cases, loss of residential buildings, other assets (crops), the potential for the workforce to introduce and/or increase the rate of spread of communicable diseases in the project area and additional pressures on the existing community infrastructure and services such as strain, congestion, and wear and tear for roads and strain on medical facilities in the local area. These impacts have occurred as a result of the proposed site supporting existing agricultural practices, as well as the potential for large numbers of workers being attracted to the development for employment or business opportunities. These impacts are being mitigated through payment of compensation, access to training and reallocation of land as well as provision of additional infrastructure and services. The Oromia Resettlement Action Plan (RAP) deals with these issues and others and will be a live document that will be implemented post authorization.

8.4.3. The major negative impacts identified relate to change in surface profile, compaction, land use and land capability, and direct loss/degradation of natural wetland habitat and biota. These impacts are expected and irreversible following development but are considered acceptable consequences of a transformation project such as this. In addition, the anticipated significant negative impact identified in relation to the potential lack of jobs in the event that the IAIP is decommissioned, highlights the value the employment opportunities being offered by this project are to the economy and the local communities. There will be a negative impact on the livelihoods of the local community that do gain employment from the facility should the facility be decommissioned.

8.4.4. Three major negative impacts were identified during the construction phase. These impacts relate to the change in surface profile, land use and land capability of the sites. These are deemed major impacts as they will lead to permanent changes resulting in the loss of valuable agricultural land. These impacts are anticipated to take place during the construction phase, however once operational the proposed facilities are anticipated to result in a number of moderate positive impacts that outweigh the loss of the agricultural land in terms of biodiversity and socio-economic benefits. The majority of the impact identified during the construction phase do not continue into the operational phase which is identified to result in one moderate negative residual impact associated with resettlement and livelihood restoration; one major negative impact associated with soil compaction and three moderate residual positive impacts. The moderate residual positive effects of the project arise from the re-vegetation the greenery areas with indigenous plant species as well as an increase in employment opportunities and demand for goods and services.

8.4.5. A number of measures have been identified as necessary to minimise and control the risk of erosion and subsequent water pollution / sedimentation of the Bulbulla River. Water use and pollution would need to be monitored in the future to limit residual effects on other water users and ecosystems in the Project area. Furthermore, groundwater use in the region is very limited due to the naturally high fluoride concentrations making it an unsuitable source of potable water without significant treatment. The Oromia IAIP and RTC sites are noted to pose a low risk to the groundwater environment.

8.4.6. Based on the census data collected by the IPDC, the proposed Oromia Project (including the IAIP and RTC facilities) will result in 287 PAPs (i.e. 252 and 35 PAPs affected by the IAIP and RTC respectively) being affected by a combination of economic and physical displacement, including 68 PAPs who will be physically displaced from the IAIP site.
8.4.7. **Cumulative Impacts:** As the Bulbulla IAIP site is located outside of Bulbulla Town the towns Master Plan does not reflect the proposed development. The largest known development to have occurred recently in the area is Frigorifico Boran Foods Plc abattoir located near Adami Tulu, approximately 5.5km north of the proposed IAIP site. The abattoir is located on a 75 hectare portion of land and reportedly has a capacity of slaughtering 3,000 cattle and 6,000 sheep and goats daily upon operating at full capacity, enabling the company to produce 300 tonnes of meat a day. The facility has received an authentication certificate from the Ministry of Livestock Development & Fisheries to export processed meat. The plant creates job opportunities for 200 people, of which 25 were taken to India for six months of training. The company also plans to increase this figure by 10 fold when the business starts to operate at its full capacity. The construction phase of the abattoir is complete, as such only operational activities will potentially result in cumulative impacts, however with the implementation of the proposed mitigation measures as detailed in the ESMP these are anticipated to be negligible.

8.5. **SNNP IMPACTS**

8.5.1. The majority of impacts were assessed to be of minor negative significance with mitigation. The moderate residual negative effects of the project arise from the risk of soil erosion, sedimentation, soil compaction, hydrological functioning modifications, and degradation of noise climate during construction and decommissioning. These impacts are anticipated to occur predominantly during the construction period but all will be removed during operation. Ongoing monitoring of surface and groundwater will ensure these impacts do not occur and when identified can be dealt with in a timely manner. Therefore these impacts are deemed appropriate for the size and extend of the project proposed and are acceptable impacts of construction which if managed well can be minimised. The remaining moderate impact relate to loss of access to agricultural land plots and in some cases, loss of residential buildings, other assets (crops) and cultural heritage resources (churches and graves). These impacts have occurred as a result of the proposed site supporting existing agricultural practices. These impacts are being mitigated through payment of compensation, access to training and reallocation of land. The SNNP Resettlement Action Plan (RAP) deals with these issues and others and will be a live document that will be implemented post authorisation.

