

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

SUMMARY

Project Name	:	Farm Income Enhancement and Forest Conservation II
Project Code	:	P-UG-AAD-001
Country	:	UGANDA
Department	:	OSAN
Division	:	OSAN.1

1. Introduction

Uganda's economy is forecast to grow at a rate of approximately 5.6% in FY14/15, and could maintain an upward trajectory into the near future, as oil investments and the large infrastructure programs boost construction activities. Uganda's population is estimated to be 34.9 million (2014 population census) and is growing at roughly 3.2 per cent per year, one of the world's highest rates. Uganda has made important progress towards meeting the Millennium Development Goals (MDGs), especially with respect to income poverty, gender equality and women empowerment, reducing child mortality, ensuring environmental sustainability and developing a global partnership for development. A key challenge to accelerating progress towards middle income status and promote shared prosperity is to raise productivity in sectors where most people are employed or move people from low to higher productivity activities.

Agriculture remains Uganda's most important sector in terms of employment. In FY 2012/13, the sector provided employment to about 66% of the country's working population. Officially, almost three quarters (72%) of the agricultural workforce are women. The sector is also a major source of raw materials used in the local processing industries. In the export sector, agriculture contributes about 40% of total goods exported. . Indeed, agriculture has a high potential for poverty reduction and bringing about inclusive growth. However, the performance of the sector has been dismal over the past decades, mainly due to low productivity, lack of long-term credit, inadequate access to information and technology, overlapping land rights, low levels of investment, post-harvest losses, and poorly targeted input subsidy schemes.

The National Development Plan II (NDP II) 2015/16-2019/20, which has been designated by GoU as the second of a series of six 5-year NDPs to translate the country's Vision 2040 into action, is the overall development strategy for Uganda. The NDP's core objectives are to increase household income; generate employment; develop the infrastructure; increase access to quality social services; promote science and technology; and develop human capital, which FIEFOC is consistent with. The Project's activities, notably, construction of irrigation infrastructure and promotion of value addition to enhance household incomes, are also consistent with the Agricultural Sector Development Strategy and Investment Plan (DSIP) 2010, Gender Policy Brief for Uganda's Agriculture Sector (2012), the Rural Development Strategy (RDS) of the Ministry of Finance, Planning and Economic Development (MoFPED), the Local Government Sector Investment Plan (LGSIP Investment Strategy 6, Local Economic Development), the Uganda Forestry Policy, and the Uganda Climate Change Policy.

The Bank has gained good experience under FIEFOC-1 in implementation of irrigated agriculture and has also accumulated vast experience through the implementation of other agricultural infrastructure projects. The first phase of FIEFOC has rehabilitated three irrigation schemes Mubuku, Doho, and Agoro irrigation scheme with a total area of about 3000ha now benefiting more than 6,800 farm families. It has also supported communities and households to work together to manage watersheds, enabled households to participate in tree planting and beekeeping activities. Building on the achievements of the first phase, FIEFOC-2 project design will hinge on a community-based development, with the districts, sub-counties and communities as focus of implementation, and the private sector as main service providers. The project will direct its efforts

towards using small-scale irrigation facilities and improved soil fertility management practices, to produce and market high value crops. It will also address deforestation, climate variability and change, and problems of natural resources degradation with the catchment area.

2. Brief Description and Key Components

The FIEFOC-2 aims at strengthening its commitment to providing necessary resources and inputs to enable farmers increase and manage valuable and profitable vegetation cover in local forest reserves, community forests, natural forests and degraded landscapes. The project will further support apiculture activities within selected watershed areas so that they contribute to conservation of forests and increase the quantity and quality of honey for immediate income generation.

The FIEFOC-2 will be implemented in selected districts and will comprise four main components: i) Agricultural Infrastructure Development; ii) Agribusiness Development; iii) Natural Resources Management; and iv) Project Management.

Component 1: Agricultural Infrastructure Development

The activities under this component include: (i) *Irrigation Infrastructure Development* to enable government to develop small and medium scale irrigation schemes. To the extent possible, the project will encourage multipurpose use of water; (ii) *Access roads construction and rehabilitation* to facilitate irrigation schemes' development to link the irrigation schemes with the nearest road network; (iii) Formulation and support of *Farmer-based Cooperatives or Water Users' Associations (WUAs)* in each of the schemes to promote O&M, marketing including accessing other services. In addition, the project will construct office blocks for WUAs with water and sanitation facilities.

Component 2: Agribusiness Development

This component aims to increase the business outlook of the potential beneficiaries toward increasing household incomes. The component will comprise of; (i) *Alternative Livelihoods Development*, that will support activities to promote aquaculture, Apiculture, and seeds/seedling production and marketing; and (ii) *Business Skills Development*, which will include activities for capacity development, especially for the youths, market development, and cooperative development.

Component 3: Integrated Natural Resources Management

The activities under this component include: (i) *Integrated Soil and Water Conservation/Management*, which will involve activities leading to: determination of local strategies for controlling erosion, arresting gullies and reducing the sediment load of river runoff through community negotiations; promotion of conservation farming and Agro-Forestry; scaling-up sustainable land management (SLM) activities for improved natural resource management (NRM); (ii) *Sustainable forest management*, which will involve activities leading to use a participatory approach to development a land use plan; and (iii) *Capacity Development*, which will include activities leading to Information and knowledge, new approaches to extension and adoption, development of mechanisms for identifying, valuing and making use of local knowledge, and supporting the development of consistent and reliable frameworks for natural resource monitoring and reporting; Skills and training in crop husbandry, crop processing, cooperative/ group development and management.

