



REPUBLIC OF RWANDA

**RWANDA AGRICULTURE AND ANIMAL RESOURCES
DEVELOPMENT BOARD**



**SUSTAINABLE AGRICULTURAL INTENSIFICATION AND FOOD
SECURITY PROJECT**

**ENVIRONMENTAL AND SOCIAL MANAGEMENT
FRAMEWORK FOR ADDITIONAL FINANCING**

FINAL REPORT

June 2021

EXECUTIVE SUMMARY

The Government of Rwanda through the Ministry of Agriculture and Animal Resources and the World Bank prepared the implementation of the Sustainable Agricultural Intensification and Food Security Project (SAIP) to increase agricultural productivity, market access and food security in 8 LWH/RSSP sites across the country, namely Karongi 12, Karongi 13, Nyabihu, Muyanza, Nyanza 23, Rwamagana 34, Kayonza 4 and Gatsibo 8 sites. This project is to expand to World Bank funded projects, namely Land Husbandry, Water Harvesting and Hillside Project (LWH) and Third Rwanda Sector Support Project (RSSP3) and other selected MINAGRI developed schemes. The targeted crops are maize, climbing bean, irish potato, vegetables (tomato, onion, sweet pepper, chili and French bean) and fruits (watermelon, papaya, avocado, passion fruit and tree tomato). The five-year duration project received funding from the World Bank and targeted to cover a total area of 2,500 Ha at a total cost of US \$ 32.97 Million including 26.3 Million from the donor and US \$ 6.67 Million from the counterpart. About US \$ 4 Million out of the counterpart funding come from the borrower while the remaining is the farmers' contribution.

The SAIP parent project investments associated with environmental and social concerns include small scale irrigation and water use efficiency, agricultural productivity enhancement and market and processing infrastructure. It triggers the following World Bank Operational safeguards policies: (i) Environmental Assessment (OP/BP4.01); (ii) Natural Habitats (OP/BP4.O4), (iii) Involuntary Resettlement (OP/BP 4.12); (iv) Physical Cultural Resources (OP/BP4.11); (v) Pest Management (OP/BP4.09), (vi) Safety of Dams (OP/BP4.37) and (vii) Project on International Waterways (OP/BP 7.50). It prepared the Environmental and Social Management Framework (ESMF) to provide guidance on the management of environmental and social impacts and risks during implementation. This instrument was disclosed on April 7, 2018 and the project is under implementation for two (2) years since December 18, 2018.

Due to the outbreak of the Covid-19 and as a response to the pandemic and economic recovery, the GoR applied and received additional funding from the Global Agriculture and Food Security Program (GAFSP) under the World Bank supervision to implement the ongoing Sustainable Agricultural Intensification and Food Security (SAIP). The proposed additional funding (AF) of US\$ 5.99 Million will build on and expand ongoing SAIP activities to help offset the adverse socio-economic impacts of the pandemic on the agriculture and food sector both in the parent project areas and three additional sites of Ngoma 22, Nyabirasi and Rwangingo. The total cost of SAIP financing will increase to US\$ 38.96 million, including US\$ 32.97 and US\$ 5.99 million for the parent project and additional funding respectively.

Though the additional three sites under AF are known, the actual locations of the project interventions, target area and activities per site are not yet confirmed. Furthermore, the locations of sites for small scale irrigation technologies (SSIT) in Ngoma District are not yet known. Therefore, the updating of existing ESMF for SAIP parent project was deemed necessary to capture potential site- specific impacts/ risks and potential additional risk of Covid-19 exposure to project beneficiaries as a result of the AF in order to give guidance on the management of environmental and social impacts and risks in the entire project.

The consultation meetings and field visits as well as lesson learnt over the past two years of SAIP implementation showed both positive and negative of this project.

The additional financing interventions will focus on the same components and subcomponents as the parent project. The (i) Strengthening farmers organizations, Agricultural productivity enhancement, improving nutrition outcomes at household level; (ii) Improvement of efficiency and expansion of existing irrigation schemes, strengthening irrigation capacity; (iii) Capacity building to foster market linkages, Investment support to market linkages of Component 3 and (iv) Project management are subcomponents of Component 1, 2, 3 and 4 respectively.

The rural employment and income generation, capacity building of farmers and workers, increased crop production and reduction of post-harvest losses due to availability of post-harvest facilities, improved market access and improved nutrition are some of the expected benefits from the project. On the other hand, the implementation of both the parent project and AF is likely to cause soil erosion, increased operational health and safety risks (water borne or water related diseases, covid-19 spread, accidents, hygiene related diseases, etc), increased pest and crop diseases, loss of biodiversity, soil and water quality deterioration due to use of agrochemicals, and reduced water levels. Most of these adverse impacts are low to moderate and can be easily mitigated. The proposed mitigation measures are presented in the Section 5.3 of the report.

Based on the findings from the updated ESMF, some activities will require the preparation of a full ESIA (mostly post-harvest infrastructures like processing units), others a partial ESIA or ESMP, while activities with low impacts will not require any further environmental and social assessment. The existing ESIA will be updated to accommodate the new site activities with moderate to significant impacts and their mitigation and management plans. The guidelines for the preparation of ESIA and ESMP as well as project grievance redress mechanisms will be provided.

This project will be implemented by Rwanda Agriculture and Animal Resources Development Board (RAB) under the Ministry of Agriculture and Animal Resources (MINAGRI). Other stakeholders in SAIPAF implementation include RDB, REMA, RWR, Districts, Supervising firms, Contractors, investors and farmers' organizations (Cooperatives and WUAs). The Monitoring of the implementation of this updated ESMF will be carried out by RAB/SPIU, REMA and all key implementing institutions of the project (Ministry of Environment, RLMUA, RWB, Districts and farmers organizations). The RAB/SPIU SAIP AF has enough capacity to implement and monitor Project activities. The safeguards team at the SPIU is made of 2 staff (1 Social safeguard specialists and 1 Environmental specialist) who have been overseeing the overall issues related to safeguards in the previous Bank funded project sites. The existing SPIU safeguards team will be repositioned to RAB under the new institutional arrangement and there is no doubt they will still execute the same responsibilities for the implementation of SAIP AF.

After the clearance of the updated ESMF by the World Bank, the Government of Rwanda through RAB will locally re-disclose the ESMF and the updated ESMF will also be disclosed by the World Bank through its external website. The estimated budget for ESMF for SAIP AF is US \$ 283,800.

Given the nature of the project, the potential adverse impacts associated with small scale irrigation, agricultural productivity enhancement and market and processing infrastructures, the impacts are minimal and can be managed through proposed mitigation measures in this updated ESMF.

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GLOSSARY OF TERMS

Cumulative impacts/effects: This is the impact on the environment which results from the incremental impact of the action when added to other past, current and reasonably foreseeable future actions.

Developer/Proponent/Sponsor: the entity – person/ company/agency – proposing to develop/implement/install a new project/sub-project or expand an existing project under a given project.

Direct impacts: These are effects which occur through direct interaction of an activity with an environmental, social, or economic component.

Disclosure: Information availability to all stakeholders at all stages of the development of projects.

Environment: this is a diversity of things made up of natural and artificial environment. It includes chemical substances, biodiversity as well as socio-economic activities, cultural, aesthetic, and scientific factors likely to have direct or indirect, immediate or long term effects on the development of an area, biodiversity and on human activities.

Environmental and Social assessment: is a generic term that describes the process of analysis and planning used by the Borrower to ensure the environmental and social impacts and risks of a project are identified, avoided, minimized, reduced or mitigated.

Environmental and Social Impact Assessment (ESIA): It is an instrument to identify and assess the potential environmental impacts of a proposed project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures.

Environmental and Social Management Framework (ESMF) is an instrument that examines the risks and impacts when a project consists of a series of subprojects, and the risks and impacts cannot be determined until the subprojects details have been identified. The ESMF sets out the principles, rules, Standards and procedures to assess the environmental and social risks and impacts. This instrument is required for Category I and II projects and prepared before project appraisal. It is not provided for in the Rwandan safeguards provisions nor all development partners of the country.

Environmental and social management plan (ESMP) is an instrument that details (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts, or to reduce them to acceptable levels; and (b) the actions needed to implement these measures. It is required for all transport projects with moderate impacts before the commencement of works.

