



The World Bank

Uganda Irrigation Development and Climate Resilience Project (P163836)

Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 03-Oct-2019 | Report No: PIDISDSA26125



BASIC INFORMATION

A. Basic Project Data

Country Uganda	Project ID P163836	Project Name Uganda Irrigation for Climate Resilience Project (ICRP)	Parent Project ID (if any)
Region AFRICA	Estimated Appraisal Date 18-Oct-2019	Estimated Board Date 03-Feb-2020	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Finance, Planning and Economic Development	Implementing Agency Ministry of Water and Environment	

Proposed Development Objective(s)

To provide farmers in the project areas with access to irrigation and other agricultural services, and to establish management arrangements for irrigation service delivery

Components

- Comp. 1 - Irrigation Services
- Comp. 2 - Support Services for Agricultural Production and Value Chain Development
- Comp. 3 - Institutional Strengthening and Implementation Support

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	184.60
Total Financing	184.60
of which IBRD/IDA	162.60
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	162.60
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IDA Credit	162.60
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Non-World Bank Group Financing

Counterpart Funding	22.00
Borrower/Recipient	4.00
Local Beneficiaries	18.00

Environmental Assessment Category

A-Full Assessment

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

Uganda has made significant progress on economic growth. With the end of the conflict in 1986, the country experienced macroeconomic stability which, together with pro-market reforms, generated a sustained period of high growth. Gross domestic product (GDP) expanded at an annual average rate of 6.9 percent between 1987 and 2010, one of the highest among African countries, albeit from a very low base. As a result, Uganda transformed from a failed state to one of the fastest growing economies in the world. From 2011 to 2016, Uganda's economy averaged 4.5 percent GDP growth, slowing down to 3.5 percent in 2017, and then rebounding to 6.1 percent in 2018 thanks to a pick-up in investments and exports combined with good weather conditions. The structure of the Ugandan economy has undergone a major transformation, with a notable shift from a primarily agriculture-based economy to one dominated by services and industry. In 2015, the service sector became the largest contributor to GDP (52.8 percent), followed by agriculture (25.8 percent) and industry (21.4 percent). The most critical risk to Uganda's economic outlook is regional instability, particularly from the Democratic Republic of Congo (DRC) and South Sudan which are also key export markets for Uganda. An estimated one million South Sudanese refugees have already migrated to Uganda.

Population growth is outweighing the benefits of economic development and driving the increasing pressure on natural resources. Uganda has one of the world's fastest population growth rates, with almost half of its people under the age of 15. The population increased from 24 to 35 million between 2002 and 2014 and it is expected to be above 80 million in 2040. As a result, the 6.1 percent GDP growth in 2018 translated into a mere 3.1 percent per capita. While GDP per capita has more than doubled since the '90s, Uganda is nevertheless falling behind Kenya and Tanzania. Pressure on land and water resources is increasing dramatically as a consequence of population growth, with a population density two to three times that of Kenya and Tanzania. Refugee communities



are adding to the equation, with Uganda hosting the third-large refugee population in the World, and with 1 million refugees out of the 1.5 million present in the country having arrived over the past two years.

Uganda made significant progress on poverty reduction, but rural poverty remains a major challenge. Between 2002 and 2013, the share of people living below the national poverty line more than halved, from 40 percent to 19.7 percent. Nevertheless, in 2013 more than a third of Ugandans still lived below the international poverty line of US\$1.90 per day. Moreover, the risk of Ugandans falling back into poverty remained high: for every three Ugandans that moved out of poverty, two fell back into poverty. In 2017, the national poverty rate rose again to 21.4 percent, in part due to an overall economic slowdown, but also to severe drought conditions and an outbreak of fall armyworms, highlighting the direct linkage between poverty and meteorological patterns. Many households suffer from food insecurity and high levels of malnutrition, with 34 percent of children under five years being stunted. In spite of the gradual decline in its GDP contribution, typical of transforming economies, agriculture keeps playing a critical role for income generation, employment and subsistence, particularly for the bottom 40 percent of the population. The sector employs 70 percent of the population (87 percent of women and 63 percent of men), and over 80 percent of the poorest, with rural areas accounting for 94 percent of the poor and 85 percent of the population. Agriculture remains a source of employment for younger generation, with nearly half of heads of households engaged in agriculture under the age of 40, and approximately one-fifth under the age of 30. Looking forward, the number of food-insecure people in Uganda is projected to rise from 7 million in 2015 to 30 million by 2025. High population growth, increasing pressure on natural resources, and limited access to rural nonfarm income streams define the rural poverty challenge in Uganda, further exacerbated by the almost exclusive reliance on rainfed agriculture.

Uganda is among the world's most vulnerable and simultaneously least adapted countries to climate change. Historically, Uganda has been well endowed in water resources, with precipitation ranging between 750 mm/year in the northeast concentrated in one rainy season, to 1,500 mm/year in the southwest across two rainy seasons. In recent years, changes in precipitations have been observed consequent to climate change. Literature refers to decrease in annual rainfall amounts by 12 percent over the past 35 years. While this reduction is relatively slow and not immediately perceivable by the general public, increased variability and lower predictability of rainfall is commonly identified as a raising issue, and it is receiving high attention in the national press. The rainy season, traditionally lasting eight to nine months out of the year, has become shorter, averaging six to seven months a year since 2010. This phenomenon is consequence to changes in the climate circulation and sea surface temperature, which results in the weakening of the long rains (March to June), and possibly an increase in short rains (September to November). As a consequence, there are considerable variations in the timing of the onset of the rainy season, and farmers are finding increasingly challenging to decide when to plant. In parallel, average temperatures have increased by 1.3°C since 1960, and they could rise by up to 2.5°C by 2050, with Uganda having hit the highest average monthly temperature in its history at 33.8°C in March 2016. Uganda scored 155 out of 188 countries on the Notre Dame Global Adaptation Initiative (ND-GAIN) index in 2016, due to a combination of high vulnerability to climate change (14th most vulnerable country) and low readiness to improve resilience (48th least ready country). Two elements drive Uganda's high vulnerability score under the ND-GAIN index: (i) strong projected decrease of yields of rice, wheat and maize; and (ii) low capacity to acquire and deploy agriculture technology (irrigation, machineries, and inputs). Impacts on economy are striking: for example, in 2010/11, Uganda experienced production losses (38 and 36 percent loss for beans and maize, respectively) totaling UGX 2.8 trillion, which translated to 7.5 percent of GDP. Interestingly, annual rainfall over that period did not reveal any anomalies, but an analysis of monthly data showed that more than half of the months had below average rainfall, showing the need for investment and innovations to cope with intra-annual variability. A third element defining Uganda's high vulnerability to climate change is lack of storage infrastructure. Uganda's per capita freshwater resources are among the highest in the world, and only 2.8 percent of its renewable water resources are currently utilized. It is estimated that water use will triple by 2035. Although this future demand would only



constitute a fifth of the net water available, almost three-fourths of all districts will experience high or extreme water stress due to high climate variability and underdeveloped water resources infrastructure, particularly in the South-Western part of the country. Finally, the country is at high risk for flooding, and at medium risk of water scarcity, extreme heat, and landslides. The Irrigation for Climate Resilience Project (ICRP) intends to address the growing climate change risks of water shortages, floods, and landslides by: (i) promoting adoption of irrigation by small farmers, in synergy with other agriculture inputs technologies; (ii) increasing water storage capacity; (iii) promoting drainage; and (iv) promoting sustainable catchment management.

Sectoral and Institutional Context

Increased agricultural production for internal and regional markets represents a compelling growth path for Uganda. Rising demand for food and dietary shifts into higher value and more processed foods across Africa offer massive opportunities for Ugandan farmers. Agriculture already contributes 50 percent of Uganda's exports. Coffee, the main export crop historically, remains the most important income earner for rural households in addition to cotton, tea, and tobacco. Thanks to increasing diversification, several other crops, such as cut flowers, cocoa, vanilla pods, and vegetables, are emerging as key export commodities and consequently as potential sources of increased household income. Uganda's major formal exports are destined for the East African bloc markets (Kenya, Rwanda, Tanzania, and Burundi) and other COMESA member countries. In addition, Uganda is becoming a transit point for food commodities destined for Sudan and the DRC, but grown elsewhere in the region. Outside the region, the prime destination of all fresh produce is the United Kingdom, followed by Holland, Switzerland, Belgium, Germany, and the United Arab Emirates. Produce for such markets tends to be dominated by high value horticultural commodities such as hot peppers, chilies, bananas (Uganda's largest crop by area and which does especially well in niche markets, particularly in the United Kingdom), beans, avocado, and pineapples. Kenya is the major market for Uganda's informal exports, mainly for maize and beans, although the opening up of the East African market has seen some farmers take advantage of new niches, especially fresh fruit and fruit juices. There are also increasing opportunities in the internal market, where income growth and urbanization are driving changes in the quality of products required in wholesale and retail market structures.