8.5.2. Further moderate negative impacts relate to the potential for the workforce to introduce and increase the rate of spread of communicable diseases in the project area. The major negative impacts identified relate to change in surface profile, compaction, land use and land capability, direct loss/degradation of natural wetland habitat and biota. These impacts are expected and irreversible following development but are considered acceptable consequences of a transformation project such as this. In addition, the anticipated significant negative impact identified in relation to the potential lack of jobs in the event that the IAIP is decommissioned, highlights the value the employment opportunities being offered by this project are to the economy and the local communities. There will be a negative impact on the livelihoods of the local community gaining employment from the facility.

8.5.3. The major and moderate residual positive effects of the project arise from the creation and management of artificial wetland habitats within the IAIP to mitigate for the removal of existing surface water dams on the site. In addition, the proposals seek to re-vegetate the greenery areas with indigenous plant species. The presence of the IAIP and RTC sites within
the context of the surroundings is considered to present a positive visual enhancement to the area. The park is seen as representing progression and advancement in the agricultural sector through industrialization. Overall the community consultation process undertaken as part of this ESIA has shown an overwhelming support of the SNPP Regional project even by the project affected people. The community believe that a development of this scale and magnitude, offering large employment opportunities will uplift the whole community. A number of measures have been identified as necessary to minimize and control the risk of erosion and water pollution to surrounding water resources. Water use and pollution would need to be monitored in the future to limit residual effects on other water users and ecosystems in the Project area.

8.5.4. Based on the census data collected by the IPDC, the proposed SNPP Project (including the IAIP and RTC facilities) will result in 229 PAPs being affected by a combination of economic and physical displacement, 176 PAPs being economically displaced, 18 PAPs being physically displaced, and 44 PAPs being affected where their familial graves will need to be moved, resulting in a total 467 PAPs.

8.5.5. Cumulative Impacts: The primary cumulative impact of concern relates to the potential for negative impacts to occur on the Gidabo River and drainage lines. The primary mitigation measures to implement in order to minimize this impact include keeping hard standing areas to a minimum. The implementation of the requirement set within Article 5(15) of the Industrial Parks Council of Ministers Regulation No 417/2017 will ensure that 25% of each of the development plots within the IAIP remain undeveloped. For the remaining 75% of the site that is developed the Enterprises should be required to make use of permeable paving. All pavements and car parks in communal areas are to be built with the use of permeable paving. Finally, where surface water exits on the site, energy dissipators should be incorporated in order to ensure erosion does not occur as a result of the concentrated runoff.

8.6. TIGRAY IMPACTS

8.6.1. The majority of impacts were assessed to be of minor negative significance with mitigation. The major and moderate residual negative effects of the project arise from the risk of pollution of soils, noise from construction and decommissioning activities, waste management, social impacts on people who need to be resettled and the impact decommissioning the facilities would have on the livelihoods of the local community gaining employment from the facility. The major and moderate residual positive effects of the project arise from the revegetation of indigenous plant specialist in the buffer and greenery areas and an increase in employment opportunities and demand for goods and serviced in the region. A number of measures have been identified as necessary to minimize and control the risk of erosion and water pollution to surrounding farming activities. Water use and pollution would need to be monitored in the future to limit residual effects on other water users and aquatic ecosystems.

8.6.2. Based on the census data collected by the IPDC, the proposed Tigray Project (including the IAIP and RTC facilities) will result in 40 PAPs being economically displaced by the proposed development, where the project footprint will cover the land plots cultivated by these 40 PAPs. The development causes economic displacement and not physical displacement. A RAP has been developed as part of the Project, which focuses on
displacement issues in more detail. These PAPs will be provided with compensation measures discussed in the Tigray RAP.

