**PROJECT:** AGRICULTURAL VALUE CHAIN DEVELOPMENT PROGRAMME (AVCP) – PROJECT 1

**COUNTRY:** UGANDA

**ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK**

*Date: February 2017*

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ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)
SUMMARY

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1. **Introduction**

Uganda possesses key distinctive features to become an agriculture power house in Africa. Endowed with significant natural resources, including ample fertile land and regular rainfall, it is believed that Uganda could feed all of Africa if it were commercially farmed. To seize such opportunities, the Government of Uganda (GoU) sought for a loan from the African Development Bank to implement an Agricultural Value Chain Development Programme (AVCP).

The AVCP has been identified as a flagship project under the Uganda National Development Plan (NDP) II that will contribute to the achievement of Uganda’s national objectives to increase household income; generate employment; develop the infrastructure; and increase access to quality social services. Specifically, it has been developed to support transformation of three of the prioritized commodity value chains within the Agricultural Sector Strategic Plan (ASSP) 2015/16 – 2019/20 namely: Maize, Rice and Dairy. These value chains were selected for a number of reasons including, high potential for food security (maize and rice); high current and potential contribution to export earnings (maize and rice); great potential to increase production and productivity through better management (maize, rice, and dairy); high returns on investment (dairy and rice); excellent agro-ecological conditions (rice); high potential for regional and international markets (maize, rice, and dairy); percentage contribution to agricultural GDP (maize and dairy) and high potential for employment generation (maize and rice) while being mindful of the nutritional needs of the country (dairy).

AVCP will support a range of agriculture development activities including production and productivity enhancement, irrigation scheme for lowland rice production covering about 1500 ha of irrigated land in the Sironko district, postharvest and market infrastructure and improved genetic livestock breeding centers among others. The specific locations and detailed designs of the interventions are yet to be finalized, hence, the environment and social management framework (ESMF) provides the general impact identification framework to assist the GoU screen all proposed subprojects and put in place measures that will address potential adverse environmental and social impacts. Consequently, environmental and social assessments and other safeguard measures can be confirmed during program implementation. The ESMF will
provide the guidance on the procedures for the identification and management of potential environment and social risks.

The ESMF has been prepared in accordance with African Development Bank safeguard policies and national policies regulations and guidelines from the Uganda National Environmental Management Authority (NEMA). It involved desk review of existing literature. It ensures that all the potential adverse environmental and social impacts will be adequately addressed during AVCP implementation. The project will also develop an Abbreviated Resettlement Action Plan (ARAP). Both the ESMF and ARAP will provide general guidance for the preparation of more detailed activity specific safeguard instruments, including Environment and Social Impact Assessments (ESIAs); the Environment and Social Management Plans (ESMPs); the Resettlement Action Plans (RAPs); and the Pest management Plans (PMPs).

2. Description of Programme

The overall goal of the Agricultural Value Chain Development Program- Project I is to contribute to poverty reduction and economic growth in Uganda through enhanced productivity and commercialization of agriculture. Specifically, the project’s objective is to improve household incomes, food security, and climate resilience through commercial agricultural practices, sustainable natural resources management and agricultural enterprise development.

AVCP will be implemented along a commodity value chain framework, with considerable attention to regulatory reforms. In agreement with the GoU, the project will comprise of four (4) operational and one (1) management components namely: i) Production and Productivity Enhancement, ii) Infrastructure Development, iii) Market Development and Trade Facilitation; (iv) Innovative Financing Mechanism; and v) Project Management and Coordination.

Component 1: Production and Productivity Enhancement

The objective of the production and productivity component of AVCP is to double the on-farm yield of maize from 1.5MT/Ha to 3MT/Ha, yield of rice paddy from 2MT/Ha to 4MT/Ha, dairy yield from 3 liters/day of milk to 6 liters, and beef yield from 300Kg to 600Kg at 2-3 years in the project target districts within the five-year period of the project. The approach is efficient delivery of certified seeds of improved maize and rice to farmers through the middle-of-the-value chain actors, village agents, of farmer organizations and large off-takers of these grains. For dairy and beef, genetic improvement of traditional breeds via artificial insemination with imported semen or imported exotic breeds (Friesian for milk and Brahman for beef) working with private dairy and beef breeders.

Component 2: Infrastructure Development

The infrastructure development component will enable to develop Achomai/Sironko irrigation scheme located in Bukedeya/Bulambuli Districts. Feasibility studies and engineering designs of the irrigation scheme were prepared by the GoU and JICA, which need to reviewed and updated. The irrigation infrastructure includes head works, canal and drainage network, on farm development, flood protection dyke, and on farm road network. With the development of the
proposed scheme smallholder farmers in the project area will transform from climate dependent rain-fed farming to a more sustainable commercial oriented agriculture.

The project will construct a bridge over Sironko River at the intake site to connect Bukedea and Bulambuli Districts. In addition, an access road will be provided to link the irrigation schemes with the nearest existing road network located upstream of project site that leads to Mbale city; the major trading centers close to the project area. This will improve evacuation of the produce, access to input supply and provision of other social services necessary for the livelihood of farmers in the project site in particular and the surrounding areas in general.

**Support Infrastructure:** The project will encourage multipurpose use of water including provision of shallow wells for domestic use, livestock watering at selected critical locations, fisheries development in water bodies within the project area. Other support infrastructures required for the operation of the scheme such as warehouse, grain storage, buildings for offices, training farmers, selected farm and O&M equipment, rice drying yard or cleaning and drying machine will be provided.

**Consultancy services:** The project will engage a consulting firm; (i) to review and update the detailed designs, and supervise the construction of the irrigation infrastructure during implementation;(ii) examine the adequacy of the feasibility and technical design of Achomai irrigation scheme and fill missing gaps; (iii) prepare the tender document for the engagement of the contractor; and (iv) prepare scheme operation and maintenance (O&M) guideline.

**Establishment of Water Users Association:** The project will support farmers to organize themselves in to Water Users’ Association (WUA) to ensure efficient water distribution to members, Operation and Maintenance (O&M) of irrigation facilities, and manage the irrigation systems. In addition, encourage them to form marketing cooperatives/organised groups that will enhance their price bargaining ability for marketing their produce including accessing inputs and other services. In order to discharge its functions, the WUA will be legally established as autonomous, self-financing organization. The mission urges Government to intensify efforts to continuously sensitize farmers, including registration and mapping of existing landholding of farmers and strengthen the provision of extension services with appropriate skills to project target groups, particularly responding to the needs of women and youth farmers.

**Capacity Building:** Training needs assessment will be conducted during the start-up of the project, training modules will be developed which will be used to train relevant Government staff and farmers. In consideration of farmers’ lack of experience in irrigated agriculture, farmers training will focus on building capacity to selected farmer groups, targeting both male and female farmers within the scheme, committee members, association leaders and women groups with the support of established demonstration sites. The project will partner with appropriate service providers including GOs, NGOs and Universities for the provision of capacity building of farmers. JICA has also expressed its intent to focus its future support towards building capacity of farmers.

**Watershed management:** The intervention in the Sironko and Sipi catchment aims to improve the livelihood of people living in the watershed as well as to promote the sustainable development of
the natural resource base and thereby ensuring the sustainability of the irrigation scheme. The project will complement the ongoing government/donor supported conservation programmes in the project area implemented by MoWE and the concerned districts. Key activities may include simple soil and water conservation programmes such as, agroforestry, vetiver grass planting on the terraces, etc., terracing, and protection of stream banks to minimize siltation. The most common forest based enterprises that will be considered also include fruit-tree planting, bee-keeping, mushroom harvesting, and medicinal activities.

Component 3: Market Development and Trade Facilitation

This component consist of the following sub-components:

Market Development and Linkages

The objective of this component of the project is to increase returns on investment and incomes for all actors in the maize, rice and dairy value chains and provide an enabling environment for commercialization and trade. The proposed activities are:

- Provide postharvest facilities and services and agri infrastructure to farmers on a sustainable basis
- Network and link farmers to agro-processors and large traders as sure markets for farmers using innovative and enduring mechanisms
- Build capacity of the network of community based village buyer agents to provide additional services such as SPS standards and requirements to farmers
- Develop a robust market information system to inform vendors and farmers on commodity prices in project locations.
- Develop a database of processors and large buyers of maize, rice, and dairy, and the farmers that supply them and an ICT platform to integrate all these value chain actors
- Build capacity of the network of community based village buyer agents to generate the data required by the ICT platform to link farmers to inputs, extension, mechanization, financial, and market service providers.
- Link medium to large scale processors and traders to financial institutions to access loans that will enable them expand their investments

Trade Facilitation and Quality Infrastructure

Trade facilitation requires that a country has to build its capacity to comply and conform to quality related issues with its exportable commodities before it can connect to regional and international markets. The proposed project will strengthen the Sanitary, Phytosanitary and Quality Infrastructure to meet the export requirements for agro food products especially for dairy, maize, and rice products in Uganda. To understand the need to develop Uganda's SPS and Quality Infrastructure this section will draw extensively from a previous study by UNIDO in December 2015 on the need to strengthen the sanitary, phytosanitary and quality infrastructure in Uganda to meet the export requirements for agro food products. Support will also be given to the Uganda National Bureau of Standards (UNBS) to facilitate their work in ensuring
standardization of quality across commodities and also in the establishment of an appropriate food safety laboratory.