Notwithstanding market opportunities, the agricultural sector growth rate remains far below potential. Only five percent of the farms in Uganda are commercially oriented, with 25 percent semi-commercial and 70 percent engaged in subsistence agriculture. Farmers face instability of prices, undeveloped relationships with prospective buyers, weak market power, high transaction costs for moving products to market, among other constraints. Market disfunctions are exacerbated by the small size of Uganda's farms, mainly in the range of 0.8 to 1.6 ha, with land fragmentation on the rise due to demographic pressure. With a large share of farmers carrying out subsistence agriculture, the sector growth rate is stagnant at around three percent per year since 2000, and got closer to two percent per year over the last five years, thus well behind overall annual growth in the economy and the annual population growth rate over the same period. It has also lagged behind the six percent per annum growth target for agriculture called for by the Comprehensive Africa Agriculture Development Program (CAADP) and Uganda's own National Development Plan (NDP).

Ugandan small farmers have still to take advantage of the green revolution technologies. Total factor productivity growth – the difference between aggregate output growth and the growth of all inputs and factors of production that produced it – in Ugandan agriculture has been negative for the last two decades. This suggests that on balance the country is now getting less for equal or greater effort. Small farmers have low capacity to acquire and deploy agriculture technology, which is driving the sector's high vulnerability to climate change. The country has the lowest utilization of inorganic fertilizers in Africa, at only 1 kg/ha; and only 13 percent of the cropped area was planted with commercial or improved seeds in 2009, compared to 22 percent in SSA and 80 percent in Asia. Unreliable quality of agricultural inputs is a major problem, which discourages farmers from



investing their limited resources to this end. Most of the tilling is done by hand, with a mere 2,500 tractors nationwide, and animal traction used in only a few parts of the country. Limited access to credit among farmers is a major constraint to increased use of technologies and inputs, and is largely related to farmers' lack of collateral as less than 20 percent of the land is registered. Alongside land size, limited land tenure security has shown to be a critical bottleneck hampering investment, agribusiness development and commercialization. All this demonstrates the huge potential for increasing agricultural productivity under rainfed conditions. Climate change has added a further challenge: while the favorable rainfall pattern of Uganda historically allowed two rainfed cropping seasons per year in most parts of the country, the change in precipitations is creating the need for irrigation, currently practiced on a mere one percent of the potential area. Indeed, smallholders perceive that weather poses the greatest risk to their households' agricultural activities. More than four-fifths of smallholders had their agricultural activities seriously affected by a weather-related event in the prior three years. When facing a shock, smallholders have little means to cope, with implications for the livelihood of a large share of the population.

The Government of Uganda (GoU) recognizes the opportunities for the agricultural sector, and the urgency of irrigation development to sustain its growth potential in the face of climate change. The Government has defined agriculture as a key economic sector in Uganda's transition to a middle-income country and, in this regard, has emphasized the importance of value addition, commercialization, and building resilience to climate change. Uganda's broader agri-food system also has the potential to provide significant employment opportunities for the country's predominantly young population, with higher job creation potential than the service or industry sectors. However, these ambitious goals could not be achieved should the agricultural sector remain almost exclusive reliant on rainfalls, considering the impact of climate change on rainfall variability and amounts. To this end, the government in its Vision 2040 and in the NDP II (2016-2020) appropriately lists irrigation investment as a high priority along with agricultural value-chain development. The National Agricultural Policy (NAP, Ministry of Agriculture, Animal Industry and Fisheries, MAAIF, 2010), which stipulates the sectoral approach to the NDP, emphasizes the need for rehabilitating government irrigation schemes, transferring the management responsibility of irrigation schemes to the lowest appropriate levels, establishing new irrigation schemes, and increasing water storage for livestock and wildlife. The Agriculture Sector Strategic Plan (ASSP, MAAIF, 2016-2020) operationalizes the NAP and the Agriculture Chapter of NDP II by defining strategic interventions to increase access to water for agricultural production. The National Irrigation Master Plan (Ministry of Water and Environment, MWE, 2011-2035) stipulates the priority irrigation development areas and schemes over short, medium and long terms. More recently, the National Irrigation Policy, jointly signed by MWE and MAAIF in 2018, focuses on irrigation as a way to achieving national food security, transforming the agriculture sector and significantly increasing agricultural income through increased production and productivity, improved drought-resilience of farming communities, and investments in agricultural value-chain development.

Investments in irrigation infrastructures are urgently needed. The National Irrigation Policy states that, to sustain the ambitious role envisaged for the agricultural sector in the country's economy in the face of climate change, there is need to "invest in micro, small scale, medium and large-scale irrigation systems as public investments to mitigate challenges related to water shortages mainly as a result of prolonged droughts, and provide much needed relief to farmers". The urgent need of this investments is demonstrated by the ambitious targets set under the Policy of total irrigated area of 1,500,000 ha by 2040, compared to the current 75,000 ha (considering both formal and informal irrigation), which would require creating almost 70,000 ha of newly irrigated land per year. Achievement of this ambitious target would require identification of a range of irrigation models adapted to local needs, creation of the conditions for quick scalability, and mobilization of a combination of public and private resources.

Irrigation infrastructure will not be able to sustain long-term growth of the agricultural sector unless its



development is accompanied by the establishment of solid institutions. Construction of formal schemes has been public sector led, often with a top-down approach. Prior to the 1990s, all formal irrigation schemes in Uganda were directly managed by MAAIF. With the policy reform and restructuring of the Ministry in 1998, schemes and government farms were de-linked from MAAIF, which nevertheless continued to provide support by assigning core technical staff to each scheme. Farmers were encouraged to form cooperatives/associations for managing the scheme (thus playing the role of a Water Users Association, WUA). This management style presents challenges, including: (i) membership in the cooperative is voluntary, and only a percentage (sometimes small) of farmers in the command area is part of it; the cooperative cannot force the remaining percentage to contribute to the O&M of the scheme; (ii) law does not allow the cooperatives to collect irrigation water charges from farmers and to keep and invest it in O&M; (iii) the cooperative does not usually have the technical skills or experience to ensure O&M of the scheme; (iv) originally the cooperative has other mandates, in relation to access to inputs and machineries, value chain development, etc., adding water management to their tasks can overburden them. Irrigation water charge is being exercised only in some schemes. Negligence and deferred maintenance are common, and sustainability is questionable, resulting in the Government having to undertake recurrent rehabilitations. The prevailing poor performance and inefficient operation of the irrigation schemes is largely attributed to the current ineffective institutional & legal environment and management systems in addition to the dilapidated infrastructure. Establishing effective institutional arrangements and improved management structures and systems are intended to offer efficient irrigation services delivery for the rehabilitated schemes.

Public support to irrigation development should be targeting farmers that do not have the means to otherwise access irrigation, but who have the potential to leapfrog from subsistence to commercial agriculture. The National Survey and Segmentation of Smallholder Households in Uganda (CGAP, 2016) identifies five categories of smallholders. Irrigation development should start targeting the 21 percent smallholders segment defined as “battling the elements”. This segment is challenged by incidence of unexpected life or farm-related events, including weather challenges, and records the highest incidence of negative farm events (e.g., pests and diseases). This segment of smallholders has persevered through those challenges, sometimes using financial tools, making them a group that might better understand the value of having some form of public support, also considering that 80 percent of these farmers are below the poverty line. The farming for sustenance segment, which represents half of smallholders in Uganda, is a highly vulnerable group, they have the lowest household income, and truly does live off of what the farm produces, either consuming, selling or trading the fruits of their agricultural labor. This segment would greatly benefit from the improvement of rainfed agriculture before being exposed to irrigation. The remaining three segments would certainly benefit from irrigation, but have higher financial possibility to introduce this technology with limited public sector support.

The Irrigation for Climate Resilience Project (ICRP) aims to support the Government of Uganda (GoU) in the shift towards more resilient agriculture through the development of sustainable irrigation services. The project intends to address Uganda's climate change vulnerabilities by: (i) promoting adoption of irrigation by small farmers, in synergy with other agriculture inputs and technologies; (ii) increasing water storage capacity; (iii) promoting drainage; and (iv) promoting sustainable catchment management. Through the introduction of irrigation services, combined to the provision of extension services and facilitated access to agro-inputs, farmers are expected to record more stable and higher yields, increase intensification (by cropping also during the dry season), and diversification (by introducing higher value crops). This change will be market-driven, with irrigation becoming the anchor for stronger producer organizations and development of value chains. The project recognizes the need to explore a range of irrigation models adapted to local needs. While the project is conceived as a stand-alone investment operation, it helps to create the conditions for scalability of investments, by supporting: (i) development of a credible pipeline of public irrigation schemes investments; (ii) development of sustainable management models for public irrigation schemes; and (iii) piloting of public support to incentivize farmer-led irrigation, using a value chain approach.



C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

To provide farmers in the project areas with access to irrigation and other agricultural services, and to establish Operation and Maintenance arrangements for irrigation service delivery.