Component 4: Project Management

A National Project Coordination Unit (NPCU), established under FIEFOC I still exists and will continue to coordinate activities of the two ministries (MWE and MAAIF). A multi-sectoral Steering Committee will be established to provide policy oversight of the project. In addition, to enable a collaborated implementation of project activities, a technical committee comprising of key and relevant stakeholders involved in implementation of the project will be established. The Terms of Reference of the technical committee will be submitted to the Bank for review. The NPCU will be housed in MWE.

3. Major Environmental, Social Impacts & Climate Change Risks

The project has been classified as Environment Category 2 according to the Bank's Environmental and Social Assessment Procedures (ESAP), which implies that the potential negative environmental and social impacts can be mitigated/managed with the application of measures specified in ESMPs. More so, the infrastructures to be developed are small-scale in nature and will not likely induce any potential, significant or irreversible environmental and social impacts.

The proposed FIEFOC-II project is expected to bring significant environmental and social benefits to the local population within the selected project sites. The agricultural development investments supported under the project will include infrastructure for enhanced productive water uses (irrigation) and access roads (to facilitate irrigation schemes' link to existing road network), agribusiness development to promote alternative livelihoods (including apiculture, seeds/seedling production and marketing, and aquaculture), and natural resources management activities to ensure sustainability of the environment and investments (watershed management and community outreach). Investments will also implement climate change adaptation measures to increase resilience to climatic risks.

Some of the positive and negative impacts anticipated from the FIEFOC-II project are outlined:

3.1 Expected Positive Impacts

i. Improved Water for Productive Uses

Improved water for production through the construction of irrigation infrastructure will be one of the major benefits that will arise from the FIEFOC-II project. With the development of the proposed small and medium irrigation schemes, smallholder farmers will have access to water for agricultural production, which will help them counter the problems of frequent dry periods, thereby smoothening the cyclical impacts of droughts. In addition, the rehabilitation measures are expected to improve the efficiency of water diversion, conveyance and application and thus reduce water wasting. Apart from improving agricultural production this will avail additional water that would have been wasted to downstream users and thereby reduces water pressure and conflicts.

ii. Increased Agricultural Acreage and Productivity

The construction of the irrigation infrastructure and proper management of the irrigation scheme (through efficient water application and sustainable irrigation practices) is expected to yield considerable increase in the agricultural output (rice, maize, fruits). The irrigation scheme will particularly encourage the rise of out growers that can support the supply of agricultural crops to the regional markets and will contribute to the overall economy of the regions and country as a whole.

iii. Increased Job Opportunities

The project will provide substantive employment opportunities to local populations, particularly during the construction phase of the irrigation schemes. An influx of labourers and construction workers will characterize the construction phase, which will drive the demand for basic services including housing, transport, food and healthcare. The local communities will meet these needs; local women can provide food-vending services, homes can be rented out for the new population and small enterprises will benefit from increased sales of products and/or services.

During operation of the irrigation schemes, increased agricultural employment and non-farm activities is also expected to occur as a result of increased agricultural acreage. Entrepreneurial activities in supplying inputs and other support services to the production activity will generate multiplier effects on the targeted communities through increased income and creation of job opportunities especially to 50% of the targeted youth and women.

iv. Environmental Protection

The proposed project will be based on a catchment approach that will not only improve the livelihood of people living in the catchment area, but also promote sustainable development of the watershed to address environmental challenges (land degradation) in the project areas. Tree planting and other watershed management activities planned as part of the project will contribute to restoration of forest cover and ecosystems, thus reducing soil erosion, water pollution, combat desertification and deforestation as well as enhance water catchment functions. These activities will mitigate climate risks and contribute to reduced vulnerability to extreme weather events and provide a more secure social environment for targeted populations.

3.2 Expected Negative Environmental Impacts

Most of the negative impacts to the environment will be attributed to construction activities with minimal operation and post operation effects.

i Loss of Vegetation

Vegetation clearance is anticipated during the construction phase of the infrastructure development including irrigation infrastructure and access roads. The construction sites will be established in areas with prevalent vegetation that are mostly characterized by riverine forests, dry savannah woodlands, and bushy vegetation. Vegetation cover will be lost from the excavation of earth materials and cutting of indigenous trees. These activities will expose the land to elements of erosion such as wind and water and thus will trigger the process of land degradation.

ii Soil Compaction and Erosion

The use of heavy machineries and increased traffic during the construction work within the project area is likely to lead to compaction of the soil structure which may lead to reduced soil infiltration capacities and subsequently resulting in increased run-off. The increased run-off may lead to soil erosion. Soil erosion will result in degradation of the land, loss of fertile soil, siltation and pollution of water as a result of silt accumulation. Siltation will affect hydraulic structures and will incur additional cost for silt removal on the users.

iii Solid Wastes

Construction activities will result in the creation of various solid wastes, including surplus earth and rock (soil debris), metal scraps, plastics (wrappings and containers). Effects of mismanaged wastes include public nuisance due to littering or smell from rotting and creation of breeding grounds for vermin like rats and roaches. Unmanaged disposal of spoil can result in sterilization of productive land and the creation of on-going erosion, sedimentation or drainage problems.

iv Water Pollution

The construction phase will involve the use of construction vehicles and machinery that will require refueling and engine repairs. Accidental spills and discharges during these activities may potentially lead to pollution of soil and water sources. Contamination of water is potentially more serious since pollutants may move fast, destroying aquatic life and rendering water unsafe for domestic and livestock use.