Environmental Monitoring: This is an instrument which provides, during project implementation, information about key environmental aspects of the project that enables the borrower and the bank to evaluate the success of mitigation as part of project supervision and allows corrective action to be taken when needed.

Grievance: An issue, concern, problem, or claim (perceived or actual) that an individual or community group wants a company or contractor to address or resolve.

Hazard or risk assessment is an instrument for identifying, analysing and controlling hazards associated with the presence of dangerous materials and conditions at a project site. This assessment is usually appropriate for projects involving certain inflammable, explosive, reactive, and toxic materials when they are present in quantities above a specified threshold level. This instrument will not be necessary in transport projects.

Impact: A positive or negative effect caused by a project or an activity in the environment.

Indirect impacts: are effects which are not a direct result of the project, often produced away from or as a result of a complex impact pathway. They are also known as secondary or even third level impacts.

Involuntary resettlement: means the involuntary taking of land resulting in direct or indirect economic and social impacts caused by: (a) Loss of benefits from use of such land; (b) Relocation or loss of shelter; (c) Loss of assets or access to assets; or (d) loss of income sources or means of livelihood, whether or not the PAP has moved to another location.

Land acquisition means the taking of or alienation of land, buildings or other assets thereon for purposes of the Project under eminent domain.

Mitigation measures: feasible and cost effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels.

Pollution: is the contamination caused by waste, harmful biochemical products derived from human activities that may alter man's habitat and cause adverse effects on the environment like man's social well being, animals, flora and fauna and the world he or she lives in.

Project and sub-project: a set of planned activities designed to achieve specific objectives within a given area and time frame.

Scoping: Scoping is the process of determining the content and extent of matters that should be covered in the environmental information to be submitted to a competent authority or other decision making body.

Screening: this is the determination of whether or not an EIA is needed and is a formal requirement under the EIA Regulations.

Stakeholder: Any person or group that has an interest in the project; can either affect or be affected by the project and the environmental effects that the project may bring about.

ACRONYMS AND ABBREVIATIONS

BP	: Bank Procedures
CSA	: Climate Smart Agriculture
DEO	: District Environment Officer
DRC	: Democratic Republic of Congo
EA	: Environmental Assessment
SAIP	: Sustainable Agricultural Intensification and Food Security Project
EDPRS	: Economic Development and Poverty Reduction Strategy
ESIA	: Environmental and Social Impact Assessment
ESMP	: Environmental and Social Management Plans
ESMF	: Environment and Social Management Framework
EA	: Environmental Assessment
FAO	: Food and Agricultural Organization
GDP	: Gross Domestic Product
GoR	: Government of Rwanda
HIV/AIDS	: Human Immune Deficiency Syndrome
IPM	: Integrated Pest Management
M&E	: Monitoring and Evaluation
MoE	: Ministry of Environment
MINAGRI	: Ministry of Agriculture and Animal Resources
MINALOC	: Ministry of Local Government
MINILAF:	Ministry of Land and Forestry
OP	: Operational Policy
PDO	: Project Development Objective
PMP	: Pest Management Plan
RAP	: Resettlement Action Plan
REMA	: Rwanda Environment Management Authority
RPF	: Resettlement Policy Framework
RLMUA	: Rwanda Land Management and Use Authority
RWFA	: Rwanda Water and Forestry Authority

SPAT : Strategic Plan for Agricultural Transformation
SWAp : Sector Wide Approach
WBG : World Bank Group

CHAPTER ONE: INTRODUCTION

1.1 General Context

Rwanda is a small landlocked country, with arable land estimated at 48 percent of the total area of 26,338 km² with a projected population of 12,955,756 people by 2021 (NISR, 2021). The country is on a transformation way from a low-income to a middle-income country by 2035 and high income country by 2050. According to NISR (2016), the Rwanda's economy grew by 7.9% per year on average and its GDP per capita increased from \$242 to \$729 between 2000 and 2016. The poverty rate has fallen from 60.3 to 39.1% during the same period while life expectancy at birth has increased from 48.2 years in 2000 to 64.5 years in 2015. The exports saw rapid growth from a low base, with 13.2% growth p.a. between 2000 and 2016, while imports grew on average by 10% per year.

Agriculture is crucial for Rwanda's economic growth and reduction of poverty. The 2015 report showed that the agriculture accounted for about 33 percent of the gross domestic product (GDP) and contributes to 35 % of the total decline in poverty rates over the past decade. Also, about 70 percent of population is engaged in the sector. The latter is also a major source of export earnings, and exports of agricultural and agro-processed goods were roughly 52 per cent of total goods exports.

Various agricultural projects aiming at increasing the agricultural productivity both in the marshlands and hillsides were implemented over the past 15 years by the Ministry of Agriculture and animal Resources (MINAGRI). The Rural Sector Support Project (RSSP) and Land Husbandry, Water Harvesting and Hillside Irrigation Project (LWH) are among the projects which boosted the country's economy. They received funding from the World Bank.

Despite substantial growth in agricultural production over the past 10 years, food security and nutrition remain a concern, especially when looking at the vulnerability to shocks at the household level. While stunting and undernourishment have been reducing at a steady pace, overall stunting rates remain high by international comparison (38 per cent), and 17.8 per cent of the children between 6 and 23 months old do not meet the minimum acceptable diet. By the CARI measure, 20% of Rwandan households are food insecure. The Food Consumption Score has improved from 65 per cent in 2006 to 74 per cent by 2015 but a large share of the population remains dependent on rain-fed agriculture and auto-consumption. Hence, people's ability adequately to feed themselves is vulnerable to shocks to the domestic harvest such as periodic droughts and floods. Consequently, food security and nutrition remain important areas to which agriculture development can contribute.

The Government of Rwanda through the Ministry of Agriculture and Animal Resources and the World Bank prepared the implementation of the Sustainable Agricultural Intensification and Food Security Project (SAIP) to increase agricultural productivity, market access and food security in 8 LWH sites across the country. These include Muyanza site of Rulindo District in Northern Province; Rwamagana 34 of Rwamagana District, Gatsibo 8 of Gatsibo District and Kayonza 4 of Kayonza District in Eastern Province, Nyanza 23 of Nyanza District in Southern Province, Karongi 12 and Karongi 13 sites of Karongi District, and Nyabihu of Nyabihu District in Western Province.

The Project, under implementation for two (2) years since December 18, 2018, focused on consolidating and expanding results obtained in the Bank funded projects, namely Land Husbandry, Water Harvesting and Hillside Project (LWH) and the Third Rwanda Sector Support Project (RSSP3), and other selected MINAGRI developed schemes. The crops targeted by SAIP are maize, climbing bean, Irish potato, vegetables (tomato, onion, sweet pepper, chili and French bean) and fruits (watermelon, papaya, avocado, passion fruit and tree tomato). The project cost for 5 year duration amounts to US \$ 32.97 Million including US\$ 26.3 Million from the donor and US \$ 6.67 Million from the counterpart. About US \$ 4 Million out of the counterpart funding come from the borrower while the remaining is the farmers' contribution.

The SAIP achievements over the last two years have been considerable. They include but not limited to;

- (i) successful introduction of greenhouse farming demonstrations which inspired beneficiary farmers to prepare and request funding for greenhouse investment projects;
- (ii) the use of efficient irrigation techniques and technologies on 148 ha in developed irrigation schemes has led to a 50% decrease in labor investment, a 60% increase in crop production optimization, lower incidences of pest & diseases, and development of farmers' skills in operation and management of the new irrigation technologies;
- (iii) the technical assistance in the development of new agri-businesses has resulted in the preparation and submission of 66 business plans and detailed designs for small-scale irrigation projects covering 139 ha; and,
- (iv) provision of above 2.5 million cuttings of orange-fleshed sweet potatoes rich in Vitamin A, 4.5 tons of iron fortified beans, 160 kg of vegetable seeds and 253,500 fruit tree seedlings helping beneficiaries to improve household nutrition are some of the project achievements

However, due to the outbreak of the global Covid-19 pandemic in December 2019, all worldwide health systems and socio-economic activities started getting devastated. The same trend was observed in Rwanda since mid-March 2020 as a result of implementation of unprecedented Covid-19 containment measures (total lockdown, social distancing, border closures, nightly curfews, a ban on public places/events, and the closure of schools and churches, etc). However, all socio-economic sectors, agriculture inclusive, were not affected in the same way. The shortage in farm inputs (seeds, fertilizers and pesticides) resulting from global supply chains disruption coupled with labour shortages in agricultural sector through lock downs and social distancing provisions were recorded and are anticipated to lessen farm productivity and cause rise of national food prices in the coming period. On the other hand, the Covid-19 pandemic has negatively impacted the SAIP implementation by affecting agricultural seasons (2020 season B and C) and delaying some of its planned activities during the lockdown period. In a bid to reduce the shocks created by this pandemic, some vulnerable project beneficiaries were supported with agricultural inputs as well as post-harvest handling equipment to maintain crop production. However, this intervention is limited due to budget constraint as this was not envisaged during project conception.