8.6.3. **The project also has a number of benefits that have been identified, mainly associated with economic well-being of the local community.** The industrialization of the agricultural sector provides employment transition opportunities for farmers and their children. The Beaker IAIP and Mai Kadra RTC would increase incomes, provide greater food security and more employment opportunities. The ESMP represents Tigray Industrial Parks Development Corporation’s commitment to address and manage the potential negative and positive impacts associated with the Beaker IAIP and Mai Kadra RTC projects. The key intent of the ESMP is to ensure that the environmental and social objectives of the project are met and it is based on the various components of the Project throughout design, construction and operational phases.

9. **ENVIRONMENTAL MONITORING**

9.1. Monitoring shall be performed during all stages of the project to verify the impact predictions and to ensure that the impacts are no greater than predicted. By using the information collected through monitoring, environmental management plans can be improved when necessary (e.g. adapting mitigation measures to changing situations throughout the project construction and operation) to ensure that the anticipated impacts are mitigated. Should the environmental monitoring determine construction works or operations pose an environmental concern; the works or operation will be modified or halted. The objectives of the environmental monitoring programme include the following:

- To monitor the changes in the environmental conditions by the construction and operation of the proposed Project
- To check on whether mitigation and benefit enhancement measures have actually been adopted, and are proving effective in practice;
- To provide a means whereby any impacts which were subject to uncertainty at the time of preparation of the ESIA, or which were unforeseen, can be identified, and to provide a basis for formulating appropriate additional impact mitigation measures; and
- To provide information on the actual nature and extent of key impacts and the effectiveness of mitigation and benefit enhancement measures which, through a feedback mechanism, can improve the planning and execution of future, similar projects.

9.2. **Institutions Responsible for ESMP Implementation:** The key organizations for the implementation of the ESMP during the construction phase are the IPDC and EPC contractor. During the operation phase the IPDC is the major responsible agency. There are other government agencies which will have the responsibility for implementation of certain mitigation and monitoring activities and their activities will be coordinated by the IPDC. The main responsibilities of the Environmental Monitoring Unit (EMU) include:

- Review and approve of the environmental components of the EPC contractor’s project plan
- Ensure that mitigation measures, conditions and specifications are fully implemented during construction and resolving problems as encountered.
- Supervise restoration of construction area that was affected during construction period of the project to its natural state.
• Conducting periodic environmental monitoring during construction and operation phases.
• Monitoring proper implementation during resettlement and post resettlement of communities.
• Liaise with members of the public, local organizations, government and non-governmental organizations; and,
• Report results of mitigation and monitoring activities to the MEFCC, Regional Environmental offices and other relevant parties.

9.2.2. As per Proclamation 803/2013 (amendment), the Ministry of Environment, Forestry and Climate Change (MEFCC) has the powers and duties to:

• Coordinate measures to ensure that the environmental objectives provided under the Constitution and the basic principles set out in the Environmental Policy of Ethiopia are realised.
• Establish a system for environmental impact assessment of public and private projects, as well as social and economic development policies, strategies, laws and programmes.
• Establish a system for the evaluation of the environmental impact assessment of investment projects submitted by their respective proponents by the concerned sectorial licensing organ prior to granting a permission for their implementation in accordance with the Environmental Impact Assessment Proclamation. Article 24(2) of the Industrial Park Proclamation No. 886/2014 requires the MEFCC to establish offices within the industrial parks for the application, supervision, protection and enforcement of environmental norms and standards, safeguards, management and mitigation plans within the industrial parks.

9.2.3. The EPC contractor will assign an Environmental Inspector during the construction phase. The Environmental Inspector is responsible to:

• Check compliance with recommended conditions in the contract, ESIA and ESMP;
• Review the effectiveness of mitigation measures for proper management of construction risks and uncertainties;
• Review the effectiveness of environmental management plan for the construction activities.
• Recommend modifying or halting construction activities, or developing appropriate mitigation measures in case of unpredicted adverse effects on the environment or if environmental monitoring determine construction works pose environmental concern;
• Identify and liaise to promote social integration and the development of mutually satisfactory solutions to problems affecting local communities; and
• Provide advice and assistance, as and when required, on aspects of environmental management.
10. REFERENCES AND CONTACTS


10.2. Environmental and Social Impact Assessment Report for the Proposed Bulbulla IAIP and Shashemene RTC in Central Eastern Oromia Region, Ethiopia

10.3. Environmental and Social Impact Assessment Report for the Proposed Yirga Alem IAIP AND Dilla RTC in SNNP Region, Ethiopia

10.4. Environmental and Social Impact Assessment Report for the Proposed Baeker IAIP and Mai Kadra RTC

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