Component 4: Innovative Financing Mechanism

Activities include:

Risk Sharing Facility (RSF) - The risk sharing facility is being used to support the deployment of different risk sharing instruments to incentivize and demonstrate to commercial banks to lend more to the agricultural sector. This will be designed to reflect the perceived risk and depending. This includes first loss and shared loss arrangements, depending on the volume of lending, the part of the value chain that the bank wants to lend to, the term of lending and the experience and capacity the institution has in lending to the agricultural sector.

Technical Assistance Facility - The technical assistance facility is intended to build capacity of banks through long term and short term technical assistance for the development of operational mechanisms, products and instruments, monitoring and reporting protocols for the agriculture portfolio, including building delivery platforms to support the agricultural lending business. The technical assistance facility will also be used to build the capacity of commercial smallholder farmers and other value chain actors, including assisting them in linking to markets and enhancing financial literacy.

The Insurance Facility - The insurance facility will be used to identify existing insurable risks, existing solutions for coverage and assist in the development of other workable solutions/products and then bundle such products with the loans that will be provided by the banks and other service providers.

Development of the digital payment platform for both Government and private sector will improve the delivery of funds to rural areas in a much safer and quick way than is currently the case. This intervention in addition to the use of mobile phone infrastructure already in place will further reduce transaction costs, and this should provide the institutions an opportunity to re-evaluate their cost structure which will effectively reduce the cost of funding. The payment platform links the farmers and agribusinesses, government and the markets.

Component 5: Project Management and Coordination

MAAIF will be the project’s principal executing agency and will work with other government institutions, notably the Ministry of Water and Environment (MoWE) as implementing agencies. The Ministry of Finance and Bank of Uganda will take the lead in implementation of the Risk Sharing Facility. Other institutions include Ministry of Trade, Farmers Associations, the Private Sector Foundation and related agribusiness associations, etc. Further, MAAIF will establish AVCP Implementation Team with the required skill mix. It is strongly recommended that the Project Coordinator be competitively recruited to avoid delay in implementation associated with using Government personnel to run the Implementation Unit. MAAIF will develop a proposal on Project Implementation Team with detailed ToRs and staff competencies.
required to be submitted to the Bank before appraisal of the Project. Further, the Implementation Team will need to be constituted before project Board Approval to facilitate a smooth take-off of implementation.

Further, a Project Steering Committee will be established to act a policy organ and also oversee implementation of the Project. The Steering committee, to be chaired by the Permanent Secretary MAAIF, will comprise high level technical officers from all relevant stakeholders. MAAIF will prepare a proposal on establishment of this steering committee, detailing its ToRs and composition. The Proposal will be submitted to the Bank before project appraisal.

**Project Target Area:**

1. Maize Production: Support for maize growing will be in four regions of Uganda namely:
   - Western Uganda (Kyegegwa, Kamwenge, Masindi, Kiryandongo, Kasese, Buhweju, Mitooma)
   - Central Uganda (Nakaseke, Mukono, Luwero, Mityana, Kiboga, Buikwe, Wakiso, Buyende, Mayuge)
   - Northern Uganda (Gulu, Oyam, Amolatar, Pader)
   - Eastern Uganda (Iganga, Kamuli, Mbale, Jinja, Kapchorwa)

2. Rice Production: Irrigated rice will be promoted in the following regions/districts
   - Eastern Uganda: Bulambuli, Bukedea and Kamuli
   - Northern Uganda: Gulu, Oyam, Amolatar and Pader

3. Dairy Production: The project activities will be carried out in Western, Northern, Central and Eastern Uganda; with more emphasis to the cattle corridor districts, where most of cattle populations are found.

**Project Beneficiaries:**

The target population in selected districts is about 1,816,756 of which 51.7% are women and comprising 386,543.8 households. It is envisaged that the AVCP would lead to increase in yields of major crops by 50% and per capita incomes of the target population specifically women by an average of 10%. In particular, a greater percentage (50%) of the start-up enterprises and income generating activities from natural resources, capacity building and service delivery of the project would specifically target women and youth whose incomes are expected to increase by an average of 30%; thus, enhancing their socio-economic status through improved standard of living. The project will benefit further 300,000 households of which 20% are female headed outside of irrigation command areas, by introducing or improving soil conservation measures in the catchments feeding the irrigation schemes. Moreover, the project is expected to provide technical skills in conservation and other farming practices that promote environmental management and thus increasing agricultural productivity in the proposed project area. Training under the project will provide an opportunity for special attention to be given to intensification of climate-smart farming operations.
3. Policy, Legal and Administrative Framework

The implementation of the project and ESMF will be guided by the government policies and legal frameworks listed below both at national level and Global level because Uganda has ratified and made commitments to various treaties.

3.1 National Policy Framework

The National Environment Management Policy (NEMP): The key policy objectives include the enhancement of the health and quality of life of Ugandans and promotion of long-term, sustainable socio-economic development through sound environmental and natural resource management and use; and optimizing resource use and achieving a sustainable level of resource consumption.

The National Development Plan 11: The National Development Plan (NDP) covers the fiscal period 2010/11 to 2014/15. It stipulates the Country’s medium term strategic direction, development priorities and implementation strategies. According to the NDP, the share of agriculture in GDP was 51.1 per cent in 1988 and 33.1 per cent in 1997, declining further to 15.4 per cent in 2008. The sharp decline in the share of agriculture in GDP represents significant structural transformation in the economy.

The Uganda Vision 2040: Uganda Vision 2040 provides development paths and strategies to operationalize Uganda’s Vision statement which is “A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years” as approved by Cabinet in 2007. Agriculture is the mainstay of the Ugandan economy employing 65.6 per cent (UBOS, 2010) of the labor force and contributing 21 percent to the GDP. Despite these, agricultural contribution to the GDP has been declining but remains very important to provide a basis for growth in other sectors. However, agriculture productivity of most crops has been reducing over the last decade mainly due to a number of factors including: high costs of inputs, poor production techniques, limited extension services, over dependency on rain fed agriculture, limited markets, land tenure challenges and limited application of technology and innovation.

Agricultural Sector Support Strategy ASSP 2015/16-2020/21: This is the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF’s) Development Strategy and Investment Plan (DSIP) for the agriculture sector, covering the period 2010/11 to 2014/15. It is a revision of the 2005/06-2007/08 DSIP and comes at a critical juncture for agriculture in Uganda. This DSIP consolidates and harmonizes all the existing parallel policy frameworks in the agricultural sector into one coherent plan. The DSIP sets the priorities for the five-year period and these will be used as a basis for defining spending plans each year under the Medium Term Expenditure Framework (MTEF).

The 2003 National Agricultural Research Policy: The 2003 National Agricultural Research Policy (NARP), guided by the principles of the Plan for Modernization of Agriculture, has a vision based on a market-responsive, client oriented and demand-driven national agricultural research system comprising public and private institutions working in tandem for the sustainable economic growth of Uganda. The NARP calls for decentralization of research on the basis of
agro-ecological zones and seeks to implement different mechanisms of funding research on a sustainable basis.

Water Resources Policy, 1995: The overall water resources policy objective is to sustainably manage and develop the water resources in a coordinated and integrated manner so as to secure/provide water of an acceptable quality for all social and economic needs. The policy stipulates inter alia: “The first priority in water resources allocation will be the provision of water in adequate quantity and quality to meet domestic demands; and” Allocation of water to meet irrigation, livestock, industrial and other demands will be done considering the economic, social and environmental value of water.

The National Trade Policy, 2006: The National Trade Policy (2006) is aimed at poverty reduction, promoting employment, economic growth and promotion and diversification of exports, particularly nontraditional exports. The guiding principles of the Policy that have a linkage with the pesticides management are highlighted in the need to mitigate any adverse effects of practices by the country’s trading partners. The concerns are dealt with by invoking and implementing trade defense measures as and when appropriate, and taking into account multilateral disciplines in the area. The policy also notes that the country ought to be mindful of the negative social and economic effects that might come with growth in trade, and ensure that mitigating measures and policies are put in place.