Key Results

The PDO level indicators are the following:

- Area provided with new/improved irrigation services
- Farmers reached with agricultural assets or services, disaggregated by gender
- Management contracts signed

D. Project Description

Component 1. Irrigation Services (US\$120 million)

Sub-component 1.1 on Large and Medium-scale Irrigation. Large (>1,000 ha) and Medium (100 to 1,000 ha) scale irrigation schemes are established when an important water source is available in conjunction with a sizable irrigable area, offering the chance of developing economies of scale for marketing and value addition. As water might be not directly accessible across the whole irrigable area, and/or as the water source might be at a certain distance from the irrigable area and/or variable over the year, off-farm infrastructures (i.e. dams, diversions weirs, transmission pipes or canals, distribution networks) are required. The project will construct new irrigation schemes (Kabuyanda and Matanda); support the development and strengthening of management model of new (Kabuyanda and Matanda) and existing (Olweny and Agoro) irrigation schemes; and develop studies for future irrigation schemes (Nyimir, Enengo and Amagoro). Activities will include: (i) dam construction and associated head works; (ii) construction of irrigation networks (pipes, canals, hydro-mechanical equipment) up to the farm gate; (iii) construction of drainage networks; (iv) construction of access and scheme roads; (v) construction of scheme offices, sanitation facilities, and storage facilities; (vi) construction of weather stations; (vii) consultancy services to prepare feasibility studies, detailed designs and safeguard instruments for irrigation schemes; (viii) consultancy services to monitor and control civil works; (ix) consultancy services in support of management of irrigation schemes; (x) consultancy services for environmental assessments and audits and implementation of the Environmental and Social Management Plan (ESMP); (xi) consultancy services for the roll out of Certificates of Costumery Ownership; and (xii) startup fund for O&M.

Sub-component 1.2 on Small and Micro-scale Irrigation. Small (5 to 100 ha) and Micro (<5 ha) scale irrigation schemes are smaller in size, relying on a nearby water source mobilized with simple and relatively low-cost infrastructure, making it possible for farmers (individually or collectively) to take charge of irrigation development and management. The project will pilot public support for the construction of farmer-led small and micro scale irrigation schemes around the two new irrigation schemes (Isingiro District around Kabuyanda and Kanungu District around Matanda) and in areas close to Kampala characterized by high marketing potential (Mukono, Wakiso and Mpigi Districts), adopting a value chain approach. Activities will include: (i) construction of small water retention facilities and associated head works; (ii) drilling of wells and boreholes; (iii) construction of small irrigation networks (pipes, canals, hydro-mechanical equipment); and (vi) consultancy services to prepare designs,



safeguard instruments and for monitoring and control of works.

Sub-component 1.3 on Integrated Catchment management. It will develop and implement integrated catchment management interventions for the two new irrigation schemes (Kabuyanda and Matanda), to improve the sustainability of the schemes, including the restoration/reforestation activity in Rwoho CFR (Kabuyanda). Activities will include: (i) consultancy services to prepare integrated micro-catchment management plans; (ii) implementation of identified watershed management measures from the micro-catchment management plans; and (iii) restoration/reforestation activities.

Component 2. Support services for agricultural production and value-chain development (US\$32.6 million)

Sub-component 2.1 Sub-component 2.1 on On-farm Production and Productivity. It will provide support to farmers and farmers' groups for production and productivity improvement at the farm level in the new irrigation schemes (Kabuyanda and Matanda), in existing irrigation schemes (Olweny and Agoro), in small and micro irrigation schemes (Isingiro, Kanungu, Mukono, Wakiso and Mpigi Districts) as well as in the area of the proposed future irrigation scheme (Nyimir). Activities will include: (i) consultancy services to create and strengthen farmer groups, provide extension services, facilitate access to inputs, promote good agricultural practices, sustainable land management practices, and integrated pests and disease management; (ii) matching grants to facilitate access to inputs (seeds, agro-chemicals); (iii) matching grants to facilitate access to on-farm irrigation technology; and (iv) consultancy services to monitor and control civil works.

Sub-component 2.2 Sub-component 2.2 on Value Addition and Market Linkages. It will provide support to farmers' groups for value-chain development and strengthening and establishment of market linkages. Activities will include: (i) consultancy services to create and strengthen linkage with value chain actors in improved post-harvest handling, agro-processing, access to financing services, access to markets and market information; (ii) matching grants to facilitate access to equipment; and (iii) purchase of small goods.

Component 3. Institutional Strengthening and Implementation Support (US\$10 million)

Sub-component 3.1 on Institutional Strengthening. Activities will include: (i) short-term studies on management models in irrigation, tariff structures, and prerequisites for financial sustainability; and (ii) capacity building, training and study tours.

Sub-component 3.2 on Implementation Support. Activities will include: (i) hiring of individual consultants for the Project Support Team (PST); (ii) purchase of project implementation goods and services (ICT Equipment, softwares, vehicles); (iii) travel costs and allowances; and (iv) Monitoring and Evaluation (M&E) costs.

E. Implementation

Institutional and Implementation Arrangements

MWE is the Implementing Agency for the project. MWE will be responsible for planning, budgeting, procurement, FM, safeguard, M&E and reporting for the whole project. The Permanent Secretary (PS) of MWE will be the Accounting Officer for all project funds. MAAIF will be a technical implementation partner for activities which fall under MAAIF's mandate under sub-component 1.2 and Component 2. NFA will be a technical



implementation partner for activities which fall under NFA's mandate, namely the reforestation activities in Rwoho CFR under sub-component 1.3.

MWE. The Assistant Commissioner of the Water for Production (WfP) Department, under the Directorate for Water Development (DWD) will be the Project Coordinator for MWE, and he/she will report to the Commissioner WfP. Prior to Negotiations, MWE will nominate focal persons from its relevant Departments. Focal persons (sub-component 1.1, sub-component 1.3, component 3, safeguard ...) will be mainly from the Water for Production (WfP) Department at central level. At deconcentrated level, technical support officers will be nominated from the Water for Production Regional Center (WfPRCs) for the Western Region (under which fall Isingiro and Kanungu Districts), the Northern Region (under which fall Lira and Lamwo Districts), the Eastern Region (under which falls Tororo District) and the Central Region (under which fall Mukono, Wakiso and Mpigi Districts). Each WfPRC currently has four core professional staff (including Engineers, Social Scientists, Environmental Specialists and Surveyors). Contract management teams, headed by a Contract Management team leader, shall be set up for each contract with members from both the central and the regional level. The regional teams will be responsible for the day to day supervision of construction works in the field along with consultancy services procured under the project. The regional teams will report to the focal point of the component, who in turn will report to the Project Coordinator. In relation to sub-component 1.3, focal person(s) will be nominated from the Directorate of Water Resources Management (DWRM), operating at both national and Water Management Zone (WMZ) level, will be responsible for the implementation of the catchment management measures for each scheme. WMZs currently have five core professional staff (including a team leader and social scientist) in each of the zones supported by the appropriate departments in the DWRM, and their respective divisions.

MAAIF. The Directorate of Agricultural Extension Services (DAES) will lead and coordinate project implementation from the MAAIF side, in charge of Sub-Component 1.2 and Component 2, spearheaded by the Agriculture Infrastructure and Water for Agricultural Production (AI&WfP) Department. The Commissioner AI&WfP will be the Project Co-Coordinator for MAAIF, and he/she will be report directly to the PS MAAIF. Prior to Negotiations, MAAIF will nominate focal persons from the various Departments, according to the technical expertise needed. The Directorate of Crop Resource, Department of Planning and other focal persons will be involved as required.

Project Support Team (PST). The project will be implemented through existing Government structures, relying mainly on Government staff. Individual consultants – where necessary - will be recruited where the Ministry has inadequate capacity. The PST will comprise individual consultants recruited for the purpose of ensuring efficient project implementation. While each Ministry may have staff already engaged in these activities, the PST will provide additional support to the extensive additional work that the project will bring along, an additional workload that may end once the project ends. This set-up strengthens and is aligned with Government structures and ensures sustainability. It also promotes cooperation between two ministries which have to keep working in close alignment when it comes to irrigation development, building on their respective mandates. The PST is headed by the Project Coordinator who will be assisted by the Co-Coordinator. The PST will work closely with all project staff and relevant stakeholders. The following thematic specialists will be recruited to support implementation, namely:

- Project Support Officer;
- Procurement specialist;
- FM specialist;
- M&E specialist;
- Communication specialist;
- Safeguard specialists (Environmental and Social);
- Grant disbursement team (grant manager and three grant assistants) for purposes of managing the wide



range of matching grants under the project, including for quality inputs (Component 2.1) and for agro-processing equipment and on-farm irrigation equipment (Component 2.2).

In addition, technical expertise will be hired as need be. On MAAIF side, technical experts will include agri-business expert, sociologists and irrigation engineers.

Project technical committee (PTC). It will be comprised of Commissioner WfP and Commissioner WRRD in MWE, Commissioner for AI&WfP in MAAIF, and Executive Director of NFA, who shall provide technical oversight of project activities under their mandate.