During the operational phase, the irrigation scheme will involve the use of fertilizers in order to improve agricultural production. Pollution of irrigation and drainage water by residual chemicals is a potential problem, especially, residuals of persistent organic chemicals that can potentially pose debilitating effect on downstream users (human/livestock) and aquatic organisms.

v Air Pollution

Potential impacts to air quality will occur in all phases of the project. The sources of air emissions may include (i) exhaust emissions from internal combustion engines of gases and (ii) dust and particulate matter generated during construction and vehicle traffic can lead to adverse health effects.

vi *Impacts on Water Resources, Hydrology and Downstream Users*

The proposed construction works will require diversion of water that may modify natural flow regimes and thus affect downstream water users. Poorly planned drainage channels in some areas may also lead to reduction or rise in the water table. The reduction in water table (draining out wet areas) will consequently affect other ground water beneficiaries while the raise in water table (draining to wet areas) may cause water logging in the scheme area. The proposed activities may therefore in one way or another have detrimental effects on water quality, water availability for production, aquatic life forms, water table and riverine vegetation, and may result in flooding of fields and possible water conflicts with downstream users.

vii *Occupational Health and Safety*

There are a number of health and safety concerns relating to rehabilitation and construction works, including injuries to workers, incidences of disease including malaria and water borne diseases.

viii *Land Degradation due to poor agronomic practices*

A wide range of agronomic activities associated with an increased intensity of production can contribute to reduction in soil fertility and subsequently lead to soil erodability and land degradation. The increased use of agro-chemicals, needed to retain productivity under intensification, can introduce toxic elements present in fertilizers and pesticides. Other agronomic practices that could lead to reduction in soil fertility include mono-cropping with no fallow periods, lack of crop rotation, inadequate soil conservation measures, water logging, bush burning, inadequate use of soil amendments and lack of training and raising awareness for farmers on good practices.

3.3 Expected Negative Social Impacts

i *Strain on Existing social Infrastructure*

Influx of population can strain the already existing weak resource base, health and educational facilities due to increased demand for social services such as water, health care and schools.

ii *Incessant Traffic*

Traffic congestion from construction and operation phases of the investments could potentially cause disruption, health and safety impacts, as well as economic impacts. The use of heavy moving construction vehicles and machineries in project sites is generally known to cause traffic, reducing movement and flow of vehicles. It is also envisaged that with the improvement of the transportation due to expansion and construction of new access roads, highways and bridges, the traffic volumes and speeds will increase. This will likely increase the frequency and severity of accidents in the project area.

iii *Public Health (HIV/AIDS)*

Public health could be a major concern during the implementation of the proposed project. The prevalence of HIV/AIDS, for instance, could increase due to the free-flow and high influx of people (construction workers in particular). It is expected that the enhanced trade and employment activities due to the project intervention, will result in increased interactions and subsequently lead to increased infections. In addition, the irrigation systems may create favorable habitats for water-borne diseases such as malaria, which is endemic in Uganda. The irrigation structures are likely to result in increased accumulation of water (water-logging), which may have several negative impacts such as water-borne diseases (typhoid, bilhazia, etc) and also result in accidental deaths through drowning of people and livestock.

3.4 Gender and Social Analysis

Men, women, and youth in Uganda all play significant roles in farming, animal rearing, and fisheries, however women contribute approximately 60-70 per cent of production, about 90 per

cent of post-harvest handling and processing, and almost 100 per cent of household food provision. Despite their significant contribution, women are restricted from participating in important decisions such as resource use, family planning, and access to services such as health and education. Women have been marginalized in access to ownership and control over land, education, and business ownership. Youth on the other hand are observed to shun agriculture because of the intense labour demand and slow and unguaranteed financial returns. Their preference for quick financial returns has greatly contributed to rural-urban migration in search of better employment opportunities.

The Government of Uganda has made considerable efforts at the policy and institutional levels to mainstream gender, social inclusion and women-specific issues into Water for Production and agricultural development initiative. The Ministry of Gender Labour and Social development (MoGLSD) has done a tremendous job to support other Government departments in mainstreaming gender and social inclusion issues into their investment plans. There is also a clear policy framework for inter alia, economically advancing youth through development programs. The efforts by various Government departments and parastatal bodies like the National Environment Management Authority (NEMA) to institutionalise position of Gender focal Point is a step in the right direction. These form a firm basis for ensuring a gender responsive and socially inclusive project undertaking.

The Project proposes to strengthen these efforts further through capacity enhancement in actualizing established policies and mechanisms for gender mainstreaming. Technical assistance will be provided specifically to put in place gender mainstreaming guidelines for the project. These guidelines will specifically target capacity enhancement at the district, irrigation scheme management and cooperatives levels.

The FIEFOC-II will address major gender issues particularly related to access to land, access to financial services, skills and knowledge enhancement, and access to appropriate and affordable agricultural technologies.

3.5 Potential Cumulative Impacts

At this stage and from available information, no significant negative cumulative impacts have been identified. The proposed irrigation schemes and other interventions planned as part of FIEFOC-2 do not have significant irreversible impacts. Hence, the project interventions are unlikely to contribute to cumulative impacts in the project area. However, to avoid/mitigate possible cumulative impacts (particularly likely for deforestation, and surface water depletion), all negative impacts will be addressed in the site-specific EIAs and ESMPs to be developed during the design and implementation stages of the project.

FIEFOC-II project will contribute to long-term environmental positive impacts in the project areas including (i) Improved land conditions due to improved land management from sustainable land management activities promoted through the project to reduce land degradation and improve soil fertility; and (ii) Enhanced soil and water conservation measures and activities as well as improved watershed management programmes whose net impact will be improved soil and water conditions.

3.6 Projected Climate Change Risks

According to the Bank's Climate Safeguard Screening System, FIEFOC-2 project was assessed as Category 2 indicating that the project may be vulnerable to climate risk and will require the integration of practical risk management and adaptation options into the project design and implementation plans in order to increase the resilience of the project infrastructure and beneficiaries to withstand the impacts of climate change.