The National Land Use Policy: The overall policy goal is to achieve sustainable and equitable socio-economic development through optimal land management and utilization in Uganda. The policy recognizes amongst others, the need for the protection of minority groups and, pastoral groups on matters of land.

The National Gender Policy, 2007: The government adopted a National Gender Policy of 1997, a tool to guide and direct the planning, resource allocation and implementation of development programs with a gender perspective. The adoption of the gender policy has facilitated Uganda’s gender mainstreaming programs in all sectors of the economy (implying, the planned works project should equally integrate gender into the implementation of works.

The National Irrigation Master Plan for Uganda (2010-2035): The overall objective of irrigation development in Uganda, in line with the NDP is therefore: “Poverty Alleviation and Economic Growth as a result of the sustainable realization of the country’s irrigation potential mitigating the effects of climate change and contributing to the transformation of Uganda society from a peasant to a modern and prosperous country”. Under the Plan, irrigation will present the following benefits:

- Reduce the risk of climate shock (drought and flood) and allows adaptation against climate change and hence not only renders risk averse farmers willing to invest in seasonal inputs and longer term productivity and sustainability measures, it also reduces the perceived risks of farming system diversification;
- Increase productivity and can increase quality of crops;
- Subject to certain caveats, publicly funded irrigation has significant poverty alleviation potential; and
Appropriate irrigation development planning, by facilitating intensified production, can reduce the unit costs of input, extension and post-harvest services.

### 3.2 The Legal Framework

The applicable legal instruments to the Agriculture Value Chain Development Project include:

**The National Environment Act, Cap 153:** Section 20 of the Act makes it a legal requirement for every developer to undertake an environmental assessment for projects listed in the Third Schedule of the Act. In this case, agriculture amongst others, including large scale agriculture, use of new pesticides are some of the projects in the Third Schedule to the Act that require an ESIA to be conducted before they are implemented. ESMF outlines some of the salient impacts in ACDP as well as mechanisms for conducting further assessments on the project sub-components.

**The Agricultural Chemicals (Control) Act, No. 1 of 2006:** This Act was enacted to control and regulate the manufacture, storage, distribution and trade in, use, importation and exportation of agricultural chemical and other related matters. Under this Act, the requirement of packaging, labeling or advertisement of agricultural chemicals is relevant in pesticides management to prevent illegal activities related to mislabeling and mis-packaging. In addition, section 13(2) provides for the period in which the seized agricultural chemicals can be detained and the power to dispose them off. The person in whose possession the chemicals were got has to consent in writing for these chemicals to be destroyed by the Government.

**The Agricultural Seeds and Plants Act (Cap 28):** This Act provides for the promotion, regulation and control of plant breeding and variety release, multiplication, conditioning marketing, importing and quality assurance of seeds and other planting materials. It establishes the National Seed Authority and a Variety Release Committee. The Act also establishes the National Seed Certification Service which is responsible for the design, establishment and enforcement of certification standards, methods and procedures, registration and licensing of all seed producers, auctioneers and dealers, advising the Authority on seed standards and providing the Authority with technical information on any technical aspects affecting seed quality. The Act imposes stringent requirements for variety testing.

**The National Agricultural Research Act, 2005:** The National Agricultural Research Act, 2005 provides for the development of an integrated agricultural research system for Uganda for the purpose of improving agricultural research services delivery, financing and management. The overall goal of the National Agricultural Research System (NARS) is to address challenges presented in the Plan for Modernization of Agriculture (PMA) strategy and the NARP principles to provide research services that address in a sustainable manner, the needs and priorities of the majority poor.

**Environmental Impacts Assessment Regulations, 1998:** The EIA Regulations gives a systematic EIA procedure in Uganda. It gives EIA a legal mandate, thus paving the way for an enabling environment for it to use as a tool for environmental protection. The regulation also has punitive measures of offenders. It recognizes three levels of EIA:
i. An environment impact review shall be required for small scale activities that may have significant impact;

ii. Environmental impact evaluation for activities that are likely to have significant impacts; and

iii. Environmental impact study for activities that will have significant impacts.

**National Policy for the Conservation and Management of Wetland Resources, 1995**: Regulation 11 (2) spells out traditional and regulated uses of wetland resources in the country. Every landowner, occupier or user who is adjacent or contiguous with a wetland shall have the duty to prevent the degradation or destruction of the wetland and shall maintain the ecological and other functions of the wetland (Regulation 17).

**National Environment (Waste Management) Regulations, 1999**: This applies to all categories of hazardous and non-hazardous waste and to the storage and disposal of hazardous waste and its movement into and out of Uganda. The regulations promote cleaner production methods and require a facility to minimize waste generation by eliminating use of toxic raw materials; reducing toxic emissions and wastes; and recovering and reuse of waste wherever possible.

**The Local Governments Act (Cap 243)**: The Act creates a decentralized system of government based on the district as the main unit of administration. Administrative powers and functions are devolved from the central government to the local governments. The Act allocates responsibility for service delivery of a number of functions to local government councils (districts, cities, municipalities or town councils) and to lower local government councils (sub-counties / divisions).

**Land Act, Cap 227**: The Land Act vests land ownership in Uganda in the hands of Ugandans and that, whoever owns or occupies land shall manage and utilize the land in accordance with the Forest Act, Mining Act, National Environment Act, the Water Act, the Uganda Wildlife Act and any other law [section 43, Land Act].

**Water Act, 1995**: This Act seeks to promote provision of a clean, safe and sufficient supply of water for domestic purposes to all persons. The basic foundation of the Act’s provision is the reconciliation between protecting the environment and ensuring the availability to the population of water of sufficient quality and quantity.

**Water Abstraction Regulation, 1998**: The water abstraction regulation, section 18 provides for the establishment of a controlled mechanism through issuance of permits to regulate the amount of water abstraction. The permit system ensures that use of water resources is environmentally friendly and promotes sustainable development. The regulation requires that a water abstraction permit either for ground or surface water abstraction are pre-requisites for motorized and/or abstracting of quantities above 400m3/day for persons involved in construction (damming, diverting surface water).

**The Public Health Act, 1964**: Section 7 of the Act provides local authorities with administrative powers to take all lawful, necessary and reasonable practical measures for preventing the occurrence of, or for dealing with any outbreak or prevalence of any infectious, communicable or
preventable disease to safeguard and promote public health; and to exercise the powers and perform the duties in respect of public health conferred or imposed by this Act or other relevant laws.

**External Trade Act, Cap 88:** This Act restricts certain imports (section 3) and empowers the Minister to prohibit the importation or exportation of any goods (section 8). This Act provides Uganda the opportunity to restrict or prohibit the importation of highly hazardous pesticides, especially as the provisions of the Customs Management Act can only be amended through the East African Community.

**Uganda National Bureau of Standards Act, Cap 327:** The relevant provision of this Act prohibits any person to import, distribute, sell, manufacture or have in possession for sale or distribution any commodity for which a compulsory standard specification has been declared unless such commodity conforms to the compulsory standard or unless the commodity bears a distinctive mark (section 21(1)). This Act could be read together with the National Environment Act on chemical standards in developing standards for pesticides use in the country.

### 3.3 The Bank’s Environmental and Social Safeguards Policy

The environmental and social safeguards of the African Development Bank are a cornerstone of the Bank’s support for inclusive economic growth and environmental sustainability in Africa. The Bank’s Integrated Safeguards Policy Statement sets out the basic tenets that guide and underpin the Bank’s approach to environmental safeguards. In addition, the Bank has adopted five Operational Safeguards (OSs), limiting their number to just what is required to achieve the goals and optimal functioning of the ISS. The ISS, specifically OS 1, requires the preparation of an Environment and Social Management Framework (ESMF), which establishes a mechanism to determine and assess future potential environmental and social impacts of the AVCP. The program has been classified environment category “2”, which implies that the program has limited adverse environmental and social impacts, and may trigger the following safeguard policies:

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The activities of mechanization of maize and rice production; irrigation related infrastructure, grain storage and processing facilities and farm equipment and machinery have the potential of causing adverse environmental impacts which should be assessed and mitigated. Thus, using the environmental screening criteria in the ESMF, project site-specific preliminary assessments will be undertaken to determine whether or not a particular activity is subject to further assessment. Thus, for activities that will be determined as requiring further assessment, Project Briefs/ESIAs will be prepared and utilized during project implementation. Based on preliminary assessments, land requirements for the proposed infrastructure investments may necessitate land acquisition leading to disruption of livelihood activities and potential resettlement. The installation of value chain addition infrastructure may displace peoples’ settlement or activities. Already 5 people/households have been identified to be
affected by the irrigation infrastructure. An abbreviated resettlement action plan will be prepared and compensation effected as per the guidelines of Uganda government