As a response to the pandemic and economic recovery, the GoR received additional funding from the Global Agriculture and Food Security Program (GAFSP) under the World Bank supervision to implement the ongoing Sustainable Agricultural Intensification and Food Security (SAIP).

The proposed additional funding (AF) of US\$ 5.99 Million will support short to medium-term measures to offset the severe socio-economic impacts of the COVID-19 pandemic in the project areas. It will also entail five main changes to the SAIP: (i) scale up of key ongoing activities and changes in component costs; (ii) addition of 3 new sites; (iii) addition of COVID-19 specific mitigation interventions; (iv) revision of the results framework and (v) extension of the project closing date from December 31, 2023 to August 31, 2024 to accommodate the AF implementation given the unpredictability of the ongoing pandemic and the extent of its future impacts. The parent project screened for environmental and social (E&S) risks of all subprojects submitted for SAIP funding and prepared required tools for E&S requirements compliance, project beneficiaries and local leaders capacitated on E&S compliance and safe use of agrochemicals and dam safety awareness for communities in the vicinity of reservoirs conducted. The monitoring of water quality in Karongi sites and soil fertility in Nyanza, Karongi, Muyanza and Rwamagana done. The proposed AF will build on and expand ongoing SAIP activities to help offset the adverse socio-economic impacts of the pandemic on the agriculture and food sector in the project areas. It will also help mainstream select containment measures in the project sites to reduce the expansion of COVID-19 during project implementation. The total cost of SAIP financing will increase to US\$ 38.96 million, including US\$ 32.97 and US\$ 5.99 million for the parent project and additional funding respectively.

The parent project triggered 7 World Bank Operational safeguards policies, namely (i) Environmental Assessment (OP/BP 4.01); (ii) Natural Habitats (OP/BP 4.04); (iii) Pest Management (OP/BP 4.09), (iv) Safety of dams (OP/BP 4.37), (v) Involuntary Resettlement (OP/BP 4.12); (vi) Physical Cultural Resources (OP/BP 4.11) and (vii) Project on International Waterways (OP/BP 7.50). However, the parent project sought a riparian notification exception under OP/BP 7.50 because it (i) would not adversely change the quality and quantity of water flow to the other riparian and (ii) would not be adversely affected by the other riparian possible water use. The parent project was approved under the old environmental and social safeguards policies when the AF was prepared under the new environmental and social frameworks (ESF). The request for a waiver of the new ESF for exceptional use of the proposed AF to scale-up SAIP activities was approved on February 22, 2021. Therefore, the AF triggers the same safeguards policies as the SAIP parent project and will not modify the environmental and social safeguards category. The remedial environmental and social risks will continue to be site specific, predictable and can be mitigated.

The Environmental and Social Management Framework (ESMF) was prepared under the parent project to provide guidance on the management of environmental and social impacts and risks during implementation and was disclosed on April 7, 2018. Though the additional three sites under AF are known, the actual locations of the project interventions, target area and activities per site are not yet confirmed. Furthermore, the locations of sites for small scale irrigation technologies (SSIT) in Ngoma District are not yet known. Therefore, the updating of existing ESMF for SAIP parent project was deemed necessary to capture potential site-specific impacts/ risks and potential additional risk of Covid-19 exposure to project beneficiaries as a result of the AF in order to give guidance on the management of environmental and social impacts and risks in the entire project. The updated ESMF will also provide the institutional arrangements as well as environmental and social safeguards instruments to be prepared as part of the implementation of SAIP AF activities.

The SAIP AF investments associated with environmental and social concerns include (i) small scale irrigation and water use efficiency, (ii) agricultural productivity enhancement and (iii) market and processing infrastructure.

Once the SSIT sites, planned activities and target area per site are confirmed, the environmental and social screening will be done and required safeguards instruments will be prepared. Therefore, the ESMF refers to the Environmental and Social Impacts Assessment (ESIA) and Environmental and Social Management Plans (ESMP) when addressing their environmental management requirements.

The objectives of the updating the ESMF are:

- To establish clear procedures and methodologies for environmental and social planning, review, approval and implementation of subprojects to be financed by SAIP AF;
- To prescribe project arrangements for the preparation and implementation of subprojects in order to adequately address World Bank safeguards issues;
- To assess the potential environmental and social impacts of envisaged subprojects;
- To propose mitigation measures which will effectively address identified negative impacts, including impacts of the pandemic on the agriculture and food sector in the project areas and mainstream select containment measures in the project sites to reduce the expansion of COVID-19 during project implementation;
- To outline a simple Environmental and Social Management Plan (ESMP);
- To specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to subprojects;
- To define a public consultation and disclosure process;
- To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF;
- To establish Grievance Management System/Procedure and
- To establish the project funding required to implement the ESMF requirements

1.2 Project Description

1.2.1 Project Development Objective

The SAIP development objective is to increase agricultural productivity, market access and food security of targeted beneficiaries in the project areas

1.2.2 Project components

SAIP will be implemented through four (4) components including three (3) technical components and one (1) administrative component. The project components are detailed below:

Component 1: Institutional Strengthening, Nutrition Improvement and Agriculture Productivity Enhancement

The objective of this component is to “strengthen farmer organizations’ and other Institutions for increased agricultural productivity and household (HH) nutrition”. This component will have three sub-components which collectively aim to strengthen beneficiary farmer organizations in the project areas to: (i) enhance agricultural productivity levels and profitability of the five selected value chains; (ii) improve household nutrition; and (iii) transform into dynamic, successful, climate-smart, and sustainable farming businesses with productive linkages and access to agricultural markets.

Sub-Component 1.1: Strengthening Farmer Organizations

This subcomponent aims to further reinforce the targeted beneficiary farmer organizations, cooperatives, public sector extension agents and agribusiness SMEs.

It uses a range of capacity-building activities climate-smart farming as business (FAB) approach and Farmer Field Schools (FFSs), with emphasis on building women and youth leadership skills.

Sub-Component 1.2: Agricultural productivity enhancements:

The subcomponent is supporting CSA interventions to sustain and further increase productivity and profitability of the horticulture, maize, Irish potatoes, and bean value chains. Ongoing activities include support to farmers for use of improved climate-sensitive agricultural inputs, upgraded farm management practices, farm mechanization and technology including use of ICT applications to improve and expand farmers’ access to knowledge, agricultural information, and markets.

Sub-Component 1.3: Improving nutrition outcomes at household level

This subcomponent is focused on improving nutritional outcomes at the household level in the project areas by increasing access to healthy and diversified foods and promoting use of good practices for better nutrition. Key activities include establishment of village nurseries for fruit trees; TA for preservation and transformation of locally produced foods; nutrition education on good practices for improved nutrition and adoption of new varieties of nutrient-rich bio-fortified crops; Behavior Change Communication (BCC) for improved nutrition, social marketing campaigns through radio programs, ICT messaging, and healthy cooking menu/demo meals.

Component 2 - Irrigation and Water Use Efficiency

The component aims to improve efficiency, expand existing irrigation schemes, and strengthen irrigation capacity to increase crop productivity and farmers’ resilience to climate volatility. Focus is on promoting technology and best practices to increase availability and efficient use of water for irrigation as a complement to the GoR’s subsidized farmer-owned Small-Scale Irrigation Technology Development Program (SSIT) for improved productivity and commercial farming. It has 2 subcomponents:

Subcomponent 2.1: Improved efficiency and expansion of existing irrigation schemes.