Project Steering Committee (PSC). MWE will establish a multi-sectoral Project Steering Committee (PSC) to provide high-level operational and policy guidance and oversight to ensure that the project components and activities are implemented as intended. The PSC will meet twice a year to approve work plans and budgets, review progress of implementation, and ensure adherence to relevant Government policies and strategies. The PSC will be co-chaired by the PS of MWE and the PS of MAAIF, and it will comprise PSs (or their representatives at high technical level) of the Ministries of: Finance, Planning and Economic Development (MoFPED); Gender, Labor and Social Development (MoGLSD); Trade, Industry and Cooperatives (MoTIC); Local Government (MoLG); Land, Housing and Urban Development (MoLHUD); Executive Secretaries of Uganda National Farmers' Federation (UNFFE); Executive Director of NFA; and the Chief Administration Officers (CAOs) of the Districts where the project is implemented.

Institutional arrangements for Management of Environmental and Social Safeguards

A PST will be established in MWE and it will hire environmental and social specialists to coordinate and manage safeguards aspects of all project components in collaboration with existing MWE safeguards staff. With respect to Component 2 activities, they will be overseen through existing environmental and social Safeguards Management Unit under the Agricultural Cluster Development Project (ACDP) in the Crop Resources Directorate, also funded by IDA. Though it is a project operated unit, for now it doubles as a main entity overseeing environmental and social safeguards issues in MAAIF. The Unit is staffed with an Environmental Specialist and a Social Scientist. At District Local Government level, there are district environment and community development officers whose safeguards capacity will be enhanced as appropriate. The Safeguards Specialists shall undertake environmental and social screening of all project activities in line with guidance provided in the ESMF, RPF, VMGF ensuring development of site specific instruments as deemed appropriate. They will ensure day to day management and implementation (planning, monitoring/supervision and reporting) of all environmental and social aspects of the project. For the works to be contracted out, all supervision consultants and contractors shall hire environmental and social specialists on a full-time basis, including Health and Safety Specialists for the Contractor. The project shall ensure use of a code of conduct to manage and discipline the project labour force. Arrangements for monitoring implementation shall be put in place including development and operationalization of an Environmental and Social Management System at Directorate of Water Development/MWE.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The project will span across the whole country, as follows:

- Western Region: construction of two schemes (Kabuyanda, Isingiro; Matanda, Kanungu), design of a new scheme (Enengo, Kanungu), pilot small and Microscale irrigation.
- Northern Region: Activities for increased rainfed productivity and design of a new



scheme (Nyimur, Lamwo), support the establishment of management structures (Olweny, Lira; Agoro, Lamwo). • Eastern Region: design of a new scheme (Amagoro, Tororo). • Central Region: pilot of small and Microscale irrigation (Mukono, Wakiso and Mpigi). The Kabuyanda scheme is located in Isingiro and Ntungamo Districts in SW Uganda and falls within the broad zone known as Uganda's "cattle corridor", which stretches from the SW to the NE of the country. Characterized by fluctuating rainfall and with up to four months of little to no rainfall, it is dominated by pastoral rangelands and resource variability. The Kabuyanda dam and reservoir will be located on Mishumba River which dries up frequently in dry seas. The salient physical characteristics will include: (i) dam construction and associated head works; (ii) construction of irrigation networks (pipes, canals, hydro-mechanical equipment); (iii) on-farm irrigation works and equipment; (iv) construction of access and scheme roads; (v) construction of scheme offices, sanitation facilities, and weather stations; and (vi) implementation of interventions identified in the micro-catchment management plans. Interventions are expected to include soil and water conservation measures to reduce runoff and erosion in the micro-catchments, and environment management measures including tree planting. Under Component 1, significant labor influx are anticipated. Land redistribution is not required. The project will entail operation of supporting or ancillary facilities like workers' camps, stone quarries, and/or acquisition of construction materials such as stone aggregates and gravel, and construction of access routes where necessary. Small and Micro-scale Irrigation activities will include: (i) construction of small water retention facilities and associated head works; (ii) drilling of wells and boreholes; (iii) construction of small irrigation networks (pipes, canals, hydro-mechanical equipment) up to the farm gate.

G. Environmental and Social Safeguards Specialists on the Team

Herbert Oule, Environmental Specialist

Boyenge Isasi Dieng, Social Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	Activities related to the development of irrigation infrastructures and services, integrated catchment management as well as access routes and construction of office blocks and sanitation facilities, value addition facilities, operation of ancillary facilities, all trigger this policy. Typically, the irrigation infrastructure works will occur over a large area of some 3,000 ha per scheme and may lead to large scale environmental and social impacts, affecting a wider area, and resulting in significant



health and safety impacts, including labor influx and associated socio-economic aspects. Given these aspects and the general salient physical characteristics of the project activities described in Section F above, the project has been assigned EA Category A. Environmental and Social Impact Assessment (ESIA) has been undertaken for Kabuyanda (Isingiro District) scheme, which will cover 3,300 hectares. Civil works will include construction of a dam 33 meters high and associated reservoir, and establishment of an irrigation system in the command area. The study involved development of an Environmental and Social Management Plan (ESMP) and a Pest Management Plan (PMP) for the scheme. During preparation of the ESIA for the individual sub-project site, Cumulative Impact has been assessed and appropriate mitigation measures captured in the ESMP for implementation. The ESIA preparation has included extensive stakeholder consultations, which will continue during project implementation. The ESIA and the ESMPs demonstrate how the project will comply with all applicable rules and guidelines, including: (i) all triggered World Bank Safeguard Policies; (ii) relevant World Bank Group Environmental, Health and Safety Guidelines; (iii) World Bank guidance on Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labor Influx; (iv) Guidelines on the establishment of a functioning Grievance Redress Mechanism (GRM); (v) World Bank Africa Region's Interim Guidelines for Safeguards Application in Agricultural Water Management Projects; and (vi) Uganda National Environment Management Authority's (NEMA) Guidelines for Environmental Impact Assessment and Environmental Auditing for Irrigation and Drainage Operations. In addition, a Stakeholder Engagement/Communication Plan has been drafted to ensure that two levels of consultations were carried out with adequate involvement of all stakeholders, including women and members of other vulnerable groups. These Plans served as a tool for having an open and continuous communication with the affected communities. The communications strategy will be updated to include measures to address specific



issues related to labor influx that will be explored by the social assessments, child labor, harassment of any sort, safety and security, gender-based violence (GBV), Sexual Exploitation and Abuse (SEA), HIV/AIDS and so on.

Since at preparation stage only Kabuyanda irrigation scheme with completed engineering design was subjected to ESIA, Environmental and Social Management Framework (ESMF) was prepared to guide the screening, assessment and management of impacts for the rest of the project activities and schemes whose detailed designs are to be completed/undertaken during implementation. They include an annex with an Environmental and Social Screening form for sub-project activities under components 1 and 2. The Frameworks also cover auxiliary facilities which are normally not covered under the first set of ESIA/RAP, and these shall include guidance on acquisition, operation and management of facilities such as workers' camps, equipment storage areas, material sites, waste management sites, project offices, sanitation facilities, access routes, etc. The ESMF provides guidance on environmental and social screening of project activities and development of ESMPs that will include environmental rules for contractors that cover site-specific technical specifications, Labor Influx Management Plans, Labor Camp Management Plans, Code of Conducts for all construction personnel, and recommended penalties for non-compliance.

The framework instruments (ESMF, RPF, VMGF) as well as the site-specific ESIA & RAP for Kabuyanda Scheme have been cleared by the World Bank and disclosed in-country and on the World Bank's external website.

Performance Standards for Private Sector Activities OP/BP 4.03	No	
Natural Habitats OP/BP 4.04	Yes	The project is designed to minimize any adverse impacts on natural habitats as a result of irrigation development while strengthening the management of vulnerable catchment areas. The project



component of Irrigation services will partly be developed in wetland and river areas as such River Mishumba and part of Rwoho Central Forest Reserve for the Kabuyanda irrigation scheme; the project will have impacts on natural habitats hence, triggering this safeguards policy. Likely project impacts on Natural Habitats shall be assessed as part of site-specific ESIA and ESMPs. For Kabuyanda Scheme that has been subjected to ESIA, it envisages to inundate about 100ha (1.1%) of Rwoho Central Forest Reserve (CFR), a 9,000 ha plantation development forest that is largely degraded with bare hilltops with sparse woody plant cover, and partially restored with non-indigenous species (*Pinus Caribaea*, *Pinus Ocarpa* and *Eucalyptus sp*). As part of the ESIA, the baseline studies undertaken, including consultations with Biodiversity Experts from IUCN, ECOTRUST Environmental NGO, and Makerere University (Faculty of Forestry & Nature Conservation), confirmed Rwoho CFR as highly degraded, undergoing restoration, reforestation, and having low biodiversity conservation value. The Forest is therefore considered a modified habitat. In consultation with the National Forestry Authority, the ESIA has identified an area of 500 ha of degraded land within Rwoho Central Forest Reserve to be replanted under the project with indigenous tree species to mitigate and compensate for the loss of 100 ha reservoir area in the forest, through enrichment planting to promote natural regeneration. 10ha in the 500ha covers wetland area to compensate for the 5.6ha of the wetland to be taken up in the reservoir area. For other schemes whose sites and designs are still under consideration and development, their salient physical characteristics relevant to natural habitats analysis are not known and thus preparation of the ESMF. The project has also included in its overall design a Sub-Component 1.3 of Catchment Management Planning and Implementation, with the overall objective of sustaining the catchment area to supply water for the project as well as general ecosystem benefits. Under this, more conservation measures shall be undertaken in and around the project catchment area. It is, therefore, expected that no critical habitats will be significantly converted under