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As farmers expand on acreage for maize and rice growing, there is a likelihood of destroying biodiversity, natural habitats and wetlands. As tractors are used for cultivation, the soil structure is compacted thus making it difficult for water filtration. This may lead to water run-offs, soil erosion and loss of soil fertility- soil degradation. Destruction of biodiversity in wetlands-habitats for birds which eat harmful pests and they are source of food to some communities. According to the Uganda National Environment act, irrigation schemes require an environment impact assessment. Measures to conserve water and soil will be required as part of agronomic practices package delivered to farmers by extension workers

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The fuel exhausts from the agricultural farm machinery and noise will contribute to pollution of the air including Green House Gas (GHG) emissions, mainly carbon which contribute to global warming and climate change. These gases are also hazardous to human life. The enteric fermentation from the lumen of indigenous beef and dairy cattle may also generate methane due to breed types with low feed conversion ratio and poor feed mix. This gas also contributes to Green House Gases in the atmosphere. Improving on the breeds and appropriate feeding will eliminate this problem. In addition, appropriate animal waste management will be required to reduce on release of methane gas. Use of fertilizers pesticides and acaricides in maize, rice and livestock husbandry practices, if not properly managed /disposed off can lead to pollution of water and environment. This affects fish, livestock and other living organisms in water. In addition, it releases methane and nitrous oxide gases in the atmosphere, thus contributing to global warming. Appropriate fertilizer management and use of guidelines provided by MAAIF will be required. Assessment and identification of mitigation measures will be achieved by use of the screening tools and generation of ESMP, ESIA/project briefs and appropriate permits prior to implementation. Use of refrigerators for livestock Insemination should be those recommended to keep germ-plasm alive. These fridges should conform with Montreal protocol on substances that deplete the ozone layer.

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OS.5 is triggered since the contractors shall employ staff or workers during project implementation.

Climate Change Risks: The proposed AVCP has been accessed Category 1 per the Bank’s Climate Safeguard System (CSS); indicating the program’s vulnerability to climate risks. Hence, the project design will reflect the projected climate change risks in Uganda and embed adaption measures based on the Bank’s AREP and the country’s National Adaptation Programme of Action (NAPA) priority interventions. More importantly, an explicit climate-lens will be brought to the program intervention areas through climate smart agriculture (CSA) and climate agro-advisory services, to ensure value chain actors are resilient to climate impacts from current and long-term climate impacts.
4. Environmental and Social Baseline Information

Environment and socioeconomic baseline information for maize and rice growing as well as Livestock keeping areas which have been identified for the project operations is detailed below per region. This information has been extracted from the national food security report (July 2016) in the Ministry of Agriculture, Animal Industry and Fisheries. This report was prepared Ministry officials with participation of Local Government Officials from production departments.

**Western Uganda (Kyegegwa, Kamwenge, Masindi, Kiryandongo, Kasese, Buhweju, Mitooma,)**

The major natural physical features in this region are the highland areas of Rwenzori and the western arm of the East African Rift Valley. The region has major rivers like Kafu, Semliki, Mpanga, Muzizi, Nkuse that feed into most regions’ fresh water bodies and swamps which are potential sources of irrigation water. There are national parks, game and forestry reserves like Rwenzori, Semliki, Queen Elizabeth, Murchison Falls, Kibale Forest, Kaiso-Toonya Game Reserves and; Budongo and Bugoma forest reserves. Over 99% of the forests are under Central Forest Reserves.

Vegetation is mainly savannah grassland with intermittent tropical forest cover of Budongo, Bugoma and Kibaale. The soils are generally clay loam and sandy loam over most parts of the region. The main livelihood activities are livestock keeping, food & cash crop growing, trade and tourism services. The main crops grown are coffee, cassava, irish potatoes, bananas, fish, rice, maize, sweet potatoes, tea, cotton, pulses, cocoa, tobacco, sugar cane. Other activities include mining (cobalt, copper, cement, oil, limestone) and sale of timber and other forest products. There are mineral development activities which include oil/gas exploration, limestone, gold cobalt and copper.

The region largely receives a bi-modal type of rainfall. The normal average rainfall in the region is 1,200mm.

**Central Uganda (Nakaseke, Mukono, Luwero, Mityana, Kiboga, Buikwe, Wakiso, Buyende, Mayuge)**

Agriculture serves as the basis for rural livelihoods in Central Uganda. The majority of households rely on crops, livestock and fisheries to meet their food and income needs. The major food crops are: banana, maize, cassava, beans, sweet potato and rice of late. Crop diseases like BBW, CWD, CBSD, CMD, CBTB and livestock diseases like Foot and Mouth Disease (FMD) and Newcastle Disease (NCD) affect production. Crop losses, resulting from these hazards affect households’ ability to produce food and earn adequate income to purchase essential food and non-food items. Malaria, Diarrhoea & HIV/AIDS continue to affect human health in the region.

Cash income is from coffee, banana, maize, pineapple, tea, sugarcane, fish, livestock& their products, small to medium industries and petty trading. The rainfall type is bimodal ranging from 1200-1450mm/yr.
Livestock is kept mainly in the cattle corridor of Kayunga, Luwero, Nakaseke and Kiboga districts. Fishing (capture fisheries and aquaculture). Apiculture, is carried out at lakeshores and riverbanks found in the region especially Lake Victoria, lake kyoga. Agriculture serves as the basis for rural livelihoods as households rely on crops, livestock and fisheries to meet their food and income needs. Households also engage in agroforestry, wood lots, to meet their food and income needs. Other livelihood options to supplement farmers’ incomes are trade, brick making, crafts, charcoal burning and fire wood. The major food crops are: banana, maize, cassava, beans, sweet potato and rice of late. Livestock production is affected by diseases like ticks and tick borne diseases, Foot and Mouth Disease (FMD) and Newcastle Disease (NCD). Rural –urban migration is on the increase as many youths are currently engaged in Boda-boda cycling and saloon. This leaves the unproductive population in rural areas which threatens farming and consequently food production and security in the region. Remittances to the rural areas are becoming a major source of income to the rural poor. Farmers are also moving into fragile ecosystems (marginal areas like wetland, hill slopes, forests and forest reserves due to population increase and declining soil fertility. Some prime productive arable land is being converted into planting of trees like Eucalyptus and pine. Increasing demand and uncontrolled fishing has also resulted into harvesting of young fish threatening their future existence in water bodies, employment and revenue to the nation. Livestock keeping is a major activity in the cattle corridor, especially, Kayunga and Nakasongola.

Northern Uganda: Acholi subregion: (Gulu, and Pader)

It lies between latitude 4°12” N and 1°29” S, and longitude 29° 34” E and 35°0” W, with temperatures ranging from 15°C to 32°C. The sub-region has a generally flat topography, with predominantly sandy loam soils. 85% of the population depend on Agriculture as a source of livelihood with majority engaged in crop production followed by livestock rearing and other non-agricultural livelihood sources like; charcoal burning, wood fuel, brewing, quarry works, metal fabrication, hand crafts, boda boda ridding, sports betting, masonry, and wild gathering. The Sub region has a bi-modal rainfall pattern which ranges from March-June (1st season) and July to November (2nd season). The total average rainfall amount in the last 10 years for the first season was 542.44mm while for 2016 was only 435.2mm. Similarly, the total average rainfall amount in the last 10 years for the second season was 739.51mm while for 2016 was only 516.6mm. This shows a sharp decrease in the amount of rainfall.

Lango sub-region (Oyam and Amolatar)

The main soil type is sandy-loam. Lango districts have a generally flat topography. The vegetation type is of the savannah with predominant shrubs and relatively few robust natural trees across the plain. The region receives a bimodal rainfall pattern with season “A” starting in mid-March and peaking in May, while season “B” begins from August and peaks in Sept during a normal year. The annual rainfall ranges from 800 to 1,500 mm per annum. However, with climate and weather changes, there has been irregularities in the rainfall amounts and distribution across the districts/region, thus affecting the agricultural production.

About 85 percent of the population of Lango derives their livelihoods from agriculture mainly mixed farming (crop and livestock production) and other non-agricultural livelihoods sources.
like wholesale trade, agro-processing, produce marketing and retail trading, charcoal burning, local brewing, quarry works and mining, fishing especially in Amolatar. About 40% of the population are extremely poor. The main livelihoods are mixed farming that includes crop production, livestock farming and agro-forestry. There are also other income generating activities like Hoteliers, wholesale trade, agro-processing, retailing, fishing, quarry and mining, metal fabrication and blacksmith among others.