The sub-component aims to increase irrigation efficiency in these schemes from a range of 60 to 65 percent to 75 percent through use of water-efficient irrigation technologies. It is providing matching grants and a support package (maintenance and business plan development) to beneficiary farmers to allow them to purchase small-scale irrigation equipment (sprinklers, drip, gated-pipes, hose-furrow technologies) from the SSIT program to improve water use. Focus is on farmers in hillside sites without irrigation schemes within the project sites.

All categories of the beneficiary population, including the poorest groups (*Ubudehe* Category 1 and Category 2) are equally reached by the project support. Particular attention is given to Category 1 and 2 groups who receive 75% subsidy while the remaining categories (3 and 4) get a maximum of 50% subsidy.

Subcomponent 2.2: Strengthening irrigation capacity

The subcomponent is funding on-farm training in the handling, assembling, and proper use of different irrigation equipment to improve adaptation rates and improve irrigation practices among farmers. It is also funding targeted capacity building of WUAs, to enable them to become effective organizations, able to operate the irrigation systems they are assigned to manage.

This includes training on irrigation water management, to enable WUAs to collect and use water fees more effectively for the operation and maintenance (O&M) of the targeted irrigation schemes and management skills (planning, organizational management, infrastructure O&M, O&M costing and water pricing, financial planning, accounting, and bookkeeping).

Component 3: Market Linkages, Value Addition and Access to Finance

The component aims to strengthen the capacity of farmers' organizations and other value chain actors, as well as improve their access to finance to bolster market linkages and value addition. It builds on activities initiated under the LWH and RSSP3 on strengthening market linkages and value addition potential for the selected value chains. It has 2 sub-components:

Sub-component 3.1: Capacity building to foster market linkages.

The sub-component is providing capacity building to farmer groups in post-harvest handling in the selected value chains to reduce losses and perishability and preserve the nutrition value of produce; support for pre-processing activities (cleaning, grading, sorting, and packaging); and matching grants to procure packaging, processing and preservation equipment and technology. Additional activities include: (a) support to selected cooperatives, farmers and agri-processors to obtain quality certification for processed foods, to facilitate their access to domestic and premium export markets; (b) identification of financial services and products, and provision of skills to farmers' organizations, youth, and women groups, entrepreneurs, and micro and small enterprises; and (c) workshops and training for financial institutions and intermediaries to increase awareness of market/business potential (i.e. strong business case for investing/supporting the sector), and use of Savings and Credit Cooperatives (SACCOs) for agent banking.

Sub-component 3.2: Investment support to market linkages.

This subcomponent is providing matching grants to finance post-harvest, marketing and processing facilities for participating cooperatives, which are not yet mature enough to fully self-finance their facilities' requirements. It is financing the construction of drying shelters, drying grounds, collection centers, and storage and cold storage facilities. It is also providing capacity building for O&M activities and management of the facilities of the more mature organizations to facilitate the planning of key investments with their own capital.

Component 4: Project Management and Technical Assistance

The component supports overall project management as follows:

Subcomponent 4.1: Project Management

The sub-component funds management and coordination; monitoring and evaluation (M&E); communication and knowledge sharing; TA; establishment and operation of a grievance redress system (GRS); and operating costs for project implementation at the national and district levels.

Subcomponent 4.2: Technical Assistance

The sub-component is funding three technical areas to complement the project interventions: (a) extension services; (b) nutrition; and (c) implementation of the farmer led SSIT. The TA activities are being implemented by the Food and Agriculture Organization (FAO) which was selected by the GoR to be the main TA provider for the project based on its comparative advantage and experience in Rwanda.

1.3 Project activities

The SAIP targets to:

- (i) Strengthen beneficiary farmer organizations (cooperatives and WUA), public sector extension agents and agribusiness SMEs using a range of capacity building activities (ie demand-driven training on organizational management, business planning, making market-led production decisions, improved agricultural practices, good agricultural and hygiene practices for healthy and diverse food consumption technology, and proper and safe inputs use, functional literacy and numeracy of farmers, improving soil fertility and integrated nutrient management; promoting conservation agriculture, and technology demonstration trails, irrigation capacity as well as promotion of technology and best practices to increase availability and efficient use of water for irrigation for improved productivity and commercial farming, capacity building of farmer groups in post-harvest handling in the selected value chains, etc), climate-smart farming as business (FAB) approach and Farmer Field Schools (FFSs), with emphasis on building women and youth leadership skills;
- (ii) Support CSA interventions to sustain and further increase productivity and profitability of the horticulture, maize, Irish potatoes, and bean value chains;
- (iii) Improve nutritional outcomes at the household level in the project areas by increasing access to healthy and diversified foods and promoting use of good practices for better nutrition;
- (iv) Providing matching grants to finance post-harvest, marketing and processing facilities for participating cooperatives, which are not yet mature enough to fully self-finance their facilities' requirements;

The Project specific activities include among others (i) capacity building of project beneficiaries and stakeholders in various domains; (ii) land preparation, farm mechanization and technology including use of ICT applications to improve and expand farmers' access to knowledge, agricultural information, and markets and use of improved agricultural inputs; (iii) establishment of village fruit trees nurseries and healthy cooking menu/demo meals; (iv) supply and installation of SSIT kits for increased productivity and commercial farming; (iv) expansion of existing irrigation schemes and improve irrigation efficiency , (v)

financing the construction of post-harvest, marketing and processing facilities (drying shelters, drying grounds, collection centers, and storage and cold storage facilities, processing units, etc).

The activities associated with environmental and social concerns comprise of small-scale irrigation and water use efficiency, agricultural productivity enhancement and post-harvest infrastructures.

1.4 Methodology for preparation of ESMF

The updating of the ESMF was conducted by the Project Environmental Safeguards team using the following approach and methodology:

a) Desk review

The preparation of updated ESMF involved a review on the existing baseline information and literature material. Detailed review and analysis of the national relevant legislations and policies, World Bank Safeguards Policies and other relevant documents were done.

b) Field Visits

At the preparation of the ESMF for the parent project, the project team carried out visits to some potential project sites, namely Nyabihu in Nyabihu District of Western Province, Muyanza of Rulindo District in Northern Province, Rwamagana 34 of Rwamagana District in Eastern Province and Karongi 12 and Karongi 13 of Western province in order to be familiar with the issues on the ground and appreciate the possible environmental and social issues of concern. During the updating process, site observations covered only one of the 3 additional sites, ie Ngoma 22 site in Ngoma District.

c) Public consultations

Various discussions and consultation meetings were held with Project beneficiaries and relevant districts and sectors' officials in project sites. Other relevant staff of the key implementing partners of the SAIP including among others Rwanda Environment Management Authority (REMA), Rwanda Development Board (RDB), Rwanda Land Management and Use Authority (RLMUA), Rwanda Water Resources Board (RWB), Rwanda Agriculture and Animal Resources Development Board (RAB) were consulted.

During the preparation of the parent project in 2018, the Vice Mayor in charge of economic affairs, Director of Agriculture and Natural Resources and the District Environmental Officer in Rulindo, Nyabihu, Karongi and Rwamagana Districts were met to explain the project and get their views on the project for its smooth implementation. The meetings were separately organized on March 2nd, 2018 in Karongi District, March 13th, 2018 in Nyabihu and Rulindo Districts and March 15th, 2018 in Rwamagana District.

During the ESMF updating process, Ngoma 22 site was randomly selected for public consultation and the targeted authorities in the District included Director of Agriculture and Natural Resources, District Environmental Officer, District cash crop officer and Agronomists of Remera and Rurengé Sectors, sectors covered by the project area. In order to comply with local Covid-19 pandemic restrictions, the individual face-to-face meeting was used to interact with the staff at district level while phone call channel was necessary to consult with concerned Sectors Agronomists. The face-to-face meeting and phone calls were held on April 6th, 2021.

The phone call channel was also used during the consultations with RDB Environmental Expert, RWB Division Manager and the Ag Director of Environmental Regulation and Pollution Control Unit of REMA. The phone calls were arranged for April 9, 2021. The face –to- face meeting with the Head of Monitoring & Information System (MIS) of SPIU World Bank funded projects under RAB was held on April 6th, 2021.