Uganda's agriculture based economy makes it highly vulnerable to the risks of climate variability and change, particularly given the high proportion of the country's population dependent on rain-fed agriculture. Climatic impacts in Uganda have been linked with more frequent and longer lasting droughts and flood events, which prevent farmers from engaging in all year round farming activities. In the last century, the frequency and intensity of extreme

climatic events has been on the rise. The Uganda's National Adaptation Programme of Action (NAPA) noted an average temperature increase of 0.28°C per decade in the country between 1960 and 2010, with the months of January and February most affected by this warming trend, averaging an increase of 0.37°C per decade.

The changing temperature patterns in Uganda have been linked with drought and consequent increases in cattle deaths in the cattle corridor. The western, northern and northeastern regions have been experiencing more frequent and longer-lasting droughts than have been seen historically. Between 1991 and 2000, there were seven droughts in the Karamoja region, and major droughts also occurred in 2001, 2002, 2005 and 2008.

Rainfall has also decreased and become more unreliable and less evenly distributed. Recent years have seen erratic arrivals and endings of rainfall seasons, and individual rainfalls have been heavier and more violent. Floods and landslides are on the rise and are increasing in intensity. Since the year 2000, extreme rainfall conditions have been regularly experienced in Eastern Uganda, where there has been an increase of approximately 1500 mm of precipitation in the December to January rainy season.

Any future climate change may have relatively strong impacts on the hydrology of the region and agricultural/irrigation activities.

4. Enhancement and Mitigation Program

The impacts of this project will be mitigated at both the construction and the operational phases (see table below).

Impacts associated with construction activities will be mitigated through ensuring the inclusion of best environmental management practices in the contractor's specifications (and by binding the contractor in the contract documents to ensure that impacts are avoided or minimized.) as well as technical civil engineering measures. These will include proper management of construction materials and their transportation conditions; solid and liquid waste management, site rehabilitation and dismantling of temporary facilities upon completion of works and re-vegetation. The terms of reference (ToR) of bidding documents for civil works will clearly state the compliance requirements for environmental and social directives (which will be elaborated in the ESIA's). The local District Environmental Officers and the Municipal Environmental Officers in direct collaboration with NEMA will ensure compliance with environmental laws and requirements during the construction and development work.

With regard to impacts during the operation phase, mitigation measures will be considered in the overall design of the projects. Significant impacts will be related to disruption of hydrology and water table levels, conflicts due to competing water requirements, water pollution, degradation of irrigated land due to poor agronomic practices. These will be mitigated by ensuring the designs of proposed infrastructures take into account the long-term hydrology of the river systems, including low flows and return periods of floods, and will include flood protection structures and proper distribution systems. Conflicts that may arise due to competing water requirements will be addressed by promoting water conservation measures among farmers, and undertaking rehabilitation works to ensure drainage waters from irrigation schemes are diverted back to main river courses. Importantly, the project shall focus on community mobilization through the existing Farmers' and Water Users associations to raise awareness on the environmental and social compliance requirements for the project. Farmers will be educated on their operational requirements for the schemes through an organization framework that will be led by respective district local governments. This will enhance farmers' participation in the project and enable them to take up effective participation in the project environmental and social compliance obligations as well as create wider awareness on the benefits and challenges of the project. The project will coordinate with HIV/AIDS service providers in each district to address the HIV/AIDS issues that may be of concern during project implementation process.

In order to enhance and maximize the anticipated positive benefits of the proposed FIEFOC-2 project, marginalized groups and gender concerns will be adequately mainstreamed in the project

design, specifically on issues of land allocation, access to finance and extension services as well as climatic shocks. To foster the long-term sustainability of the project interventions capacity needs assessment suggest the importance of training and strengthening the capacity of existing farmers association and water users association on: (i) sustainable agronomic practices to improve productivity and protect the environment; (ii) water conservation and management to promote efficient use of agriculture water; (iii) business development and entrepreneurial skills; and (iv) post harvest and marketing skills.

4.1 Climate Change Adaptation Measures

The FIEFOC initiative by design is a strategic response to the impact of climate change in the vulnerable districts of Uganda evidenced by land degradation, dry spells and floods. The FIEFOC initiative by design is a strategic response to the impact of climate change in the vulnerable districts of Uganda evidenced by land degradation, dry spells and floods. The Bank has already categorized the project as Category 2 in terms of Climate Risk, requiring the application of the Climate Adaptation Review and Evaluation Procedures (AREP). Hence, the project design reflects the projected climate change risks in Uganda and has embedded adaption measures based on the Bank's AREP and aligned with the country's National Adaptation Programme of Action (NAPA) priority projects including community tree planting, land degradation and water for production projects.

Under Component 2 of the project, catchment management activities including integrated soil and water conservation and sustainable forest management activities will be implemented to control land degradation and flood impacts, and thereby contribute to reduced climate change vulnerability of the community and the irrigation infrastructures. Specifically, the proposed activities under this component will seek to improve and restore vegetation cover in the catchment area to sustain water quality and quantity for agriculture irrigation and other uses.

Proposed enhancement/mitigation, monitoring and implementation plan of the potential environmental and social impacts of FIEOC-II

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
Pre-construction (Planning/Design) Phase					
Compliance with National environmental land and all applicable AfDB Environment and Social Safeguards Policies	-Identify and assess the environmental and social impacts and risks including those related to gender, climate change and vulnerability - Address all land acquisition, involuntary resettlement and compensation - Identify and address all pollution, biodiversity and occupational health and safety issues.	-ESIA and ESMPs prepared for each irrigation scheme - Resettlement screening and appropriate safeguards document developed and implemented	Once	MWE, Consultants (NEMA)	200,000
Environment and Social Safeguards Training	Safeguards training including AfDB operational safeguards for all district officers and MWE project implementing unit (PCU)	Project staff and district officers trained	Once	MWE, DLG (NEMA)	50,000
Community mobilization and consultation	Prepare and implement a stakeholder engagement plan, inform all communities affected by the project implementation schedule and their right to compensation if any	No of farmers/community groups engaged/sensitized	Once-Before commencement of construction	MWE, DLG	20,000