**Eastern Uganda (Mbale, Kapchorwa Bulambuli)**

This region is mainly mountainous with some low-lying areas towards the western and south western parts. The area receives bi-modal relief rainfall amounting to about 1,380mm per annum and has two cropping seasons. The majority of households practice mixed farming which is largely subsistence, using rudimentary tools. Crops grown include the traditional cash crops mainly coffee. Food crops are mainly bananas, maize, sweet potatoes, cassava, millet, Irish potatoes, beans and vegetables. Livestock types kept include cattle, poultry, goats and pigs. In rural areas, unskilled labor involving farming is common. There is a small-scale migration of laborers to towns in search of labor. Common income sources include sale of crops, livestock and labor. Skilled labor is by a few engaged in formal employment while the majority are in informal/private sector. Most of the unskilled labor is offered as agricultural labor in the rural areas with some of these laborers migrating to towns in search of casual labor. Other economic activities include; cross-border trade with neighboring Kenya, internal trade within gazetted markets and petty trade. Market access in the region is fairly adequate due to main trunk roads joining a number of major towns in the region. The districts in the region are interconnected by a number of murram road networks of which the majority are seasonal. The high land areas of Elgon are vulnerable to landslides while the lowland areas are vulnerable to flooding.

**Districts in East Central (Iganga, Jinja, and Kamuli)**

These districts are situated immediately north of the equator, bounded by Lake Kyoga to the north, the Victoria Nile to the west, the Mpologoma River to the east, and Lake Victoria to the south. The climate and vegetation of the area is influenced by Lake Victoria, where the average rainfall ranges from 1,000 to 1,520 mm a year. This heavy rainfall produces a luxuriant growth of vegetation. The northern zone where Kamuli district lies is flat as the land slopes towards Lake Kyoga. The natural vegetation is mainly wooded savanna grassland. The region is strategically linked by key roads to markets; the road network comprises of two major tarmac roads and a number of first class murram roads and various feeder or community roads linking to the various market centres within the region and other market outlets like fish landing sites. The region is further linked to central region through a ferry crossing at Mbulamuti to Nabuganyi in Kayunga district. The political and institutional environment is stable. Culturally, the East-Central region has a semi-autonomous cultural leadership headed by the Kyabazinga. The average households’ size is 5.1 people. Although markets are generally accessible, most households in the region do not have enough money to purchase food as over one quarter are below the extreme national poverty line and three quarters are below moderate national poverty line.
Agriculture in the region is predominantly subsistence with an average household land holding of about 2.5 acres. The main livelihood sources in the region include sale of crop and livestock produce / products. Other livelihood sources include among others, casual / unskilled labor which accounts for about 5%, petty trade which accounts for about 3%, regular employment in both public & private sector (10%), remittances from family members elsewhere (2%), fisheries activities (10%). Others (e.g. Charcoal production, pottery) – accounting for 1% and is likely to remain stable. Most of the food items / commodities consumed are predominantly produced by the farmers within the region, save for a few imports of rice, beans, Irish potatoes and bananas.

5. Procedures to Assess Potential Environmental and Social Impacts and Develop ESMPs

Environment and Social Impact Assessments Process

As an initial step, environmental and social screening of all project activities before commencing implementation will be undertaken by District Officials and verified/approved by the MAAIF’s Environmental and Social Specialist at the Project Coordination Unit (PCU). The screening will determine whether the project activity is likely to have adverse impacts or not, is inclusive, and, therefore, exempt from further assessment or determine the associated impacts including gender and vulnerable persons’ social exclusion/inclusion, which will inform the preparation of the ESIA and/or ESMP accordingly.

The ESMF checklists for screening proposed project activities will be utilized as general operational guidelines, and templates for preparing the ESMPs. The checklist will ensure that issues of social inclusion with regard to gender and vulnerable community members are addressed within the project.

The classification of each subproject under the appropriate environmental category will be based on the provisions of the African Development Bank’s Operational Safeguard Policies. The AVCP has been assigned Environmental Category 2. The environmental and social screening of each proposed sub-project will result in its classification in one of the three categories - 1, 2 or 3, depending on the type, location, and scale of the subproject as well as the nature and the magnitude of its potential environmental and social impact. The Bank’s categorization is detailed below:

- Category 1 projects are likely to induce significant, irreversible adverse environmental and / or social impacts, or significantly affect environmental or social components that the Bank or the borrowing country considers sensitive.

- Category 2 projects are likely to have detrimental site-specific environmental and / or social impacts that are less adverse than those of Category 1 projects and can be minimized by applying appropriate management and mitigation measures or incorporating internationally recognized design criteria and standards.
Category 3 projects do not directly impact the environment adversely and are unlikely to induce adverse social impacts. They do not require an environmental and social assessment.

The activities of mechanization of maize and rice production; irrigation related infrastructure, grain storage and processing facilities) and farm equipment and machinery have the potential of causing adverse environmental impacts which should be assessed and mitigated. Thus, using the environmental screening criteria in the ESMF, project site-specific preliminary assessments shall be undertaken to determine whether a particular activity is subject to further assessment. Thus, for activities that will be determined as requiring further assessment, project briefs and/or ESIA will be prepared and utilized during project implementation. The screening and review process will determine whether a particular subproject will trigger a safeguard policy, and what mitigation measures will need to be instituted. The screening and review process will also ensure that subprojects that may have potentially significant impacts will require additional study and the need for subproject specific ESIA and/or ESMP. The screening process is proposed as follows;

**Step 1: Screening of Activities and Sites**

MAAIF will carry out scoping and screening of the sub-projects using the Environmental and Social Screening Form (ESSF). The ESSF requires information that determines the characteristics of the prevailing local bio-physical and social environment with the aim of assessing the potential project impacts on it. The ESSF should also identify the potential socio-economic impacts that will require mitigation measures and or resettlement and compensation.

**Step 2: Assigning the appropriate Environmental Categories**

MAAIF will assign the appropriate environmental category to the subproject based on the information contained in the ESSF and the national criteria for categorization. The potential categories, in line with the National Environment Act and EIA Guidelines are:

a) Activities that require a full Environmental and Social Impact Study (ESIS), either because (i) they meet the general criteria in the Third Schedule of the National Environment Act, NEA or involve major changes in land use; (ii) are types of projects listed in the Third Schedule; (iii) are located in a nature conservation area; or (iv) are identified in other laws or regulations as requiring EIA because of their location. This is equivalent the AfDB’s Category 1 projects.

b) Activities for which additional information is needed to determine what level of environmental analysis and/or management is appropriate and for which mitigation is easily identifiable. This is equivalent to the AfDB’s category 2 projects that requires the preparation of an ESMP.

c) Activities that are determined to have no significant or adverse potential impact on the environment (List A, annex 2 of the 1998 EIA Guidelines.). Projects defined as List A will not need any further work as they are predicted to have little or no impact. But a
Project Brief may be required to be submitted to NEMA. These will likely be Category 3 projects under the AfDB categorization.

Step 3: Carrying out Environmental Assessment

The ESIA will be conducted by the consultancy firms registered by NEMA. However, Project Briefs may be prepared by non-NEMA registered persons. A project brief doesn’t require preparation of ToRs but their approval is done by NEMA. However, in case an ESIA needs to be undertaken, the implementing agency shall prepared the ToRs for the study, reviewed and approved by NEMA.

The ESIA report will identify and assess the potential environmental and social impacts for the planned activities, assess the alternative solutions, and will design the mitigation, management and monitoring measures to be implemented.

According to the National Environment Act, "project brief" means a summary statement of the likely environmental effects of a proposed development referred to in section 19. Unlike the ESIA, a project brief does not require a scoping report and neither submission of terms of reference for approval by NEMA. The ESMP or project brief will for each potential impact include: mitigation measures, monitoring indicators, implementing and monitoring agencies, frequency of monitoring, cost of implementation, and necessary capacity-building. It is possible that after completing the Checklist, the Environmental Specialist may recommend that the subproject concerned should be subjected to a full ESIA, and submitted to NEMA for review and decision making. According to Regulation 5 of the EIA Regulations, 2006, a Project Brief is to contain amongst others, the following:

a. the nature of the project in accordance with the categories identified in the Third Schedule of the Act;
b. the projected area of land, air and water that may be affected;
c. the activities that shall be undertaken during and after the development of the project;
d. the design of the project;
e. the materials that the project shall use, including both construction materials and inputs;
f. the possible products and by-products, including waste generation of the project;
g. the number of people that the project will employ and the economic and social benefits to the local community and the nation in general;
h. the environmental effects of the materials, methods, products and by-products of the project, and how they will be eliminated or mitigated;
i. Any other matter which may be required by the Authority.

In addition to the above, it is currently a practice and requirement by NEMA to include details of stakeholder consultations in Project Briefs.