The local communities from the project site were also consulted and informed on the parent project in 2018. They were allowed to give their feedback and their suggestions were documented and will be considered during the project design and implementation. The meetings were arranged for Rwamagana 34 on March 15, 2018, Nyabihu and Muyanza on March 13th, 2018 and Karongi 12 and Karongi sites on March 2nd, 2018

During ESMF updating, the meeting with local community involved the representatives of beneficiaries including leaders of cooperatives and WUA in Ngoma 22 site due to local COVID-19 restriction measures.

d) Preparation of ESMF

The preparation of ESMF for SAIP AF consisted of:

- Collection of baseline data on social-environment of the project areas;
- Identification of positive and negative environment and social impacts
- Identification of environment and social mitigation measures;
- Preparation of screening procedures to be used while screening subproject activities
- And formulation of environment and social management and monitoring plans.

CHAPTER TWO: POLICY, INSTITUTIONAL AND LEGAL FRAMEWORK

This section of the ESMF outlines and reviews the existing legislations, policies and institutions and identifies requirements as well as gaps and conflicts of the relevant legal and institutional arrangements that would guide the development of the project in line with the national and international laws applicable to SAIP. Rwanda being a signatory to various international conventions and laws, it is important that national projects are in line with these laws and as such some of the relevant international conventions are reviewed in this chapter.

2.1 National environmental and social management requirements

2.1.1 Policy framework

a) National Environment and Climate change Policy

In the past two decades, Rwanda took a strategic decision to pursue a green growth approach to development and committed to mainstream environment and climate change issues into national development processes. In this regard, a national policy on environment and climate change was put in place in 2019 to replace the 2003 environment policy.

The environment and climate change policy targets to have a clean and healthy environment which is resilient to climate variability and supports a high quality of life for every citizens and a sustainable socio economic development through a rational management and utilization of resources. The policy is also inked with key global policy considerations including SDGs, African Union agenda 2063, East Africa Community (EAC) vision 2050, EAC climate change master plan (2011-2031) and multilateral environmental agreements (MEA). Under this policy, environment and climate change aspects are reflected in all key priority areas of the country, especially critical sectors already identified for strengthening, namely agriculture, urbanization, infrastructure and land use management, energy, water and sanitation. The smooth implementation of the policy will focus on (i) strengthening monitoring and evaluation, (ii) environmental and social assessments, (iii) biodiversity and ecosystem management, (iv) pollution and waste management and (v) climate change and adaptation.

The SAIP investments that trigger this policy include small scale irrigation and water use efficiency, agricultural productivity enhancement and market and processing infrastructure. SAIP will integrate the Rwanda Environmental and climate change policy into its implementation by protecting, restoring or maintaining both the quality of ecological and systems functions, involving all stakeholders in project activities and improving/ maintaining public health and safety.

b) Agriculture Policy

The main objective of Rwanda agricultural policy is to intensify and transform subsistence agriculture into a market oriented agriculture, and which requires the modern inputs, notably improved seeds and fertilizers. This would be achieved through:

- (i) Promotion of new strategies that will stimulate productivity growth for a broadened nutritional food production, while embarking on new opportunities for farm income diversification, in order to secure further reductions in rural poverty, and transform the dominant subsistence farming sector into a competitive and market-led agriculture sector;

- (ii) Development and promotion of a sustainable agricultural intensification and a resilient agriculture sector to counter environmental degradation and climate change in ways that maintain sustainable agricultural growth;
- (iii) Addressing the knowledge and skills deficits in the agriculture sector to unlock significant additional agricultural as well as labour productivity gains for high quality produce and services;
- (iv) Enhancing policy and institutional coordination and collaboration amongst different relevant stakeholders operating in the sector through the creation of an effective enabling environment to render institutions more responsive.

SAIP AF will focus on the role of agricultural inputs as drivers of higher yields and subsequent economic transformation through availing agriculture inputs, and to develop the network of agro-dealerships in the project sites. SAIP AF also intends to strengthen the market linkages and value addition potential for selected value chains. The project will emphasize the rational use and environmentally sustainable exploitation of land for food production.

c) Land policy

The Rwanda land policy calls for rational use and sound management of national land resources, and that land use be based on established master plans. The policy also provides development of land use plans based on suitability of the areas/lands thus distinguishing the different categories of land and their purpose. On the use and management of hillsides and marshlands, the policy stipulates that marshlands meant for agriculture should be cultivated after adequate planning and Environmental Impact Assessment.

The project activities will be implemented based on the suitability of the areas/lands thus distinguishing the different categories of land and their purpose and will observe the procedures of the land policy that stipulates that marshlands meant for agriculture should be cultivated after adequate planning and Environmental Impact Assessment. They will also improve irrigation systems, facilitate inputs and mechanization to diversify and enhance the level of productivity in small farms.

d) Health Sector Policy

One of the objectives of Rwanda Health Sector Policy is to improve the quality of and demand for services in the control of disease. The policy identifies the most common illnesses in Rwanda and puts priority to addressing these diseases.

The policy also calls for the strengthening of measures of prevention and the improvement of the management of cases building on the multi-sectoral approach. The approach consists of rapid diagnosis and treatment of cases, increase in the protection of individuals and communities using preventative methods (impregnated mosquito nets, intermittent presumptive chemo-prophylaxis treatment for pregnant mothers, management of the environment, including vector control), making decision based on evidence, monitoring, community sensitization and adapted interventions, targeted research and coordinated activities aimed at reinforcing existing health services.

SAIP will emphasize more on community sensitization on waterborne and communicable diseases while reinforcing existing health services and environmental control of the disease vector especially in command areas and irrigation canals.

e) National Biodiversity strategy and action plan

This strategy defines the objectives and priorities for the conservation and sustainable management of biodiversity.

The plan includes hillsides and wetlands and protected areas as some of the areas that need to be conserved. The strategy focuses on five major areas i.e. improved conservation of protected areas and wetlands; sustainable use of biodiversity in natural ecosystems and agroecosystems; rational use of biotechnology; development and strengthening of policy, institutional, legal and human resources frameworks; and equitable sharing of benefits derived from the use of biological resources. The Action Plan consists of urgent and priority actions which are attainable in a period of five years.

SAIP AF will trigger this policy by protecting natural habitats within the project area or in its surroundings, whether protected or not, wetlands downstream the developed schemes, improving agro-ecosystems by avoiding land degradation through efficient use of natural resources for agriculture, responsible use and storage of irrigation water and development of drought-tolerant crops, increased organic matter, improved soil structure and thereby reduced erosion, etc.

f) National Strategy for Transformation (NST1)

The National Strategy for Transformation (NST1) entails interventions to enable the transformation journey towards achieving Vision 2050 aspirations. It merges the 7 Year Government Program (2017-2024) and the national medium term development strategy, which were previously standalone documents. It integrates far-sighted, long-range global and regional commitments by embracing: (i) the Sustainable Development Goals (SDGs), (ii) the African Union Agenda 2063 and its First 10-Year Implementation Plan 2014-2023, (iii) the East African Community (EAC) Vision 2050 and (iv) the COP 21 Paris Agreement on Climate Change and other agreements.

The NST1 focuses on three pillars, mainly Economic Transformation, Social Transformation and Transformational Governance and considers the seven (7) cross-cutting areas to attain inclusive and sustainable development: Capacity Development, HIV/AIDS and Non-Communicable Diseases, Disability and Social Inclusion, Gender and Family Promotion, Regional Integration and International Positioning, Disaster Management, Environment and Climate Change. The objectives of the economic and social transformation pillars include (i) Create decent jobs for economic development and poverty reduction, (ii) Accelerate Urbanization to facilitate economic growth, (iii) Promote industrial development, export promotion and expansion of trade related infrastructure, (iv) Develop and promote a service-led and knowledge-based economy, (v) Increase agriculture and livestock quality, productivity and production, (vi) Sustainably exploit natural resources and protect the environment; (vii) Move towards a Poverty Free Rwanda, (viii) Ensure a Quality Healthy Population, (ix) Develop a Competitive and Capable Rwandan Population, (x) Ensure Quality of education for all aiming at building a knowledge-based economy and (xi) Transition to a Modern Rwandan Household in urban and rural areas.