		this project, rather environmental conservation will be encouraged at the project sites.
Forests OP/BP 4.36	Yes	The policy is triggered because of envisaged potential impacts on forest habitats as a result of dam construction and water collection/harvesting and delivery systems. Sub-Component activities under catchment management may involve tree planting and afforestation. Detailed information on site specific impacts on forests will be provided in the ESAs for the different project sites, in close collaboration with NFA and the respective District Local Governments, and appropriate mitigation actions included in the respective ESMPs. For Kabuyanda Scheme that has been subjected to ESIA, it envisages to inundate about 100ha (1.1%) of Rwoho Central Forest Reserve (CFR), a 9,000 ha plantation development forest that is largely degraded with bare hilltops with sparse woody plant cover, and partially restored with non-indigenous species (<i>Pinus Caribaea</i> , <i>Pinus Ocarpa</i> and <i>Eucalyptus sp</i>). As mentioned under OP 4.04, Rwoho CFR is a Modified Habitat. The ESIA identifies an area of 500 ha of degraded land within Rwoho Central Forest Reserve to be replanted under the project with indigenous tree species to mitigate the loss of 100ha. As documented in the ESIA, several stakeholder consultation meetings have been undertaken with NFA, District Local Governments, Biodiversity experts and Local Communities. NFA has stated they will issue a License to MWE allowing operation of the reservoir in the CFR in line with Regulation 89 of the National Forestry and Tree Planting Regulations, 2016 and Section 41 of the National Forestry and Tree Planting Act, 2003, in December 2019 after NEMA's approval of the ESIA. Under Component 2, it is noted that, amongst others, there will be promotion of climate SMART conservation farming and provision of basic input packages as well as seedling production and crop intensification which may involve use of pesticides and thus trigger this policy, therefore a generic Pesticides Management Plan was prepared as part of the ESMF, which was disclosed. Where use of pesticides will be anticipated, site specific PMPs will be included in the respective ESAs. For
Pest Management OP 4.09	Yes	



		<p>Kabuyanda Scheme, a Pest Management Plan has been developed as part of the ESIA to promote the use of a combination of environmentally and socially friendly practices (hygienic, cultural, biological or natural control mechanisms and the judicious use of chemicals) and measures to ensure that health, social and environmental hazards associated with pesticides are minimized under the Project and within acceptable limit requirements of key stakeholders (i.e. primary users among farmers and their immediate defendants/families). Measures have been recommended to guide procurement, transportation, storage, safety precautions during application and disposal of associated waste. Pesticides use in forestry-related activities is not anticipated since the forest restoration activities will be through enrichment tree planting that promotes natural regeneration as much as possible.</p> <p>This safeguard is triggered because project components will involve infrastructure developments with civil works and excavations which may occasion accidental discoveries of PCRs. Therefore, a Chance Finds Procedure was prepared as part of the ESMF. PCRs screening and inventories shall be undertaken as part of the site specific ESIAAs and mitigation measures included in the respective ESMPs, while observing the mitigation hierarchy.</p>
Physical Cultural Resources OP/BP 4.11	Yes	<p>For the Kabuyanda irrigation scheme: Impacts on physical cultural resources have been assessed. Based on analysis of the location of the reservoir villages and its coordinates, none of the 17 PCR sites presented under baseline are located within the reservoir/dam area. This implies that the project will not likely have significant impacts on the known PCRs in the reservoir area. However, during project's implementation in the command area where most of the PCRs; the Contractor will be required to;</p> <p class="list-item-l1">a. Clearly mark out the identified PCRs locations before implementation of the project</p> <p class="list-item-l1">b. Realign of the water transmission canals to bypass any PCRs in the alignments. Where it becomes inevitable to avoid PCRs especially the graves, the developer will pay compensation for</p>



relocation of human remains in accordance with RAP provisions.

- c. Archaeological watching briefs to be undertaken during ground breaking and site clearance/construction phase by a professional archaeologist(s).
- d. Training of construction workers in basic skills of identification, handling and reporting of any new archaeological sites and artefacts during site clearance and construction.
- e. Providing a copy of chance finds procedure to construction workers to guide them in management of archaeological sites and materials.
- f. Prohibit Project workers to remove archaeological material from the site unless authorized to do so.
- g. Professional rescue excavations on site.

As for impacts on the church areas, it is noted that the water mains do not traverse directly the churches but take up sections of church lands and some trees and such impacts will be compensated as already taken up in the RAP. In addition, works will be done in close consultations with the laity in the areas to enable proper scheduling of construction activities to avoid disrupting church functions and worship schedules.

Where there could be accidental encounters of PCRs, a Chance Finds Procedures has been provided in the ESIA to guide salvage of such materials.

This policy is triggered as the proposed area for the Matanda irrigation scheme might cut across some sub-counties known to host Batwa peoples, specifically in the Kengoma and Kanyashande cells, Kanyantorogo subcounty, Kanungu District. This will be confirmed once feasibility study and detailed designs will be completed. A Vulnerable and Marginalized Groups Framework (VMGF) has been prepared and consulted upon, approved and disclosed (August 01, 2019) at national level and on the Bank's external site prior to Appraisal. This framework provides guidance for the elaboration of eventual plans should the Matanda scheme do indeed affect the Batwas. A Vulnerable and

Indigenous Peoples OP/BP 4.10

Yes



		Marginalized Groups Plan (VMGP) will be drafted accordingly during implementation.
Involuntary Resettlement OP/BP 4.12	Yes	This policy is triggered because of anticipated impacts under component 1, which objective is to develop the irrigation infrastructure and finance construction and equipment for the water source works (dams, storage reservoirs, and river diversion weirs), related catchment management interventions, and two irrigation systems. These activities may trigger land acquisition and involuntary resettlement as land requirements for purposes of construction of any of these facilities may permanently or temporarily limit access to both public or private land and other assets by local communities. A Resettlement Action Plan (RAP) has been prepared and cleared for Kabuyanda irrigation scheme and disclosed. The reduction of the size of the reservoir from 302ha to 100ha has equally reduced the number of PAPs or Private Tree Growers whose plantations had been affected from 10 to 4 only, and these shall be compensated for the full term growth cycle of the standing trees as already computed in the RAP. For Matanda scheme for which the scope and other details of works, including the exact locations of the infrastructure within the project site are not yet determined, a Resettlement Policy Framework (RPF) has been prepared to address any land take issues which might arise during project implementation . The RPF was approved and disclosed both in-country and on the World Bank's external website.
Safety of Dams OP/BP 4.37	Yes	The policy is triggered because the project will finance construction of dams. In compliance with the triggered OP 4.37, a Dam Safety Panel has been constituted to provide the necessary oversight. The dam for Kabuyanda scheme, which is 33 m high, is designed by qualified engineers as will be the one for Matanda/Enengo, and dam safety measures will be incorporated in dam operations. Dam Safety plans for the proposed large dams (including an Emergency Preparedness Plan, EPP) have been prepared, reviewed, and endorsed. Dam Safety Management and Emergency Plans have been prepared for Kabuyanda scheme alongside the ESIA



to provide guidance on management of any dam failure that could result in loss of lives in the event of a failure. The following four dam safety reports were prepared, as required by OP4.37 were :

1. Plan for Construction Supervision and Quality Assurance;
2. Instrumentation Plan;
3. Operation and Maintenance Plan; and
4. Emergency Preparedness Plan

The above plans were reviewed by the Bank's dam safety specialist and found satisfactory and along with the design progress, the Instrumentation Plan will be updated before bidding; the OM plan will be updated 6 months before reservoir impoundment starts; the Emergency Preparedness Plan will be updated 12 months before the reservoir impoundment starts.

This policy is triggered as the Project will contribute to building infrastructure and enhancing the environment for irrigated agriculture at sites which are located on rivers in the Nile Basin. Riparian notification has been undertaken by GoU through the Nile Basin Initiative on Nov. 13, 2018. Only Tanzania responded to give a no objection, while the rest of the countries did not respond. The following Riparian States were notified: Burundi, DR-Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, and Tanzania.

All of the territory within the program undisputedly falls within Ugandan territory. Therefore this policy is not triggered.