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
Health and Safety Issues	Preparation of a health and safety plan for workers and impacted communities addressing issues including education of workers and impacted communities on measures to prevent the spread of HIV/AIDS through awareness campaigns, provision of safety equipment for workers, child labor prohibited	-Health and Safety plan prepared - Workshop on HIV/AIDS held for workers and community	Monthly	Contractor (MWE, DLG)	20,000
Construction Phase					
Land Use, Acquisition, and Resettlements	Irrigation schemes will be located on government lands and sites belonging to beneficiaries that will own the irrigation schemes.	No complaints from affected parties. All complaints are adequately addressed	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	
Loss of vegetation	-Clearing of vegetation should be done only where necessary. -At least 50% of any indigenous trees removed during clearing will be replaced. -Ensure clearing is undertaken with minimal disturbance to the	Area re-vegetated or restored. Conservation of at least 50% of indigenous trees.		Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in contractor bids

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
	surrounding environment within the approved work sites.				
Soil Erosion	<p>-Prompt backfilling and refrain from trenching in rain season.</p> <p>-Progressive rehabilitation will be done so that no trenches are left uncovered for more than 48 hours.</p> <p>-Stockpiles will be made not to exceed a height 1 metre.</p> <p>-Utilize excavated material for construction and restoration works</p>	Excavated soil banked and backfilled.	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in Contractor bids
Soil Contamination	<p>-Machinery that will be used for the project will be properly serviced to minimize fuel leaks to the environment.</p> <p>-In cases of spillages, in-situ bio-remediation will be done.</p>	Daily and weekly checklists completed. Machinery services as per manufacturer's specification	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in Contractor bids
Solid Wastes	-Provide waste collection receptacles	<p>Number of waste bins at camp sites</p> <p>Permit for waste disposal sites.</p>	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in Contractor bids

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
	<ul style="list-style-type: none"> -Acquire approvals/permits for waste disposal sites/utilize -Sensitization of workers on waste management practices. - Conduct waste segregation, reduce and recycle 	No litter left at work site			
Water Pollution	<ul style="list-style-type: none"> - All vehicles trans -All grey water runoff or uncontrolled discharged from site/working areas to water courses should be contained and properly channeled 	Water pollution prevention measures in place		Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in contractor bids
Air pollution	<ul style="list-style-type: none"> - Sprinkle water in construction yards, on dusty roads and soil heaps to keep down the dust produced. - The on-site burning of cleared vegetation will be mitigated by making it available to local communities for use as firewood. This will prevent burning large quantities of 	<p>Air quality monitored.</p> <p>No complaints from affected parties</p>	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in contractor bids

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
	cleared vegetation during single events.				
Occupational Health and Safety	<ul style="list-style-type: none"> - Develop, implement and disseminate occupational health and safety guidelines -Employ qualified first aider and safety officer - First aid kits to be available on site for use by the workers, - Provide Personal Protective Equipment (PPE) to employees. - Sensitize community about ongoing works through notice boards, reflective liners and detours 	<ul style="list-style-type: none"> -OHS guideline in place (% of contractor staff aware of OHS measures and trained - Documented qualifications of first aider and safety officer - PPE usage -Informed public and employees -Gender and HIV/AIDs mainstreamed 	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in Contractor bids
Noise Pollution	<ul style="list-style-type: none"> -Installation of noise mufflers on equipment -Periodic measured of noise levels 	Equipment with noise reduction provision	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in Contractor bids
Dust	-- Vehicles transporting raw materials especially soil should be covered or avoid overloading to reduce dust emissions	Use of wet excavations/damping of roads. No complaints from affected parties	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	Provided in Contractor bids

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
Employment Opportunities	<p>-Implementing clear and transparent procedures for recruitment of labour and sourcing of goods and services will enhance the positive impact.</p> <p>-Preference will be given to residents of local communities, in the case of unskilled labour, and preference given to local suppliers in the case of goods and services.</p>	Number of local communities' employed and/or procured as part of project interventions.	Three month interval	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	
Strained social infrastructure due to increased population	<p>Construction of Ecosan toilets and washing facilities</p> <p>- Construction of domestic water supply facilities</p>	<p>- Number of Ecosan toilets and washing at each construction camp facilities constructed</p> <p>- Number of safewater sources constructed</p>	Three month intervals	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	10,000
Conflicts due to differences in social, cultural norms/values	<p>Sensitization of workers on respect for cultural norms and values</p> <p>Develop grievance mechanisms to handle related grievances</p>	Number of workers sensitized	Three month intervals	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	10,000

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
Spread of HIV/AIDS	<ul style="list-style-type: none"> -To complement existing initiatives in the community, HIV/AIDS awareness and sensitization will be provided to personnel as part of other health and safety awareness. - Development of brochures and other materials that will convey information about diseases and infections, - regular provision of adequate prevention measures such as condoms; -provision of drugs such as anti-retrivival drugs (ARVs) 	HIV/AIDS is included in regular Health, Safety and Environment awareness	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers)	10,000
Increased traffic related impacts including strain on existing scheme, road infrastructure and traffic incidents (accidents and congestion)	<ul style="list-style-type: none"> -Develop and implement a traffic management plan -Erect road safety features 	<ul style="list-style-type: none"> -Traffic management plan prepared -Safety signage 	Quarterly	Contractor (PIU, DLG)	Provided in contractor bids
Temporary loss of livelihoods, social disruption of farming activities and potential	<ul style="list-style-type: none"> - Assessment of the degree of loss to ascertain required compensation if any -Register easement with all farmers whose fields will be 	-Number of farmers affected, sensitized and compensated.	Monthly	Contractor (MWE (PIU safeguard experts) and respective District Environmental Officers, Farmer Groups)	10,000