The SAIP is in line with the NST1 targets to raise agricultural productivity and ensure food security. This objective will be realized through (i) Increased developed schemes for growing high value crops, (ii) Expansion of irrigated areas through development of new irrigation infrastructures and provision of equipment for small scale irrigation for marshlands as well as hillsides and lowlands using various irrigation technologies respectively; (iii) Greater use of improved seed will be encouraged by supporting the efforts of private seed distributors and by training farmer's cooperatives in seed multiplication and utilization; (iv) Informed use of organic and inorganic fertilizers and (v) Promote commodity chains and support the development of agribusiness.

g) National Water Resources Management Policy

The water policy aims at fair and sustainable access to water, improvement of the management of water resources, etc. through reforestation on hillsides and water catchments areas. This policy would seem in conflict with other sector policies including agriculture and marshland development.

The policy also needs to adopt a holistic approach to the management of water resources and integrate other policies related to it including the forest, wetlands, agriculture and land.

This policy is relevant to SAIP subprojects as some of the project activities will be undertaken in areas with water resources and one of the key project input is water which is governed by the policy. SAIP will promote technology and best practice for increased availability and efficient use of water for irrigation.

h) Green Growth and Climate Resilience Strategy

Rwanda adopted the national Green Growth and Climate Resilience Strategy (GGCRS) in 2011 with the vision for Rwanda to be a developed climate-resilient and low-carbon economy by 2050. The mainstreaming and implementation of the GGCRS is mandated to the ministry responsible for environment and climate change, which is currently the Ministry of Environment. The GGCRS stipulates 4 strategic objectives:

- Energy security and a low-carbon energy supply that supports the development of Green Industry and Services;
- Sustainable land use and water resource management that results in food security;
- Appropriate urban development and preservation of biodiversity and ecosystem Services; and
- Social protection, improved health and disaster risk reduction that reduce vulnerability to climate change.

The strategic objectives are elaborated in an implementation framework of 14 Programmes of Action. Rwanda submitted its Intended Nationally Determined Contributions (INDC) for adaptation and mitigation under the requirements of the UNFCCC in 2015 and subsequently confirmed Nationally Determined Contributions (NDCs) in 2016 following the ratification of the Paris Agreement. The NDCs were developed with the 14 Programmes of Action of the GGCRS as the main reference. Rwanda's NDCs are also appropriately aligned to the Sustainable Development Goals (SDGs) agenda 2030.

Adaptation and climate risk management programmes of action of the GGCRS involve the “Sustainable Intensification of Small Scale Agriculture” and “Agricultural Diversity in Local and Export Markets” which are aligned to NDC measures for mainstreaming agro ecology, utilizing resource recovery and reuse, using fertilizer enriched compost, mainstreaming IPM and adding value to agricultural products. The programmes are also in alignment with SDG 2: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”.

GGCRS programmes of action, NDCs measures and SDGs targets are also linked to the fourth phase of the Strategic Plan for Agricultural Transformation (PSTA 4) and the first phase of the 7-year National Strategy for Transformation (NST1) that runs from 2018 to 2024. PSTA 4 actions as featured in NST-1 include the following:

- Development of biological soil conservation practices;
- Farmer practice of integrated pest management;

- Farmer improvement feed and fodder through technologies; and
- Dissemination of weather and climate information products and services to farmers.

i) Forest Policy

The forest policy is relevant to this project due to the role forests play in water regulation and soil conservation. The forest policy aims at curbing the continuous wood shortage and but most important to this study the alarming deterioration of soil.

Forest management is linked intricately to marshlands existence, soil productivity, and water quality and flooding. The policy provides strategies for reforestation and for environmental protection.

This policy is relevant to SAIP as some of its activities touch on afforestation and revegetation of degraded areas especially catchments areas whether protected or non-protected. The agroforestry activities in the hills will also have positive impacts on the country's forest stock if successful through supply of firewood and rejuvenating the soil productivity thus intensifying crop production as opposed to encroachment to forested areas.

j) International Conventions

Rwanda being a signatory to some of the international conventions that are relevant to the SAIP, it is imperative that proposed SAIP sub-projects and activities are screened in light of the commitments made under such conventions:

- a) United Nations Convention on Biological Convention
- b) RAMSAR Convention on Wetlands
- c) Convention on the Conservation of Migratory Species
- d) EAC Protocol on Environment
- e) United Nations Framework Convention on Climate Change (UNFCCC)
- f) United Nations Convention to Combat Desertification

2.1.2 Legal and Regulatory framework

This section describes the relevant policies and strategies, legal instruments, institutional arrangement and framework applicable to the implementation of SAIP with respect to resettlement and compensation. The awareness of social issues started as early as in 1920. Since 1977 action program were initiated such as: human settlement (1977), stockbreeding (1978), soil protection and conservation (1980), water supply in rural areas (1981), erosion control (1982) and reforestation (1983). The national environment strategy was prepared in 1988-1989 to keep a balance between population and natural resources.

The aims of this strategy are as follows:

- To enable the country to strike a dynamic balance between population and resources while complying with the balance of ecosystems; and
- To contribute to sustainable and harmonious socio-economic development such that, both in rural and urban areas, men and women may realize their development and well-being in a sound manner.

a) Rwanda Constitution

The constitution is the supreme law of the country. Any law, decision or act contrary to this Constitution is without effect. The Articles 22 and 53 of the Constitution of the Republic of Rwanda, promulgated in 2003 and revised in December 2015, articulate the rights and responsibilities of all citizens and the role of the state regarding the environment by providing that every citizen is entitled to a healthy and satisfying environment and that every person has the duty to protect, safeguard and promote the environment respectively. The guidance of the Constitution on environmental preservation and management as a cross cutting issue is reflected in the National Vision 2050 and the National Policy on Environment of 2017. The Constitutional rights as articulated in Vision 2020 and Vision 2050 and Environment Policy are given effect by the Law No. 48/2018 of 13/08/2018 on environment.

The Constitution also recognizes the ownership of property and every person's right to private property. Under Article 34 of the Rwandan constitution, every citizen has a right to private property, whether personal or owned in association with others. Furthermore, it states that private property, whether individually or collectively owned, is inviolable. However, this right can be interfered with in case of public interest, in circumstances and procedures determined by law and subject to fair and prior compensation. The Article 35 stipulates that private ownership of land and other rights related to land are granted by the State. The constitution provides that a law should be in place to specify modalities of acquisition, transfer and use of land.

The SAIP AF activities will likely have adverse environmental impacts on land, water, biodiversity and air resources. The mitigation measures for environmental protection in project sites will be guided by the law No 48/2018 of 13/08/2018 on Environment and law No 32/2015 of 11/06/2015 relating to expropriation in the public interest.

b) Law on Environment

The most relevant legislation for this study is the Law on Environment. The legislation sets out the general legal framework for Environment protection and management in Rwanda. It centres on avoiding and reducing disastrous consequences on Environment. The Ministry of Environment puts in place the instructions and procedures for the environment conservation. Until very recently, REMA was responsible for the approval of ESIA reports; this responsibility has now been transferred to Rwanda Development Board (RDB) where there is a department for ESIA, responsible for review and approval of all ESIA reports.

This project will observe the law No 48/2018 of 13/08/2018 on environment by preparing Environmental and Social Impact Assessment (ESIAs) or Environmental and Social Management Plans (ESMPs) or updating existing site ESIAs in order to ensure reduction of disastrous consequences on the Environment in its activities. The project will also monitor the compliance with environmental safeguards in all sites.

c) Ministerial Order determining the length of land on shores of lakes and rivers transferred to public property N° 007/16.01 of 15/07/2010

This law sets the boundary for development and settlement activities next to water bodies. This Order aims at setting aside the length of land on shores of lakes, swamps and rivers affected in the public domain for environmental protection.