Projects on International Waterways
OP/BP 7.50

Yes

Projects in Disputed Areas OP/BP 7.60

No

KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The Kabuyanda irrigation scheme consists of a 33m high zoned earth-fill dam, located on River Mishumba, with reservoir storage capacity of 8.8 M3, draining an area of 90 km² to develop 3,300 ha of irrigated agriculture. It will inundate about 100 ha (1.1%) of Rwoho Central Forest Reserve, a 9,000 ha plantation development forest largely degraded with bare hilltops with sparse woody plant cover. Sites of other irrigation schemes have not been identified



by appraisal. ESMF, RPF and VGMF have been developed to guide development of required safeguard instruments and consultation processes during the project implementation.

Full assessment for the Kabuyanda irrigation scheme was conducted during the project preparation. Potential major impacts include;

(i) Natural habitats impact - The project will take up area to cater for the dams and reservoirs; Kabuyanda dam and reservoir is estimated to occupy 100 ha of Rwoho Central Forest Reserve (CRF) and once implemented there will be an estimated loss of 4,292 m³ of wood plantation. The inundation area is primarily covered with artificial tree plantation of pine and eucalyptus that are non-native species, and 5.6 ha of riparian wetland. Natural habitat assessment confirms that the inundated area is modified natural habitats and account for 1% of the Rwoho at its peripheral area. Thus the impact on the CFR is not considered significant. Biodiversity assessment indicates that no endangered or rare fauna or fish species are identified in the project area. To further mitigate the impacts on natural habitats, the project will support development and implementation of an integrated catchment management plan (CMP), which continues MWE's existing good practice to restore at least 3 times of the loss of habitats due to any development activities. To this end, a restoration program of planting 500 ha using indigenous species and restoration of wetland has been developed, budgeted, and included in the project ESMP. The CFR's management plan will be updated, and management capacity strengthened supported by the project.

(ii) Impacts on the hydrology of the river and sediment loading: During construction, river diversion, interception and dam construction will have potential impacts on flow regime and sedimentation process, negatively affecting water quality and river ecosystem. Such impact is considered temporary and manageable provided good construction practice included in the ESMP can be duly implemented. During operation, due to reservoir impoundment and reduced releases to downstream, impacts of changed flow regimes and sedimentation upstream and downstream of the dam on water quality and habitats can be more significant and long-term. The dam operation will ensure minimum environmental flows (10% during dry season and 20% during wet season) to mitigate the impact. The environmental flow regime scheduling will also include one peak flood per year during the wet season for downstream sediments replenishment and mitigate sediment starvation downstream the dam. Monitoring and assessment of the environmental flow will be conducted during the project implementation and as needed it will be adjusted.

(iii) Impacts on fish and fishing. Two rounds of fish surveys including interviews with communities were conducted during the ESIA preparation. The surveys find that the fish identified include several species belonging to Cyprinidae, Clariidae and Cichlidae families. The conservation status of the identified fish species are listed as 'Least Concern' according to the IUCN Red List (2017-1), except Clarias casonii (catfish) which is not included the Red List. However, this remaining fish species is a common Cat Fish species found in most of the lakes and rivers in Uganda. The suveys also indicate that the population abundance is low. According to RAP survey, among activities that generate household income from fishing, one 1% will be potentially affected directly, and 4% indirectly, compared to poultry that is 43% and 56% respectively. Based on available information, the fish species and ecological habitats downstream the reservoir are likely not significant, and impacts on fish and fishing activities are considered manageable. Ensure minimum environmental flow and implementation of the integrated CMP will mitigate the impacts. Further, as the historical records of fishery resources in the river is very limited. Fish surveys conducted during the ESIA development were also constrained by a number of factors such as drought. Continued fish monitoring and survey will be carried out during implementation.

(iv) other environmental, health and safety issues, including air emissions, construction nuisance, impacts arising from temporary works such as access roads, quarry and borrow pits, camps, disposal site; occupational health and safety,



community health and safety such as traffic safety have been fully assessed and will be mitigated through proper site selection, application of environmental, health and safety guidelines, inclusion of site-specific mitigation measures as spelled out and budgeted in the project ESMP. In terms of risks of disease incidences: During construction, diarrhea, malaria and HIV/AIDS prevalence, as well as other sexually transmitted infections, are some of the likely ailments that may affect the project especially resulting from population influx amongst others. According to Uganda Population-Based HIV Based Impact Assessment -UPHIA 2016/2017 report, HIV/AIDS prevalence based on the regional dimension and in particular, Western Region (where Kabuyanda and Matanda sites fall) posts a prevalence of 7.9% making it second-highest after central region. To manage the risks, the project will duly implement measures to address it in terms of awareness and sensitization, distribution of condoms, conducting voluntary counseling and testing (VCT).

Social impacts and mitigation measures have been assessed and included in the project ESIA/ESMF, RAP/RPF, and VGMF as summarized here: (i) Labor influx to the area once the project works are launched - there are risks relating to labor influx in which, those seeking employment or enterprises opportunities begin to come into the area hoping to sell goods and services to the temporary project workforce, as well as "associates" who often follow the first two groups to exploit opportunities for criminal or illicit behavior. The influx of workers and followers could also lead to social effects such as Sexual Exploitation and Abuse; furthermore, in rural settings, the risk of sexual harassment for local women can be common. (ii) Involuntary resettlement - This is likely to arise through potential land-take for construction of common infrastructure facilities such as farm roads, irrigation/water distribution channels/pipes and dams amongst others. (iii) Loss of structures -the RAP study for Kabuyanda established that, the project may take up a number of structures; the RAP has provided for compensation for these assets in keeping with GoU land acquisition laws and procedures and OP 4.12 policy requirements. (iv) Likely impacts on livelihoods - Implementation of works will have a short-term negative impact on some of the farming activities through works on water channels and dam construction which in the end will impact on livelihoods. This will be a short-term negative impact and once works are completed, the functionalities of the facilities will be restored. (v) Concerns over inadequate consultation of various stakeholders - This is likely to occur in some sections especially omitting vulnerable groups (like youth and women) and in the end, their input is missed in the planning of the interventions and bring about, intensification of existing gender disparities.

Other safeguards issues:

Dam safety: as the project involves construction of dams, the policy is triggered. a Dam Safety Panel has been established. Four dam safety reports were prepared, as required by OP4.37. and reviewed by the Bank's dam safety specialist and found satisfactory. Along with the design progress, the Instrumentation Plan will be updated before bidding; the OM plan will be updated 6 months before reservoir impoundment starts; the Emergency Preparedness Plan will be updated 12 months before the reservoir impoundment starts. It also should be noted that There are also risks that the final design for the planned Matanda scheme will negatively affected established settlements of Batwas through land acquisition, and depending to their proximity to worksites or auxillary facilities, through influx of labor. The project will avoid acquisition of land from the Batwa community, following OP 4.10 policy requirements.

Pest Management: The project will support promotion of climate SMART conservation farming and provision of basic input packages as well as seedling production and crop intensification which may involve use of pesticides. Following policy requirements, a generic Pesticides Management Plan was prepared as part of the ESMF. For Kabuyanda Scheme, a Pest Management Plan has been developed as part of the ESIA.

Physical cultural resources: For the Kabuyanda irrigation scheme, impacts on physical cultural resources have been assessed. Based on analysis of the location of the reservoir villages and its coordinates, none of the 17 PCR sites



presented under baseline are located within the reservoir/dam area. This implies that the project operation will not likely have significant impacts on the known PCRs in the reservoir area. Measures to conduct rescue survey and preventing contractors from damaging or encroaching PCRs have been built into the ESMP. Chance finds procedures is included in the ESMP and ESMF. As for impacts on the church site under Kabuyanda project, it is noted that, the water mains do not traverse directly the churches but take up sections of church lands and some trees and such impacts will be compensated as already taken up in the RAP. In addition, works will done in close consultations with the laity in the areas to enable proper scheduling of construction activities to avoid disrupting church functions and worship schedules.

Due to data availability and for the purpose of adaptive management, the project proponent has agreed that additional survey and assessment will be conducted during project implementation: (i) Biodiversity surveys (with more focus on fish) along the upstream of the reservoir, extending up-to 10Km downstream, including associated socio-economic impacts and accordingly update the Biodiversity Monitoring Plan, Environmental Flow Analysis and ESMP; (ii) Cumulative Impact Assessment and accordingly update the ESMP, (iii) Underground water assessment under the ongoing Integrated Water Management Development Project (P163782) which will carry out a comprehensive National groundwater assessment by September 2020, and will provide input to further the cumulative impact assessment; and (iv) updated environmental flow assessment and monitoring.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
A preliminary cumulative Impact assessment for the Kabuyanda Irrigation Scheme was conducted during the project preparation. The assessment follows internationally acknowledged approach to define spatial and temporal boundaries of the assessment first. Reviews of other past, current and future activities and consultation with a range of stakeholder were carried out. It is noted that there's no existing dam on the project river Mishumba, nor are there any plans of cascade development along the river. Therefore potential cumulative impacts arising from cascade development doesn't seem to be a concern. The spatial scope of assessment thus can be limited to sub-basin level, namely the area around the dam, the reservoir area, the Rwoho forest reserve upstream, the command area of the irrigation scheme. Isingiro District Development Plan and other proposed or ongoing developments in the area informs the timeframe of assessment, taking into account data availability.