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
unrest amongst farming communities	traversed by equipment and temporary access roads -Sensitization of communities on how to cope with changes and ensure their awareness of the planned construction activities prior to commencement. Alternative access routes and water diversions will be provided where applicable. -Scheduling/phasing of works to minimize disruption -Construction of works will be phased to limit displacement of farmers at any given time 50% of the scheme.	-Community members consent to construction works schedule and phasing plan.			
Operation and Maintenance Phase					
Improved water for productive uses	-This positive impact will be enhanced by developing water user associations and raising awareness on water conservation and efficiency	Water User Association developed. Training on water conservation and water use efficiency	Annually	DLG (MWE (PIU safeguard experts) and respective District Environmental Officers, Local Leaders)	15,000

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
Degradation of land due to poor agronomic practices	<ul style="list-style-type: none"> -Sensitize farmers on adoption of improved irrigation/agriculture technologies. -Promote soil conservation practices and labour saving technologies 	<ul style="list-style-type: none"> -Number of farmers trained in improved agronomic practices -Soil conservation practices implemented 	Quarterly	DLG (MWE (PIU safeguard experts) and respective District Environmental Officers, Local Leaders)	20,000
Soil and Water Pollution	<ul style="list-style-type: none"> -Encourage use of environmentally friendly pesticides and herbicides. -Regulate use of fertilizers, pesticides and herbicides -Train farmers on safe use and handling of agrochemicals. -Prepare pest management plans -Provide water quality monitoring station to monitor water quality 	<ul style="list-style-type: none"> Approved agrochemical used in fields Byelaws on Agro-chemicals documented and disseminated Manuals developed for farmers Water monitoring station in place 	Quarterly	DLG (MWE (PIU safeguard experts) and respective District Environmental Officers, Local Leaders, Farmer Groups)	30,000
Impact on Downstream Water Users and River reservoir	<ul style="list-style-type: none"> -Sensitize farmers on land and water rights -Establish and strengthen Water User Associations -Installation of control and water metering, and establishment of payment mechanism for water served 	<ul style="list-style-type: none"> -Number of farmers sensitized -Number of WUAs established and strengthened Water metering system in place 	Quarterly	DLG (MWE (PIU safeguard experts) and respective District Environmental Officers, Local Leaders, Farmer Groups, WUAs)	30,000

Anticipated Environmental and Social Impacts	Proposed Action/Measures and Objective of Management Measures	Monitoring and Reporting Indicators	Frequency of Monitoring (Timing)	Implementation Plan and Institutional Responsibilities	Cost Estimates (US\$ M)
	-Water scheduling protocol based on irrigation policy	-Functional water scheduling protocol			
Accelerated or frequent breakdown of infrastructure	-Training of farmers on maintenance and operation of irrigation structures. -Provision of equipment, tools and manuals. -Provision of incentives to maintain infrastructures e.g access to silt from traps, seeds	% Farmers trained. Training manuals for irrigation management, O&M, equipment and tools maintenance. Presence of designated sand mining areas	Quarterly	DLG (MWE (PIU safeguard experts) and respective District Environmental Officers, Local Leaders, Farmer Groups, WUA)	50,000
Public Health concerns: due to water-logging of irrigation facilities resulting in increased incidence of water-borne diseases such as Malaria, Typhoid, Bilhazia	-Irrigation schemes will not be located close to homesteads. Community members will be educated on the issues of water-borne diseases. -Liaise with district Health officers to promote use of mosquito nets, chemically treatment, and/or boiling of water prior to drinking. -Technical designs of irrigation schemes will consider water flow by gravity to minimize pumping	- Health campaign promoting use of mosquito nets, and treatment of drinking water. -	Quarterly	DLG (MWE (PIU safeguard experts) and respective District Environmental Officers, Local Leaders)	20,000
					495,000

5. Environmental and Social Monitoring Program

The overall responsibility of the environmental and social monitoring will lie with the Ministry of Water and Energy – MWE (project executing agency). MWE, in liaison with technical personnel at the respective districts, NEMA (the overall national authority on the environment), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Works, Department of Water Resources Management, Wetlands Management Department, National Forestry Agency (NFA) department of Occupational Health and Safety (MoGLSD), Civil Society and the Farmers' Organization will undertake regular environmental, social, safety and health inspections. A monitoring committee will be established comprising the above stakeholders to undertake quarterly environmental and social monitoring of project implementation.

The ESMP monitoring plan is proposed for implementation at two-levels – the supervisory activity carried out by the control or supervision mission and the regular monitoring activities conducted at the district level.

The regular monitoring will entail on-site inspection of construction activities to verify measures identified in the ESMP included in the clauses for Contractor(s) are being implemented. The activity will ensure compliance of project implementation with the mitigation measures set out in the ESMP and agreed upon local environmental standards under the laws of Uganda and the Bank's safeguard policies. Among the key issues to be monitored will be: (i) the status of the physical works; (ii) the technical and environmental problems encountered; (iii) proposed solutions to the problems encountered; and, (iv) the effectiveness of environmental and social measures adopted. The ESMP monitoring team will ensure regular reporting on a quarterly basis to MWE.

The supervision monitoring, on the other hand, may be held once every quarter and will include: (i) reviewing the contractor's detailed worksite ESMP or ESIA and its specific procedures; (ii) ascertaining the negative impacts identified; (iii) ascertaining the effectiveness of proposed measures; (iv) studying specific applicable conditions for the proposed measures; (v) monitoring the implementation of measures during the works implementation phase; (vi) monitoring the recommended measures; (vii) proposing remedies for new cases ; and (viii) conducting environmental compliance and assessment at the end of the project.

Using the environmental monitoring indicators (Table 1 above) adopted, the control mission will seek to measure the project's progress, in a manner that highlights the various objectives in line with national goals and the Bank's Integrated Safeguards System (ISS). An annual monitoring report will be submitted to the MWE and the African Development Bank for review.