The land within a distance of fifty (50) meters and twenty (20) meters respectively from the lakeshore and swamps' edge is public property. The land within a distance of ten (10) and five (5) meters from the shore of big rivers and small rivers respectively is also public property. The length set is calculated beginning from the furthest line reached by water depending on successive flooding record; and such land is statutorily regarded as a protected area and not allowed to erect private property on such land. The only activities aimed at protecting the water bodies are permitted in these protected areas.

During RSSP and LWH implementation, agricultural activities have respected a distance of ten (10) and five (5) meters away from the banks of big rivers and small rivers/ streams respectively, 2m along main irrigation and drainage canals, at least 20 meters in the surroundings of the reservoirs. The SAIP AF will also maintain a distance of ten (10), five (5) and two (2) meters away from the banks of big rivers, small rivers and streams respectively, 2m along main irrigation and drainage canals, at least 20 meters in the surroundings of the reservoirs will be established and respected. The buffer zones around reservoirs or along the water courses and main irrigation and drainage canals will be planted with trees and grasses.

d) Law n° 43/2013 of 16/06/2013 governing land in Rwanda

The law No 43/2013 of 16/06/2013 governing land in Rwanda is the law that determines modalities of allocating, acquisition, transfer and management of land in Rwanda. It also establishes the principles applicable to rights recognized over all lands situated on Rwanda's national territory and all rights united or incorporated with land, whether naturally or artificially.

According to the Law, Land in Rwanda is categorized into two: Individual land and Public land. The latter is also subdivided into two categories: the state land in public domain and the state land in private domain. The Article 12 and 13 of the land law stipulates that State land in the public domain consists of all land meant to be used by the general public or land reserved for organs of State services as well as national land reserved for environment conservation. The activities under the present project shall respect the land use plans of the area where the land is located.

e) Law N° 30/2012 of 01/08/2012 governing on Agrochemicals

The law No 30/2012 of 01/08/2012 governing agrochemicals focuses on both pesticides and mineral fertilizers and aims to regulate manufacturing, importing, distribution, use, storage, sale, disposal and burial of expired agrochemicals for the protection of human and animal health and the environment. The Ministry of Agriculture and Animal Resources (MINAGRI) has the responsibility for its implementation.

f) Ministerial order N°001/2019 of 15/04/2019 establishing the list of projects that must undergo an environment impact assessment, instructions, requirements and procedures to conduct environmental impact assessment

Article 3 and the appendices of this Order specify the works, activities and projects that have to undertake an environmental impact assessment (ESIA), partial ESIA or no ESIA before being granted permission to commence. The present project is classified under Agriculture and infrastructure Development which may require EA assessment.

g) Ministerial Order for Establishing the List of Protected Animals and Plant Species in Rwanda, Order No 007/2008 of 15/08/2008

This Ministerial Order establishes protected animal and plant species list in Rwanda. The list of animals that include Mammals, Birds and Reptiles is shown under Appendix I while the protected plant species is shown under Appendix II of the Order document. The present project does not involve clearance of natural vegetation or affect any of the listed protected animals and plant species.

2.1.3 National Resettlement Regulations

This part describes National institutional, legal and policy framework for resettlement requirements in Rwanda, applicable to the project as well as the international provisions that bear relevance to the implementation of this project.

a) Expropriation Law for Public interest

The law No. 32/2015 of 11/06/2015 relating to expropriation in the public interests determines the procedures relating to expropriation of land in the interest of the public. Article 3 of the law stipulates that it is only the government that has authority to carry out expropriation. However, the project, at any level, which intends to carry out acts of expropriation in the public interest, shall provide funds for inventory of assets of the person to be expropriated and for just compensation on its budget.

According to the above expropriation law, no person shall hinder the implementation of the program of expropriation on pretext of self-centered justifications and no land-owner shall oppose any underground or surface activity carried out on his or her land with an aim of public interest. In case it causes any loss to him or her, he or she shall receive just compensation for it. The law identifies properties to be valued for just and fair compensation including land and activities that were carried out on the land such as different crops, forests, buildings or any other activity aimed at efficient use of land or its productivity. However, as per Article 27 of the law No 32/2015 of 11/06/2015, the owner of land designated for expropriation in the public interest shall provide proof of rights to land and property incorporated thereon, like land titles or any other documentary evidence showing he/she has property ownership.

Some activities under SAIP AF will acquire private land (development of infrastructures), however the value of assets to be affected by the project shall be paid before any commencement of any activities.

b) Law establishing and organizing the Real Property Valuation Profession in Rwanda

Law No.17/2010 of 12/05/2010 Establishing and Organizing the Real Property Valuation Profession provides conditions for registration of land valuers in Rwanda, establishes the Institute for real property Valuers and sets conditions to exercise the profession. The law also allows the Government staff to conduct valuation when mandated by their government institutions.

Article 23 of the law explains the appointment of valuers. The law also specifies that the price for the real property shall be equal to the prevailing market value. Where sufficient comparable prices are not available to determine the value of affected asset, the replacement cost approach shall be used to determine the value of improvements to land by taking real property as a reference.

Consequently, the valuation of land and property incorporated thereon shall be conducted by valuers certified by the Institute of Real Property Valuers in Rwanda under the SAIP AF.

2.1.4 Institutional framework for environmental and social management in Rwanda

The institutional framework for environmental management is currently enshrined in the Law 48/2018 of 13/08/2018 on Environment.

a) Ministry of Environment (MoE)

This Ministry is responsible for the development of policies, laws and regulations as well as coordination of all activities related to the management of environment, climate change and natural resources management both at the local and national levels. The Ministry in partnership with national stakeholders, has a strategy in place to support national development goals, particularly in green growth, climate resilience, and the sustainable management and consumption of natural resources.

During the SAIP implementation, MoE will provide guidance and technical support to the environmental and resource challenges faced that has serious impacts on sectors such as agriculture, land, water resources and forestry.

b) Ministry of Agriculture and Animal Resources (MINAGRI)

The Ministry of Agriculture and Animal Resources (MINAGRI) through RAB/SPIU is the executing agency for the SAIP. It will monitor and evaluate the SAIP AF implementation and provide guidance for the successful implementation.

c) Rwanda Agriculture and Animal Resources Development Board (RAB)

RAB through SAIP AF is the lead agency in the implementation of all project activities. Its role is to implement the mitigation measures for the project to comply the environmental and social safeguards requirements.

d) Rwanda Environment Management Authority (REMA)

Rwanda Environment Management Authority (REMA) was established in 2004 to act as the implementing organ of environment-related policies and laws in Rwanda. REMA was also tasked to coordinate different environmental protection activities undertaken by environmental promotion agencies; to promote the integration of environmental issues in development policies, projects, plans and programmes; to coordinate implementation of Government policies and decisions taken by the Board of Directors and ensure the integration of environmental issues in national planning among concerned departments and institutions within the Government; to advise the Government with regard to the legislation and other measures relating to environmental management or implementation of conventions, treaties and international agreements relevant to the field of environment as and when necessary; to make proposals to the Government in the field of environmental policies and strategies; etc.

e) Rwanda Development Board (RDB)

The RDB was created by Organic Law N° 53/2008 of 02/09/2008 with a mission of improving the well-being of all Rwandans by fast-tracking development, catalysing sustainable economic growth, and creating prosperity for all. According to the recent restructuring of government institutions, RDB was assigned the responsibility of reviewing the ESIA report and authorising the project to proceed by issuing an ESIA

certificate. During SAIP execution, RDB will be of great help in the development and review of safeguards instruments required for the project compliance with safeguards requirements.

f) Rwanda Land Management and Use Authority (RLMUA)

RLMUA is responsible for putting in place and operationalizing an efficient system of land administration, use and management that secures land ownership, promotes investment in land for socio-economic development and poverty reduction. Under the implementation of SAIP AF, the RLMUA will be responsible for land registration and land use planning throughout the project sites and the country in general.

g) Participating Districts

The parent project and AF will be implemented in 9 districts including Karongi, Rutsiro, Nyabihu, Rulindo, Nyanza, Rwamagana, Gatsibo, Kayonza and Ngoma Districts. Generally, decentralized entities are responsible for the implementation of laws, policies, strategies, objectives and programmes relating to protection, conservation and promotion of the environment in Rwanda. Article 61 of the environmental law state that in the framework of conservation and protection of the environment, decentralized entities are particularly responsible for:

- ensuring activities related to better management of land, especially controlling soil erosion and tap rain water;
- afforestation, protection and proper management of forests;
- efficient management of rivers, lakes, sources of water and underground water;
- efficient management and effective use of swamps;
- Protection and proper management of reserved areas, historical sites, endangered animal and plant species.