Further review of past, present and future development activities within the Isingiro assessed several development activities in the assessment area. It is concluded that most of the activities will have little likelihood to overlap with the proposed Kabuyanda project spatially. Further, it is identified that cumulative impacts on groundwater is a concern considering hydraulic connection between the forthcoming Kabuyanda reservoir impoundment and groundwater aquifers. It is also identified that cumulative impacts may arise from the proposed Kabuyanda project (damming, reservoir impoundment, abstraction of water for irrigation that results in reduction in downstream flows in the river), increased agricultural production thanks to all year-round water supply, and in general human activities in the assessment area. Several Valuable Environmental and Social Components (VECs) are identified, involving River Mishumba ecosystem and the Rwoho CFR. Cumulative impacts on the VECs and mitigation are summarized in below,

- Groundwater: Among the projects included in the Isingiro District development plan, the project with the highest likelihood of overlapping with the proposed Kabuyanda irrigation scheme is the Kabuyanda Water Supply and Sanitation project under MWE, due to its size and the geographical overlapping within the command area. It is worth noting that, the Water Supply and Sanitation project will utilize only groundwater. Intensified agriculture production may lead to increased use of pesticide and agro-chemicals. Cumulatively, they have potential impacts on groundwater table and quality. Pesticides use is expected to be minimal since Ministry of Agriculture is promoting more the application of integrated pest management. For the long-term solution, MWE has planned for an alternative water



source as River Kagera; to construct a bulk water supply system for Isingiro district, to supply Kabuyanda town and all the communities' enroute. Kabuyanda has existing boreholes and the ground water quality is currently portable for drinking. Ongoing Integrated Water Management Development Project (P163782) will carry out a comprehensive national groundwater assessment. This assessment is under procurement and expected to commence by September 2020, and will provide input to further the cumulative impact assessment of groundwater during the project implementation.

- Hydrological regime and river ecosystems: Damming, reservoir storage and water abstraction to meeting the increasing demand for economic activities potentially lead to long-term reduction of flows in the Mishumba River, thus flow regime, water quality, riverine and riparian ecosystems. Baseline surveys indicate that the river is non-permanent, dries up in Feb, July – September; habitats appear to have been modified and degraded due to long time human activities; limited fish diversity, resource abundance and fishing activities were observed. The project will ensure minimum environmental flows to downstream and annual release of peak flooding (to restore natural flooding pattern) to mitigate the impacts. Further, ecosystem survey and monitoring including water quality will be continued during the project implementation.
- Rwoho CFR: Potential cumulative impacts are also observed in terms of changes to the social dynamics, land-use, including the possibility of increased land-demand, which may exert more stress on Rwoho CFR. Improved irrigation efficiency contributes to intensification of agriculture that may lead to encroachment of the Rwoho CFR. The Rwoho CFR is featured with degraded and modified natural habitats. Its management plan will be updated as part of the project implementation and management capacity is expected to be strengthened to address such concerns.
- Catchment Management Plan (CMP): As designed, the project includes an integrated CMP which if well implemented will contribute to addressing cumulative impacts arising from the proposed project and
- Overall, given the moderate scale of the proposed Kabuyanda project and subsistence feature of other development activities, it is not expected their cumulative impacts will be unacceptable if already designed mitigation measures and various monitoring and survey programs (which enables adaptive management of cumulative impacts) are duly implemented. The project proponent has agreed to conduct a more detailed cumulative impacts assessment, including continued consultations with stakeholders during the project implementation as more information and data are available.

The ESIA also highlights the risk of drowning in the reservoir: During the operational phase, there is risk of drowning by both children and adults in the reservoir. The children or adults may be enticed to swim in the reservoir and may end up drowning or may drown accidentally while passing by. Furthermore, domestic animals may also drown in the reservoir while trying to drink from it. The risk of drowning can be long-term and irreversible when it involves loss of life. The risk will be managed through the sensitization of local communities and proper safety management scheme of the reservoir.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

The Kabuyanda project alternative analysis examined dam locations, dam types and utilization options based on environmental, social, technical and economic considerations.

In terms of dam location, two project alternatives were considered for Kabuyanda irrigation scheme. Alternative 1 with a dam being located about 2km upstream in a forest reserve area, whilst under Alternative 2 the dam lay downstream in an area with settlements and which is heavily utilized for agriculture. Parameters used for analysis of the two alternatives included potential environmental and social impact (costs and benefits); the feasibility of mitigating these impacts (costs, benefits, and cost-effectiveness); their capital and recurrent costs; their suitability



under local conditions; their institutional, training, and monitoring requirements and their technical parameters. Alternative 1 with a dam within the forest reserve was deemed to have the lower impact and therefore has been selected as the preferred alternative.

Similarly, the type of dam structure was analyzed and a Homogeneous Earth Fill Dam (HEFD) was deemed preferable rather than a Concrete Faced Rock Fill Dam (CFRD), whilst the function of water supply for livestock has been included in order to maximize community benefits.

Dam utilization options examined were also analyzed and the option of irrigation purpose alone, which excludes hydropower, domestic water, and livestock components, was recommended and selected for implementation.

For the Kabuyanda Irrigation Scheme, the Without project alternative involves not undertaking the proposed project. With this option, the benefits (described above) expected from the project would not be realized and the adverse impacts of the Project presented in this report would be eliminated. However, this is not reason enough to recommend this option against the action alternative since the majority of the adverse impacts are mitigable.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

A Project Support Team (PST) will support MWE and MAAIF's focal points in charge of selected activities, with key hired technical specialists (procurement, accountant, environmental, social, and M&E specialists). The PST will assist all project implementation departments to carry out specialized tasks. The PST will also be responsible for consolidating plans, developing budgets, monitoring results, compiling reports, and disseminating outputs and outcomes.

The MWE is the implementing agency for the project, and it has substantial experience in implementing World Bank-funded projects and have overall social and environmental safeguards capacity. Nevertheless, the envisaged project implementation unit (Department of Water for Production) may require capacity enhancement. The department has three Regional Centers i.e. northern, eastern and western as well as an Environment Officer at headquarters who are all responsible for oversight role on environmental and social safeguards issues in the Department's interventions. There are a number of sociologists on some of the projects in MWE who manage mainly community mobilization and sensitization to participate in project interventions in their areas of jurisdiction. National Forestry Authority (NFA) will provide technical oversight to activities focusing on reforestation in Central Forest Reserves. NFA has an Environmental Management Unit headed by an Environmental Officer who works closely with Social Management Specialist under the Directorate of Natural Forest Management through its Collaborative Management Unit. The two entities complement one another in aspects such as review of ESIA, field monitoring and inspections of projects to track safeguards compliance under the Authority. With respect to activities for which MAAIF will provide technical oversight, they will be overseen through existing Environmental and Social Safeguards Management Unit established originally under Agricultural Technology and Agribusiness Advisory Services Project (ATAAS) and has now taken over the safeguards aspects under the Agricultural Cluster Development Project (ACDP) under the Crop Resources Directorate. Though it is a project operated unit, for now it doubles as a main entity overseeing environmental and social safeguards issues in MAAIF. The Unit is staffed with an Environmental Specialist and a Social Scientist. At District/Local Government level, there are District Environment Officers (DEOs) and District Community Development Officers (CDOs) whose Safeguards Capacity will be enhanced as appropriate. The DEOs and CDOs are well placed to oversee compliance of project works at project local levels which is consistent with their mandate as enshrined in the National Environment Act Cap 2019. The DEOs and CDOs will be conducting routine monitoring of the project as well as attending monthly site meetings. By mandate, the DEOs are required to prepare reports to NEMA on environmental



aspects in the projects in their areas and activities of the project will constitute such reports. In particular, the CDOs, Probation Officers and Labor Officers become key with respect to ensuring the project does not allow children to be employed in the project. In addition, these officers are well placed to address employment issues in the project with a focus on issuance of contract to employees and payments. They will pay keen attention to instances of gender-based violence and marginalization of workers on gender dimension amongst others.

The objective of the ESMP is to ensure that steps are taken to address the potential impacts of the project and to ensure that the project is compliant with applicable national environmental and social legal requirements and the Bank's safeguards policies and procedures.

Scope of the Management Plan

The management plan is aimed at ensuring that:

- a. Environmental management conditions and requirements are implemented during the construction and operation of the project;
- b. The social concerns are put into consideration throughout the construction and operation phases of the project;
- c. There are maximum economic benefits to the communities in the districts in and around the project area and the two countries at large; and
- d. Precautionary measures are in place to safeguard against possible damage to the social and environmental set-up.