Step 4: Public Consultations

Public consultation will be initiated during the scoping and ESIA preparation stages and views of stakeholders (general public and lead agencies) have to be included in a Project Brief as well.
Public consultation will also be an integral part of the process throughout the planning and execution of the project. MAAIF will interact closely with PAPs/communities, project personnel, government departments, NGOs right from the early stages of the project preparation on a regular basis for developing and implementing the respective project ESIA(s) and RAP where applicable. For this purpose, public contact drives shall be organized by MAAIF and public awareness shall also be created with NGO’s and other social organizations active in the affected areas. During the public awareness drives, it will be ensured that only accurate information is given about the project and its possible environmental and social impacts. The opinion/suggestions made by the community/affected groups shall be incorporated in the respective ESIA and Resettlement Action Plans.

Step 5: Review, Approval and Disclosure of Subproject Information:

The results and recommendations presented in the environmental and social screening forms and the proposed mitigation measures presented in subproject or site-specific ESIA(s), ESMP(s) and/or RAP(s), whichever is deemed appropriate, will be reviewed by MoWI and validated by NEMA. The Executive Director of NEMA or his delegated official shall then issue an EIA Certificate of Approval for the project.

Implementation of subprojects cannot commence until the environmental and social aspects have been reviewed and appropriate mitigation measures have been adopted. As possibilities of social impacts regarding land acquisition, the implementation of subprojects cannot proceed until the resettlement and/or compensation plans have been prepared and implemented after clearance by the Chief Government Valuer in the Ministry of Lands, Housing and Urban Development (MoLHUD). This is detailed in the ARAP for the AVCP prepared alongside this ESMF.

In compliance with Bank’s guidelines and in the national EIA decrees, before a subproject is approved, the applicable documents (ESIA, ESMP and/or RAP) must be made available for public review at a place accessible to local people (e.g. at a district council office, at the Ministry of Environment), and in a form, manner, and language they can understand. After clearance, the assessment reports (ESIS, RAPs, and PBs etc.) shall be disclosed both in Uganda through the daily print media by MAAIF.

Step 6: Environmental Monitoring

Environmental and social monitoring aims at checking the effectiveness and relevance of the implementation of the proposed mitigation measures. Monitoring exercises should be undertaken in sequences and frequencies stipulated in the ESIA(s), PBs, RAPs, or ESMP(s). Local Government leaders, District Environment Officers, Community Development Officers as well as NGOs and CBOs will undertake monitoring exercises as required by the National Environmental Act. The District Environment Officer in conjunction with the District Community Development Officer will monitor the implementation of environmental and social mitigation measures.

The monitoring indicators will be developed by implementing agency’s Environmental Specialists based on the mitigation measures and the ESMP or RAPs. Each subproject progress report will include monitoring of the RAP and other social issues covered by the ESMF. At the
end of subproject construction phase, a Certification for Compliance integrating Environmental and social issues for the completion of works issued by implementing agency. The respective ESMPs will have to be updated by MAAIF before handing over the AVCP facilities to the farmers.

MAAIF will have the lead role in monitoring to ensure that various project environmental and social obligations are met, and will ensure that the requirement for an environmental and social audit is fulfilled not less than 12 nor more than 36 months after project completion or commencement of operations respectively in line with the National Environment Act and the Audit Regulations of 2006. It is critical to note that NEMA has a regulatory coordinating role in monitoring of compliance with permits, standards, regulations and all approval conditions.

6. Potential Environmental and Social Impacts and Mitigation Measures

Positive Impacts

The AVCDP will address key constraints in the development of selected commodity value chains in Uganda. Specifically, the program will build functional input and output markets, improve the agribusiness environment, strengthen agricultural regulatory services, increase agricultural productivity, and develop innovative financing mechanisms to encourage inclusivity, especially of youth and women. Thus, inducing incremental production and marketing of agricultural commodities, enhancing the incomes of farmers and vendors, and increasing employment opportunities.

Specific positive impacts include:

Increase in Production of Rice and Maize: Most of the inputs (seed and fertilizers) sold in the open market are fake and of poor quality. Under this component good quality seed from NARO will be availed to farmers which are high yielding. This coupled with mechanization which will enable increased acreage planted and increased production of both rice and maize crop.

Improved Quality of Maize and Rice Produce: The training of farmers and traders by extension service providers on quality standards and post-harvest handling will ensure production of good quality products which will add to their bargaining power for better prices, as well as safety for food consumption (free from aflotoxins).

Improvement production in volumes and Quality for Maize: Formation of farmer trust and association’s farmer collective marketing will increase the bargaining power of farmers for better price. Linking farmers to processors and exporters will ensure availability of ready market to farmers for their produce (rice, maize, and fruits), and as an incentive for increased production

Increased Milk and Beef Production: Livestock farmers who will benefit from the project will receive good quality semen from the Genetic Resources & Data Bank (NAGRC&DB) and the Department of Animal Health. This will enable farmers to restock high quality dairy and beef breeding animals for increased milk and beef production.
Production of Safe Livestock Products: The strengthening of milk quality assurance system (laboratory, lab technologists, training in hygienic milk handling along the whole dairy value chain) will ensure production of healthy milk free from diseases such as brucellosis. Farmers will be trained on routine animal husbandry practices including vaccinations to avoid such contagious diseases.

Reduction of Impacts of Drought and Flood Risks: Under infrastructure development component, water harvesting and irrigation interventions will reduce the impacts of drought and flooding risks on the maize and rice crops. Access to markets will be easy because of the improved road network in the hard to reach areas. Increased Production of fruits will also be realized through the irrigation systems for fruits and vegetables for farmers who will adopt from the demonstration site of Rubirizi District and nucleus farm in Kiige Irrigation scheme to support

Likely Negative Impacts and Mitigation Measures

Soil degradation: Use of tractors for cultivation will expose soils in flat areas to soil erosion as rains increase. To mitigate this, farmers will have to be trained on soil and water conservation measures. Extension training hand books containing various soil and water conservation technologies will be developed for extension workers to use while training farmers. Support to formation and enforcement of Byelaws on soil and water conservation may also be necessary in the districts where the project will be operating.

Sale of Fake Inputs to Farmers: Due to increased demand for input supply to the beneficiary farmers such as fertilizers, pesticides and acaricide; it is likely that farmers may procure fake inputs which will negatively affect achievement of the project activities. To avoid this, the project should engage the private companies who have been certified by MAAIF for input distribution, and these should also closely be monitored and trained by the responsible department in MAAIF.

As farmers expand on acreage for maize and rice growing, there is a likelihood of destroying biodiversity, natural habitats and wetlands. As tractors are used for cultivation, the soil structure is compacted thus making it difficult for water filtration. This may lead to water run-offs, soil erosion and loss of soil fertility- soil degradation. Destruction of biodiversity in wetlands-habitats for birds which eat harmful pests and they are source of food to some communities. According to the Uganda National Environment act, irrigation schemes require an environment impact assessment. Measures to conserve water and soil will be required as part of agronomic practices package delivered to farmers by extension workers.

Land Acquisition: The installation of value chain addition infrastructure may displace peoples’ settlement or activities. Already 5 people/households have been identified to be affected by the irrigation infrastructure. A resettlement action plan will be prepared and compensation effected as per the guidelines of Uganda government.
Pollution: The fuel exhausts from the agricultural farm machinery and noise will contribute to pollution of the air including Green House Gas (GHG) emissions, mainly carbon which contribute to global warming and climate change. These gases are also hazardous to human life. The enteric fermentation from the lumen of indigenous beef and dairy cattle may also generate methane due to breed types with low feed conversion ratio and poor feed mix. This gas also contributes to Green House Gases in the atmosphere. Improving on the breeds and appropriate feeding will eliminate this problem.

In addition, appropriate animal waste management will be required to reduce on release of methane gas. Use of fertilizers pesticides and acaricides in maize, rice and livestock husbandry practices, if not properly managed /disposed off, can lead to pollution of water and environment. This affects fish, livestock and other living organisms in aquatic systems. In addition, it releases methane and nitrous oxide gases in the atmosphere, thus contributing to global warming. Appropriate fertilizer management and use of guidelines provided by MAAIF will be required.

Assessment and identification of mitigation measures will be achieved by use of the screening tools and generation of ESMP, ESIA/project briefs and appropriate permits prior to implementation. Use of refrigerators for livestock Insemination should be those recommended to keep germ-plasm alive. These fridges should conform with Montreal Protocol on substances that deplete the ozone layer.

Overall, the potential negative environmental and social impacts include those associated with agriculture infrastructure development in addition to risks resulting from increased agriculture production such as soil erosion, loss of wetland habitat, water abstraction for irrigation purposes, and impaired water and soil quality due to unsustainable use of agricultural inputs (pesticides, fertilizers), among others. These impacts are site specific and can be readily managed during construction and agricultural production activities with the application of well-defined measures elaborated in site-specific ESMPs. Mitigation measures for the sustainable land and water management practices as well as efficient fertilizer and pesticide usage during agriculture production shall be mainstreamed into the program through capacity building activities for farmers and other value chain actors.