6. Public Consultations and Disclosure Requirements

Public consultations have been held at various levels during the identification and preparation stages of the FIEFOC-II project to ensure main beneficiaries are kept informed of the proposed project and their views and concerns are incorporated in the overall project design.

During field visits to proposed irrigation sites, consultative meetings were held with the project's main stakeholders including farmers, community groups, local council leaders and the district local government officers. Consultative meetings were also been held with other stakeholders including the MAAIF, Ministry of Finance, local council leaders, Chief Administrative officers, as well as technical staffs (environment, forestry, and social) at the district and national level. The consultations were initiated to (i) generate a good understanding of the project by all stakeholders of the project; (ii) to enhance ownership of the project by local leadership, the community and local farmers; (iii) to understand people's and agency expectations about the project; (iv) to understand and characterise potential environmental, social and economic impacts of the project; (v) to enhance local benefits that may accrue from the project; and (vi) to enable stakeholders involved in the project to provide views, hence

participating in or refining project designs. In addition, site-specific investigations were also conducted to gain insight to the likely impacts of the programme on the environment.

The outcome of the consultations was special emphasis on the community members' access to the irrigation schemes upon project completion. Other issues raised bordered on (i) improving farmer's productivity and capacity skills to manage the irrigation infrastructures; (ii) addressing environment issues such as land degradation, floods and communities' vulnerability to climate change; (iii) mobilization of youth in agricultural activities; and (iv) disruption of farming activities in the project area during construction.

Further consultations with beneficiaries and stakeholders in general will continue during the preparation of site-specific environmental and social assessments as per the environmental regulatory requirements, implementation and post-implementation. The views and comments of the public will be incorporated, to the extent possible, in the design of the proposed infrastructure. All environment and social impact assessments and their updates shall be public documents and the ESMP shall be posted on the AfDB's website.

7. Institutional Arrangement and Capacity Building

The Ministry of Water and Environment (MWE) is the principal Executing Agency for FIEFOC-II project and will be responsible for the overall monitoring and management of the project during both construction and operation, including ensuring the implementation of the mitigation and enhancement measures and adherence to Uganda's environmental regulations and the Bank's Operational Safeguards. Other institutions that will be directly and indirectly involved in the implementation process include the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), the Uganda National Environmental Management Authority (NEMA), the Ministry of Finance, Planning and Economic Development (MFPE), Ministry of Gender, Labor and Social Development, and the Ministry of Local Government (MLG).

The **National Project Coordination Unit (PCU)** established under FIEFOC-1 and housed in the MWE will coordinate the activities of all institutions. The PCU shall have 1 or 2 environmental and social safeguard specialist(s) (recruited or appointed by the MWE) who will monitor and manage the implementation of the ESMP. The functions of the specialists will include working with consultants and reviewing reports as well as ensuring that safeguard decisions are adequately mainstreamed. They will also participate in monitoring and evaluation exercises. MWE/PCU, in liaison with District Local Government, the Ministry of Works, Directorate of Water Resources Development, Department of Water Resources Management, Wetlands Management Department, the department of Occupational Health and Safety (MoGLSD), Civil Society and the Farmers' Organization will undertake regular environmental, social, safety and health inspections. A monitoring committee is proposed, comprising the above stakeholders to undertake quarterly environmental and social monitoring of project implementation.

The National Environmental Management Agency (NEMA) will be responsible for review, comment and overall approval of the ESIA/ESMPs reports for the respective irrigation schemes. Once approved, NEMA will issue Conditional Approval Certificates for the ESIA's for the proposed construction and operation of the irrigation schemes.

At the district level, the **District Local Government (DLG)** for each irrigation scheme with its technical staffs will participate in the monitoring and enforcement of the environmental regulations, provision of extension services, mobilization of communities, sensitization and capacity building activities. Each District will designate a Project Support Officer (PSO) among its staff, who will support the implementation and technical supervision of the Project, including sensitization of farmers, training, and monitoring and evaluation in the respective local governments. An identified district environment officer will be responsible for ensuring the compliance of all the projects components in line with relevant regulations and conditions during construction and the operation of the irrigation schemes. The district environment officer will relay environmental and/or social concerns on the project to NEMA for technical guidance. The district

officers will report periodically to the MWE/PCU on all issues related to the irrigation scheme activities including environmental and social safeguards.

In accordance with the Contract provisions, the Contractor(s) will be accountable for the implementation of the mitigation measures during the construction and initial operation phases. The Contractor(s) must include in their schedule of works, all proposed mitigation measures. The Contractor(s) must have designated personnel (Supervising Consultants) to monitor environmental, safety and health matters during construction works, and report regularly to MWE/PCU. It is recommended that the Supervising Consultant Team include an Environment Management Specialists, who will be responsible for the day-to-day guidance of the project activities on environment and social compliance to the requirements of the Contract and the Bank's policies. Under this arrangement, the Contractor(s) will have the obligation to ensure that the mitigation measures as well as project Conditions of Approvals are included in the Bidding documents. The Bills of Quantities (BoQs) will specify budget needs for the implementation of the mitigation measures in line with the ESIA and the ESMPs for FIEFOC-II Project.

Institutional Capacity for ESMP Implementation

Capacity gaps among professionals at the district level were identified during project preparation field visits. The weakness in managing environmental needs is further compounded by lack of funding, equipment and qualified staff. While NEMA and MoWE provide technical and oversight support to the districts and, it is important to build and strengthen technical officers (including community water users and farmer groups) with guidelines that will enable them take on the responsibility of sustaining the schemes and correctly monitor, mitigate and manage social and environmental performance of the project. Importantly, given the implementation of the project at the district/community level, it is imperative bridge these capacity gaps. This ESMP proposes capacity building in the form of awareness creation and sensitization, actual training through workshops and seminars as well as short courses for the different stakeholder and implementing partners within the FIEFOC-II project.