Responsibilities

In view of the above, the project management is expected to commit itself on the following aspects:

- a. The Contractor(s) will engage services of environmental and social experts to provide quality control and oversight in the implementation of the ESMP;
- b. The client at its different levels, shall fully supervise the project implementation in all phases;
- c. Ensure that the proposed environmental and social mitigation measures stipulated in the ESIA as a whole are to the extent possible, fully integrated in the project;
- d. The project puts in place and also operationalizes a Grievance Redress Mechanism aimed at providing an avenue for PAPs to express their concerns regarding the project;
- e. MWE has been implementing Catchment Based Integrated Water Resources Management since 2011 with the aim of facilitating sustainable development and management of water and related resources. As a result, catchment management plans have been prepared for various catchments in the Country. Therefore, The Directorate of Water Resources Management (DWRM) under MWE shall be responsible for the implementation of the Catchment Management Plans processes which are already been undertaken in the Ministry on a number of catchments as such, they will be leading the process in consultation with other National Stakeholders namely: communities, NGOs, NFA, NEMA, MAAIF, Directorate of Environmental Affairs and Isingiro District Local Government. The Catchment Management Plans will be reviewed and approved by the Catchment Management Committee. The CMC is constituted of Civil Society, Private Sector, Technical Officers, Political Leaders chaired by an elected Political Head from the catchment area; and
- f. Implement and continuously review this Plan to ensure its acceptability by the stakeholders.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.



A two-stage public consultation and disclosure was done during the compilation of the ESIA report for Kabuyanda Irrigation Scheme, and after drafting of the report. The consultations were through pre-arranged meetings with different stakeholders. A number of stakeholders were consulted including National Stakeholders (Government Institutions / Departments) officials and these included Ministry of Water and Environment (MWE), Ministry of Energy and Mineral Development (MEMD), National Forestry Authority, Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Lands, Housing and Urban Development (MLHUD), National Environment Management Authority, Ministry of Gender, Labour and Social Development, Department National Fisheries Resources Research Institute (NaFFFRI) under the National Agricultural Research Organization (NARO), Uganda National Bureau of Standards (UNBS) and Isingiro and Ntungamo District Local Governments. Consultations were also held with the women and other vulnerable groups, large scale farmers in the area and cooperative societies. These included Kaiho Farm School Leavers Cooperative Society, Kigarama Commodity Marketing Cooperative Society Limited, Kabuyanda Dairy Cooperative Society Limited and Tukundane Fish Farm Limited. These were consulted on aspects such as livelihood, health, gender specific concerns etc.

Consistent with best practice in developing ESMF, RPF, and VMGF, consultations were held with relevant stakeholders. The stakeholders and beneficiaries of the project were identified after undertaking literature review and consultations with the MWE. Consultative meetings were held during field visits with the key stakeholders and institutions which included: district local government officials, sub-county officials, local leaders and project target communities in all project districts. At districts Levels, consultative meetings were held with; the District Planners, the District Production Officers (DPO), the District Community Development Officers (DCDO), District Forest Officers, District Labour Officers, Probation Officers the District Agricultural Officers, the District Water Officers, the Natural Resource/Environment Officers, Physical Planners, the Fisheries Officers, CSOs and representatives of Batwas Peoples. At the sub-counties, the Sub-county Chiefs and the Community Development Officers were consulted while at the community levels; local leaders especially the LC1 Chairmen, a representative number of the target communities and farmers were met.

Some of the issues raised during Public Consultation for Kabuyanda Irrigation Scheme included:

An operator is expected to be contracted to operate and maintain the scheme. There is need for an economic plan or analysis for sustainability management of the project. Government needs to understand what people are willing to pay for the irrigation, because appropriate pricing is an important tool to improve sector performance and the establishment of achievable targets and effective monitoring systems are useful instruments for enhancing efforts, public/community awareness and engagement is crucial, hence the community should be involved in meeting the objectives of the project. There is a dire need to compensate the affected PAPs and support reforestation under NFA to mitigate project's impact on the inundated forest; MWE should draw lessons learnt from other projects for sustainable management.

DGSM is ready and willing to provide technical assistance in the identification of good quality rock for construction. Products must be based on the Ugandan standards and should be tested. In case the products that are not available on the local market then, UNBS advises that international standards be used. Products approved by UNBS should be used and they must be used in the right quantities. NFA recommended that MWE restricts itself to constructing a dam and reservoir in Rwoho CFR, otherwise construction of other infrastructure such as the camps and project office would require degazettement as per the National Forestry and Tree Planting Act, 2003 (section 7,8 and 13). MAAIF recommended the need to consider how cattle keepers are to share the water with the farmers because there is a likelihood of using the irrigation water for other purposes. MAAIF also recommended developing a plan to take care of the residual water and soil and water conservation plan, since it is a hilly area. There is also a need to put in place an HIV/AIDS management plan. NEMA raised concern on the economic aspects and advised that the consultant captures clearly issues of cost sharing, social acceptability, linkages with the existing farming practices and the beneficiary components. They suggested that livelihood option analysis be made and indicate properly the interface between



livestock herders and crop farmers. They as well indicated that since the project area is within a cattle corridor, the consultant needs to cite who needs the water more. MGLSD advised on occupational, health and safety measures to be undertaken during the project and Gender sensitivity aspects with regard to the project.

Disclosure

The Kabuyanda ESIA was cleared by the World Bank, and disclosed in compliance with relevant Ugandan regulations and the World Bank Operational Policies on September 30, 2019. At the national level, MWE will submit the cleared ESIA to the NEMA for their review and approval. Once NEMA receives the ESIA reports, it will forward copies to key project stakeholders for their comments to be received with 21 days of their receipt of reports. Other copies of the ESIA will be deposited in NEMA library, Makerere University especially in the library at Makerere University Institute of Environment and Natural Resources as well in the Resource Centre in Isingiro District and in the office of the DEO Isingiro. It is also important to note that if NEMA considers to hold Public Hearing on the project, they will also disclose the Summary of ESIA on public media such as newspapers, television and radio and invite comments from the public on the project. Once NEMA receives comments on the ESIA, the Executive Director will take a decision to approve/disapprove the ESIA taking into account comments from the stakeholders as well the Agency's judgment on the likely impacts of the project. MWE has uploaded the ESIA and other safeguards for the project onto its website <https://www.MoWE.go.ug/> and invited the public to access and review the documents. The Ministry has also provided copies of the ESIA and RAP documents in the project to the public in its public library and Departments for the public to give their comments on the project.

On its part, the World Bank has reviewed, cleared and disclosed the ESIA and the RAP alongside other safeguards documents in its website and made available to any interested persons for public access and for public information and comments/feedback as will be necessary.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
09-Nov-2018	15-Jan-2019	

"In country" Disclosure

Uganda
31-Jan-2019

Comments

Disclosed on the website of MWE, and also in the national newspaper.

Resettlement Action Plan/Framework/Policy Process



Date of receipt by the Bank 14-Sep-2018	Date of submission for disclosure 15-Feb-2019
--------------------------------------------	--------------------------------------------------

"In country" Disclosure

Uganda
19-Feb-2019

Comments

Disclosed on the website of MWE, and also in the national newspaper.

Indigenous Peoples Development Plan/Framework

Date of receipt by the Bank 10-Jun-2019	Date of submission for disclosure 03-Jul-2019
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"In country" Disclosure

Uganda
01-Aug-2019

Comments

Disclosed on the website of MWE, and also in the national newspaper.

Pest Management Plan

Was the document disclosed prior to appraisal? Yes	Date of receipt by the Bank 16-Jan-2019	Date of submission for disclosure 15-Jan-2019
-------------------------------------------------------	--------------------------------------------	--------------------------------------------------

"In country" Disclosure

Uganda
31-Jan-2019

Comments

Disclosed on the website of MWE, and also in the national newspaper.

If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.

If in-country disclosure of any of the above documents is not expected, please explain why:

**C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)****OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes

OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

NA

OP 4.09 - Pest Management

Does the EA adequately address the pest management issues?

Yes

Is a separate PMP required?

Yes

If yes, has the PMP been reviewed and approved by a safeguards specialist or PM? Are PMP requirements included in project design? If yes, does the project team include a Pest Management Specialist?

Yes

OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

OP/BP 4.10 - Indigenous Peoples

Has a separate Indigenous Peoples Plan/Planning Framework (as appropriate) been prepared in consultation with affected Indigenous Peoples?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes



If the whole project is designed to benefit IP, has the design been reviewed and approved by the Regional Social Development Unit or Practice Manager?

NA

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

OP/BP 4.36 - Forests

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?

Yes

Does the project design include satisfactory measures to overcome these constraints?

Yes

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?

No

OP/BP 4.37 - Safety of Dams

Have dam safety plans been prepared?

Yes

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

Yes

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?

Yes

OP 7.50 - Projects on International Waterways

Have the other riparians been notified of the project?

Yes

If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?

NA

Has the RVP approved such an exception?

NA

The World Bank Policy on Disclosure of Information



Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

CONTACT POINT

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APPROVAL

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Approved By

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