Potential impacts of climate change to the project interventions

Uganda’s agriculture sector has been subject to significant impacts of arising from climate change and associated economic losses. Evidence and signs include increasing temperatures, frequent droughts, flooding, prolonged dry spells, hailstorms, landslides, lightening, pests and disease epidemics for livestock and crops, and shifts in rainy seasons. Recent reports indicate that climate change is affecting the whole value chains of crops, livestock and fisheries causing food insecurity, malnutrition, poverty and high cost of living among many households in the country. Reports from NARO indicates that climate change impacts include: reduction in soil fertility through leaching; decreased livestock productivity directly (through higher temperatures) and indirectly (through changes in the availability of feed, fodder and water); Increased incidence of pest attacks, due to rising temperature;
manifestation of vector and vector-borne diseases and negative impacts on human health affecting human resource availability.

The AVCP will draw on the priority intervention areas highlighted in the Uganda Climate Smart Agriculture program (2015-2025) to enhance climate resilience of all actors along the value chains. Some of the proposed interventions include (i) increasing the capacity of farmers to adopt climate smart technologies and inputs with deliberate efforts to reach female and youth farmers, (ii) irrigation infrastructures to reduce reliance on rain-fed agriculture, (iii) developing climate-resilient infrastructure (feeder roads, storage facilities) that can withstand increases and frequencies of extreme weather events (iv) strengthening capacity and knowledge of climate and market information services (appropriate and targeted to the needs by gender and geographical location), and (v) innovate financing models to enhance risk sharing with potential financiers that address the needs of the farmers including weather index insurance.

Impacts of Climate Change on Rice Production:

Pests and Diseases: Disease surveillance reports from MAAIF 2015 shows that the pest and disease problems of rice includes, rice mottle virus, rice stalk borer, rice blast, brown spot, sheath rot, termites, birds and grass hoppers. Most of these pests and disease problems were reported in Busoga and Acholi sub-regions. Birds were reported to be causing the most losses in rice of about 30% followed by rice stalk borer and rice blast at 20% in the worst affected districts.

Flooding and Waterlogging in low land areas. During the periods of heavy rains flooding and water logging affects paddy rice due to poor drainage system. There is also an increase in post-harvest losses as a result of poor drying and storage due to humid conditions.

Interventions to address Climate Change Impacts in Rice Value Chain

The NARO should consider breeding of rice varieties that are torellant to rice diseases. The grant proposed to be given to farmers for procuring fertilisers should include provision of pesticides for use on rice to control pests and diseases. Since birds cause most losses in rice, the project should link up with NEMA on the most appropriate ways to get rid of birds in the rice fields without harming the environment.

Training of farmers and project staff in climate change will be crucial.

Soil and water conservation practices will be important to minimize flooding in upland rice growing areas. In paddy rice growing areas, appropriate control of water flow will be required to avoid flooding and emissions of methane gas.

Impacts of Climate Change on Maize Production

Pests and Diseases: A number of pests and diseases associated with climate change have been reported for maize by MAAIF. These include maize stalk borer, maize streak virus, Maize lethal necrosis, Striga weed, maize smut, Northern leaf blight and grey leaf spot and termites.
Maize lethal Necrosis: The December 2015 report shows that this disease was more prominent in Bulambuli, Tororo and Busia and Bukwo districts. There are more farming households reporting the disease in Bulambuli (30.8%) and Busia at 22.3%. Bulambuli, Bukwo and Busia had the highest percentage of crop affected at 35.8, 19.3 and 12.3 respectively. This trend is the same as in the previous years where second season crop was more affected compared to the first season crop.

Maize stalk borer: Maize stalk borer was one of the pest problems of maize reported across the regions, however it was reported to be affecting less percentage of the crop (below 15%) in most of the region. Lango, Acholi and Rwenzori regions had the highest incidence of stalk borers (between 20-25%).

Striga Weed: Busoga, Lango and western districts had the highest infestation of Striga, with 15-45% of the maize crop affected in surveyed districts causing up to 35% yield loss. The yield losses due to Striga were low in Lango region. Striga seems to be the biggest threat to maize production and it is associated with soil degradation.

Drought: Maize is one of the crops that are sensitive to prolonged dry spells and droughts. Where ever the country experiences suppressed rains, especially during La Nina years, over 50% of maize is lost.

Heavy Rains and Wind Storms: Further loss in maize is through water-logging; storms and striga weed which is a parasite to cereals. Post-harvest losses have also been reported due to poor drying when heavy rains coincide with the harvesting periods. This results in accumulation of aflotoxins in the maize crop.

Interventions to address Climate Change Impacts in Maize Value Chain

Breeding for drought and disease tolerance by NARO is recommended so that maize farmer beneficiaries in the project area have access to the appropriate seed. Provision of timely Early Warning information to farmers, especially related to seasonal weather forecasts to enable farmers plan their activities appropriately. Soil and water conservation techniques should be part of land preparation to control flooding. Post-harvest handling and management should be part of the extension service to be delivered to farmers in order to reduce post-harvest losses, including aflotoxins.

Impacts of Climate Change on Livestock Value Change

The main impacts of climate change to the livestock in Uganda as documented in MAAIF reports are inadequate pasture and water for livestock during drought conditions. Drying of seasonal rivers and watering points results in livestock migration looking for water and pasture. This leads to livestock wasting and low productivity, spread of diseases and sometimes death. This migration also triggers conflicts among communities over water and pasture resources. There are also livestock diseases and pests that are triggered by weather extremes of excessive rainfall and drought. Pests include high incidences of ticks and tsetse flies with the diseases associated to them. Diseases include Foot and Mouth Disease which has become very common across the country. Increase in worms and Helminthiasis are also
common due to poor quality water. During periods of heavy rains adequate pasture and water are available and surplus of milk is obtained—farmers lose milk because the market is flooded and prices are low.

**Interventions to address Climate Change Impacts in livestock Value Chain**

The germplasm that will be distributed by NAGRIC to livestock farmers should consider breeds that are tolerant to high temperatures, and that have high feed conversion ratio and release less methane from the enteric fermentation. Farmers should be trained about routine livestock vaccinations, deworming, pasture conservation and management and water harvesting and storage for livestock. Regulations on livestock migrations/movements should be enforced and animal clinics in districts equipped for disease management.

Farmers should be trained on the appropriate feeding strategies that increase productivity while at the same time reduce methane emissions from enteric fermentation, an experience can be borrowed from what has worked in other countries including feeding livestock on improve forages and feed supplements as well as crop residues such as maize straw.

7. **ESMF and ESMP Implementation and Monitoring Program**

The ESMF requirements ensure that implementation of the program integrates environmental and social issues for the sustainability of the sub-projects and overall program. Among other things the ESMF recommends the following key issues namely; capacity building, reviewing and monitoring mechanisms.

7.1 **Institutional Arrangement**

**National Level:** The overall responsibility for the implementation of the safeguard requirements will lie with MAAIF through the PCU with leadership to be exercised by the Project Coordinator. The PCU will work in close collaboration with MWE Directorate of Environmental Affairs), NEMA NGOs, Development Partners (DPs) and International Organizations as well as the relevant District Officials through the DCTs which will also embrace NGO, DPs, and other International Organizations with membership and operating in the individual districts. Depending on existing capacity at each of these institutions and agencies, qualified professionals will have to be assigned the responsibility of managing the implementation of the safeguards activities. Selected professionals from these groups will constitute the Environment and Social Management Team (ESMT) at the national level.

**At the PCU,** it is important that competent and qualified professionals will be deployed (either through delegated mandate as Safeguards Officers as soon as the project becomes effective. The Safeguards Officers comprising (i) Environmental Specialist and (ii) Social Scientist will be recruited and deployed at PCU as key points of contact for all issues related to environmental and social impact management of project initiatives and activities. They will be responsible for liaising with NEMA and participating line ministries and other agencies, and any one of them will be given the responsibility of chairing the ESMT. In the
event that the MAAIF requires additional safeguards officers, it is recommended that the
PCU/MAAIF engages short term consultants for specified periods of time as and when
needed by the project. The PCU will clearly set out the guiding principles under which the
safeguards aspects of the project will be implemented. These include:

i. Policies and Procedures – to ensure that all activities are in compliance with the GoU
requirements and other government regulations as well as those of the African
Development Bank.

ii. Environmental and Social Planning – ensuring environmental and social screening of
all project activities, and where necessary prepare the ESMPs and PMPs, as well as
continue to identify new issues/requirements or changing situations.