To address technical staff shortages, it is recommended that the MWE and NEMA liaise with the relevant DLGs to appoint/recruit environmental specialists to undertake the responsibility of managing the ESMP process at the district level before commencement of the project activities.

A capacity building programme will be included as part of this project to help train the district and Ministry officers engaged in the implementation of this project in various aspects of environmental assessments. The capacity building programme for the relevant staffs will enable them to monitor environmental issues in the sub-projects and ensure compliance with requirements of the Uganda environmental regulations as well as the AfDB safeguard policies. It is proposed that the training and capacity building activities be facilitated by NEMA, MWE and the Environmental Specialists at the Bank. The training workshops will be delivered at the national and irrigation scheme-district levels, and will take into consideration; the integration and fulfillment of the requirements of the African Development Bank's environmental and social safeguard policies and guidelines, as well as the Uganda Environmental Protection provisions.

Contractor(s) and Supervising Consultants will also need to be provided with awareness raising and environmental and OHS training on-site. This should focus not only on the construction phase but also operational phase of the Project.

The following table (Table 2) outlines recommended training and workshops to support capacity needs and institutional strengthening of the implementing agencies.

Table 2: Training Activities proposed to bridge Capacity Gaps for the FIEFOC-II ESMP Implementation

Type	Topics	Intended Audience
Technical Training	-Environmental and Social Assessments, -Environmental Information Systems/Water Catchment Planning, -Resettlement & Land Acquisition, -Community Consultation/Participatory Planning, -Water Quality Management, Pollution, -Surface and Groundwater Monitoring	MWE/PCU, DLG, MAAIF,
	Objective of ESMP Relevant Legislative and regulatory acts and African Development Bank Operation Safeguard policies and Procedures - Environmental and Social Management Procedures for each irrigation scheme (Screening, Appraisal and Approval, Disclosure, Annual Review, Annual Reporting)	
Community Training	Development of Catchment Plans, Sustainable Livelihood Planning, Participatory Water Resource Planning	Farmer Groups, Water User Associations, Women Groups
Awareness Workshop	Environmental awareness and importance of effective mitigation, compliance with local legislation on OHS, EIA, EMP requirements. Technical training on implementation of EMP (contract clauses), monitoring of EMPs and RAPs	Contractors and Supervision Consultants

8. Estimated Costs

The cost for implementing the environmental and social impact mitigation measures, monitoring/supervision and capacity building is estimate at USD 0.85 million. These costs will be directly integrated into the main project budget.

The costs of preparing and implementing the safeguards aspects of the project are estimates as the location and size of the irrigation schemes are not fully determined at this stage. It is expected that the proposed ESMP budget may change depending on the work plan.

Table 3: Cost breakdown for the Implementation of the FIEFOC-II ESMP

No.	Activity	Timeframe	Cost (US\$)	Responsibility
01	Preparation of site-specific ESMP/ESIAs, designs and updates	Quarter 1 prior to actual project works	300,000	MWE
02	Community mobilization and Consultation		20,000	MWE, DLG
03	Mitigation Measures	Construction and Operation phase	185,000	Contractors, MWE, DLG
	ESMP Monitoring an			
	<ul style="list-style-type: none"> Regular supervisions 	Entire project period until hand-over	100,000	MWE, DLG
	<ul style="list-style-type: none"> Control missions 	Quarterly during project period	50,000	MWE, NEMA & AfDB
04	Capacity Development to address ESMP implementation capacity gaps at the district and national levels.	Prior to project works	50,000	MWE, DLG
05	General Public Awareness Programmes on Health, Safety and (HIV/AIDs)		20,000	MWE
06	Training of Community (farmer groups, WUAs) on water quality monitoring, water conservation, pesticide use, and other agronomic practices	Quarterly	20,000	MWE
	Total		785,000	
07	5% mark-up		39,250	
08	Grand Total		824,250	

9. Implementation Schedule and Reporting

The Environmental Officers of the MWE (PCU) shall be responsible for the implementation and distribution of any approved amendments to the ESMP during the construction phase.

Regular reviews will be undertaken to monitor the progress of the implementation of the measures identified in the ESMP. The reviews will be undertaken annually that will culminate in an annual review report, which will document the review methodology, summarise the results, and provide practical recommendations. The reviews will broadly aim to address the ESMP performance and assessment of possible cumulative impacts.

10. Conclusion

The Farm Income Enhancement and Forestry Conservation Project -II is expected to enhance productivity, and by extension income levels of smallholder farmers in the rural districts of Uganda. Importantly, the project will drive the development of agribusiness that will enable

beneficiaries diversify income sources through alternative livelihood interventions. The anticipated environmental and social impacts of the project are localized and site specific and can be mitigated during by the application of mitigation measures specified in this Environmental and Social Management Plan. The ESMP shall provide the mechanism to guide the assessment (site-specific assessment of each irrigation schemes) and mitigation of potential adverse environmental and social impacts of the project activities.

The project is environmentally and socially feasible for implementation provided the recommended mitigation and monitoring measures are implemented, and the proposed implementation arrangements are upheld.

11. Contacts

Damian Ihedioha, Principal Agro-Industry Specialist (OSAN-1), African Development Bank, Abidjan, Cote d'Ivoire. Email: D.Ihedioha@afdb.org

Olusola Ikuforiji, Environmental Specialist (Consultant, OSAN-3), African Development Bank, Abidjan, Cote d'Ivoire. Email: o.ikuforiji@afdb.org

Makonnen Louseged, Senior Water Resource Engineer, (OSAN-1), African Development Bank, Abidjan, Cote d'Ivoire. Email: M.Louseged@afdb.org