7.2 Safeguard Capacity Building

Environment and Social Safeguards capacity within the MAAIF and the other line agencies is
still generally weak both in terms of personnel and hands on experience in environmental and
social impact management and the laws and regulations in place to control/mitigate adverse
impacts. As a result, the PCU will need to focus initially on capacity building for this category
of people. The PCU Safeguard Officers will be responsible for organizing and assisting in
training of personnel in all aspects of the safeguards issues and creating a general awareness of
environmental management throughout the participating organizations, partner organizations
and the beneficiary communities.

The PCU through the Environment and Social Scientist will also be responsible for organizing
and assisting in training of personnel in the PCU, the collaborating ministries/institutions, and
the district project implementers in all aspects of the ESMPs and PMP safeguards issues
including social inclusion on gender and vulnerability fronts. The overall objective will be to
create a general awareness of environmental and social issues and their management throughout
the participating organizations, partner organizations and the beneficiary communities. In
addition, the PCU will be responsible for identifying and selecting suitable local training
resource persons, preparation of standard and specific training modules, liaising with providing
agencies and stakeholders to plan training implementation and preparation of training progress
reports.

7.3 Monitoring and Reporting Procedures

Monitoring, Evaluation and Reporting – regular checking of impacts and implementation of
mitigation measures in the ESMPs and PMPs will be done.

Management Review – taking note of monitoring results and changing policy, plans, and
operations that will lead to continued improvements in environmental and social aspects
performance.

A monitoring plan will be developed during the implementation of the sub-projects in order to
measure the effectiveness of the mitigation measures. The monitoring and reporting procedures
will ensure early detection of conditions that necessitate particular mitigation measures and will furnish information on the progress and results of mitigation. The environmental and social specialists MAAIF shall monitor the implementation of the ESMF in coordination with county NEMA officers.

The arrangements for monitoring and resettlement and compensation activities will fit the overall monitoring program, which falls under the responsibility of the MAAIF. Periodic evaluations will be made in order to determine whether the PAPs have been paid in full and before implementation of the schemes activities; and determine livelihoods are same or higher than before. A number of objectively verifiable indicators shall be used to monitor the impacts of the compensation and resettlement activities. These indicators will be targeted at quantitatively measuring the physical and socio-economic status of the PAPs, to determine and guide improvement in their social wellbeing. Therefore, monitoring indicators to be used for the RAP will have to be developed to respond to specific site conditions. In addition, an independent audit will take place on the completion of the RAP.

7.4 Implementation Budget

Implementation of the ESMF will cost USD 200,000. Below are estimates to successfully implement the ESMF.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Institutions</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization and training in ESMF</td>
<td>Safeguards requirement and general project management including GRM issues coordination (targeted include implementing agencies and LGs)</td>
<td>MAAIF, NEMA, DLGs</td>
<td>50,000</td>
</tr>
<tr>
<td>Projects supervision (civil works, health and safety, HIV issues etc.)</td>
<td>Training workshop/seminars on Programme for MAAIF, project staffs.</td>
<td>MAAIF, DLGs</td>
<td>50,000</td>
</tr>
<tr>
<td>Facilitation of LGs to mobilize farmers</td>
<td>Create awareness, training on good agronomic practices, climate smart agriculture</td>
<td>MAAIF, DLGs</td>
<td>50,000</td>
</tr>
<tr>
<td>Monitoring of ESMPs, RAPs and related safeguard management plans for</td>
<td>Recruitment of Consultants and experts to monitor</td>
<td>MAAIF, DLGs</td>
<td>50,000</td>
</tr>
</tbody>
</table>
8. Public Consultations and Public Disclosure

Consistent with the requirements of the African Development and national polices of the GoU, public consultation have been held with various stakeholders as part of the irrigation development feasibility study and the preparation of the ESMF to provide an overview of proposed sub-projects, challenges and mitigation and obtain views on anticipated benefits, opportunities and concerns of the interventions. Consultative meetings were held during field visits with the key stakeholders and institutions including: MAAIF, NAADS, NARO, NEMA, Local Government Officials, Line Ministries and, Lead Agencies.

The consultations with these stakeholders were carried out to specifically achieve the following objectives:

a. To provide information about the project and to tap stakeholder information on key environmental and social baseline information in the project area;

b. To provide opportunities to stakeholders to discuss their opinions and concerns;

c. To identify specific interests and the participation of the poor and vulnerable groups can be enhanced; and

d. To inform the process of developing appropriate management measures as well as institutional arrangements for effective implementation of the AVCP.

Below are some of the major questions/comments by the participants and responses by the meeting host (study team, counterparts, LGUs) on the environment issues.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Question/Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer zone</td>
<td>Will land within the buffer zone be compensated for?</td>
<td>The land within the buffer zone will be discussed during the actual RAP. PACC members will be invited and informed about RAP and how it will be implemented.</td>
</tr>
<tr>
<td>Disease</td>
<td>There should be measures to address issues of HIV/AIDS before construction starts.</td>
<td>The contractor will be required to sensitize their workers about the risky behaviors and also equip them with condoms. Communities too will be sensitized about the dangers of engaging in risky sexual behaviors.</td>
</tr>
<tr>
<td>Cultural resources</td>
<td>In case of destruction of cultural resources, will they be relocated to other areas?</td>
<td>The developer will try as much as possible not to tamper with those resources.</td>
</tr>
<tr>
<td>Grievance Redress Mechanism (GRM)</td>
<td>There were also more details required on the GRM, because some can be sorted at the Sub-County level and others could be referred to Kampala if there is a need to do so.</td>
<td>At the moment, the existing project structure (PACC and PDCC) and LC system will be active as well.</td>
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<tr>
<td>---</td>
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</tr>
<tr>
<td>Bridge</td>
<td>The communities have crossing points along Sironko River, will these be improved or is there a plan of constructing a bridge?</td>
<td>The project plans to construct only one bridge across Sironko River, the crossing at the proposed intake site. The rest of crossing points will be improvised by the communities</td>
</tr>
<tr>
<td>NEMA</td>
<td>When the ESIA report will be submitted to NEMA, won’t NEMA officials claim the land that is within the buffer zone?</td>
<td>The role of NEMA is to issue a certificate for approval of the project. It will not claim peoples land.</td>
</tr>
<tr>
<td>Animal</td>
<td>Shall rats that destroy people’s crops be preserved?</td>
<td>Measures to counteract effects of rats to crops will be devised during the running of the scheme.</td>
</tr>
<tr>
<td>Livestock farming</td>
<td>Emphasis has been put on crop growing. What about farmers practicing livestock farming?</td>
<td>In the design, livestock farmers are being considered. Looking at putting watering facilities for the livestock.</td>
</tr>
<tr>
<td>Flood</td>
<td>Does the design cater for people whose land will be next to the protection dikes in events of heavy rains?</td>
<td>Any excess water will first go to through Drainage that will direct water to the river.</td>
</tr>
</tbody>
</table>

9. Conclusion

The AVCDP will address key constraints in the development of selected commodity value chains in Uganda. Specifically, the program will build functional input and output markets, improve the agribusiness environment, strengthen agricultural regulatory services, increase agricultural productivity, and develop innovative financing mechanisms to encourage inclusivity, especially of youth and women. Thus, inducing incremental production and marketing of agricultural commodities, enhancing the incomes of farmers and vendors, and increasing employment opportunities.

The program has been classified Environmental Category 2, which implies that the potential environment and social risks associated with the program are site-specific and can be managed with the application of identified mitigation measures. Some of the associated negative environmental and social impacts include water abstraction on downstream users, loss of wetland
habitat as a result of the irrigation infrastructure needed, point and non-point pollution of water sources, soil erosion and siltation, water and land-use related conflicts.

This ESMF will ensure that the implementation of the program is carried out in an environmentally and socially sustainable manner. It provides the project implementers with an environmental and social screening process that will enable them to identify, assess and mitigate potential environmental and social impacts of the activities, including the preparation of site-specific. Environmental Social Impact Assessments (EIA) and Environmental and Social Management Plans (ESMP) and when applicable, Resettlement Action Plans (RAPs) should be finalized before any implementation can begin and further be in accordance with the Ugandan legal framework, as well as AfDB safeguard policies particularly Environmental Assessment.

The ESMF recognizes existing gaps and weaknesses MAAIF system with regard to effectively implementing the ESMF under this program. Thus, strengthening and building the capacity of key implementing institutions will be critical to the success of the proposed program. The capacity development will provide an enabling environment to address environmental and social issues by MAAIF to implement the ESMF.

The ESMF requires this program to ensure that procedures are adhered in relation to environmental and social screening, review and approval prior to implementation of sub-projects to be financed under the AfDB. Furthermore, appropriate roles and responsibilities, for managing and monitoring environmental and social concerns related to sub-projects should also be adhered.