Under the ESMF implementation, each participating district and its respective sectors are tasked to perform the following functions:

- Host public hearings and individual consultations,
- Provide information or advice to developers and ESIA Experts when consulted during ESMF and ESIA process
- At the request of RDB, review Project Briefs so as to advise on Terms of Reference,
- At the request of RDB, review ESIA reports and provide comments to RDB,
- Assist RDB in organizing public hearings,
- Gather written comments from public and transmit them to RDB.
- Facilitate the land acquisition process through Land bureau office;
- Assist in complaints resolutions.

2.2World Bank environmental and social safeguard policies

The World Bank's has developed 10 environmental and social safeguard policies, which are a cornerstone of its support to sustainable poverty reduction. The objective of these policies is to prevent and mitigate

undue harm to people and their environment in the development process. These policies provide guidelines for Bank and borrowers in the identification, preparation, and implementation of programs and projects.

This ESMF has been designed so that all SAIP activities funded under the World Bank will comply with the Environmental laws of the Government of Rwanda and World Bank safeguards policies. The bank's safeguards policies and their applicability to the agriculture sector are presented below:

1. Environmental Assessment (OP4.01)
2. Natural Habitats (OP/BP 4.04)
3. Forestry (OP/BP 4.36)
4. Pest Management (OP 4.09)
5. Physical Cultural Resources (OP 4.11)
6. Indigenous Peoples (OP 4.10)
7. Involuntary Resettlement (OP/BP 4.12)
8. Safety of Dams (OP/BP 4.37)
9. Projects on International Waters (OP/BP 7.50).
10. Projects in Disputed Areas (OP/BP 7.60)

The World Bank (WB) and GoR agreed that SAIP will trigger seven (7) WB environmental and social safeguards policies discussed below:

Environmental Assessment (OP 4.01)

This policy requires environmental assessment (EA) of projects/programs proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus improve decision making. The core requirement of this policy is to screen early for potential impacts and select appropriate instrument to assess, minimize and mitigate the potentially adverse impacts. Relevant safeguard instrument for the policy include Environmental and Social Impact Assessment (ESIA), which is prepared for specific projects already identified before project appraisal; Environmental and Social Management Framework (ESMF), which is prepared to establish a mechanism to determine and assess future potential environmental and social impacts during implementation of the project activities and investments, which are not specified before project appraisal; and Environmental and Social Management Plan (ESMP).

The policy calls for the proposed project as a whole, and for activities/investments to be identified at a later stage during project implementation to be environmentally screened to determine the extent and type of the EA process.

At screening stage, the proposed project or sub-projects will be classified as Category A, B or C, depending on the type, location sensitivity, and the full scale of the project and the nature and magnitude of its potential environmental impacts. For Category A: full Environmental and Social Impact Assessment (ESIA) will be required, since project activities may have adverse, irreversible and significant environmental impacts. For Category B: a limited ESIA will be adequate, since projects may have site-specific environmental impacts, and their mitigation measure can be designed more readily. Under Category C: subprojects are likely to have minimal or no adverse environmental impacts, hence beyond screening; no further environmental assessment action may be required.

OP 4.01 further requires that the ESIA and ESMF report must be disclosed as separate and stand-alone documents by the Government of Rwanda and the World Bank as a condition for Bank Appraisal of the proposed project. The disclosure should be both in Rwanda where it can be accessed by the general public and local communities and at the Info-shop of the World Bank.

Categorization procedures:

Category "A" Projects

A full EIA is always required for projects that are in this category, and for which impacts are expected to be 'adverse, sensitive, irreversible and diverse with attributes such as pollutant discharges large enough to cause degradation of air, water, or soil; large-scale physical disturbance of the site or surroundings; extraction, consumption or conversion of substantial amounts of forests and other natural resources; measurable modification of hydrological cycles; use of hazardous materials in more than incidental quantities; and significant involuntary displacement of people or other significant social disturbances.

Category "B" Projects

Although an EIA is not always required, some environmental analysis is necessary and some form of environmental management plan should be prepared.

Category B projects have impacts that are 'less significant, not as sensitive, numerous, major or diverse. Few, if any, impacts are irreversible, and remedial measures can be more easily designed. Typical projects include rehabilitation, maintenance, or upgrades, rather than new construction.

Category "C" Projects

No EIA or other analysis is required. Category C projects result in negligible or minimal direct disturbance of the physical environment and biological.

Only subprojects classified as category B or C will be eligible for financing under SAIP in Rwanda. This ESMF sets out to establish the EA process to be undertaken for implementation of project activities in the proposed SAIP when they are being identified and implemented. This process requires that SAIP and its implementing partners screen their activities to identify their potential adverse impacts and thereby determine the corresponding mitigation measures to incorporate into their planned activities.

Natural Habitats (OP 4.04)

This Bank Operational Policy recognizes that conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats. Natural habitats are land and water areas where (i) the ecosystems biological communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the areas primary ecological functions. All natural habitats have important biological, social, economic, and existence value. Therefore, the Bank natural habitats operation policy (OP 4.04) is triggered in all cases where the proposed investments are likely to have potential adverse impacts on Rwanda's natural habitats including wetlands, underground water sources, open water bodies and forests.

The Bank natural habitats operational policy requires that any activities funded under the SAIP that adversely impacts these ecosystems must have a successfully mitigation plan so as to maintain the overall balance and integrity of the ecosystems impacted. This requires that SAIP designs appropriate conservation and mitigation measures to remove or reduce adverse impacts on these ecosystems or their functions, keeping such impacts within socially defined limits of acceptable change.

Specific measures may depend on the ecological characteristics of the affected ecosystem. Such measures must include provision for monitoring and evaluation to provide feedback on conservation outcomes and to provide guidance for developing or refining appropriate corrective actions. Activities that risk significantly degrading or converting critical natural habitat will not be funded under the project.

Pest Management (OP 4.09)

This policy aims at the management of pests that affect either agriculture or public health. The World Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides.

The policy supports safe, effective, and environmentally sound pest management. It promotes the use of biological and environmental control methods. An assessment is made of the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management.

The SAIP project components will trigger this policy especially those activities that will focus on improving land productivity. In appraising a project that will involve pest and disease management, the Bank assesses the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management. As necessary, the Bank and the borrower incorporate in the project components to strengthen such capacity.

The Bank uses various means to assess pest management in the country and support integrated pest management (IPM) and the safe use of agricultural pesticides: Economic and sector work, sectorial or project specific environmental assessments, participatory IPM assessments, and investment projects and components aimed specifically at supporting the adoption and use of IPM.

For World Bank funded agriculture projects, pest populations are normally controlled through IPM approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank may finance the purchase of approved pesticides when their use is justified under an IPM approach.

The policy calls for assessment of the nature and degree of associated risks, taking into account the proposed use and the intended users for procurement of any pesticide in Bank financed projects. The policy sets criteria to apply for the selection and use of pesticides in Bank financed projects including must have negligible adverse human health effects, must be shown to be effective against the target species, and must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies.

The policy requires putting in place a Pest Management Plan (PMP) and structure for adoption of IPM and safe use of pesticides.

The SAIP has prepared a PMP which was shared with the Bank for review and clearance. The project will also adopt to use Integrated Pest Management (IPM) techniques during its implementation.

Involuntary Resettlement (OP/BP 4.12)

Interventions in the agriculture sector could lead to displacement, loss of assets and restriction of access to sources of livelihood. Project areas would be screened for impacts and a Resettlement Action Plan (RAP) will be prepared, if required.

Resettlement Policy Framework (RPF) sets the guidelines for the Resettlement and Compensation Plans (RAPs) that would have to be prepared when any project investment (activity) triggers this policy. The standalone Resettlement Policy Framework (RPF) has to be prepared by the Government and approved by the Bank in compliance with OP 4.12. The RAPs would be prepared by the subproject implementers (e.g. districts) and would have to be submitted to the Bank for approval.

This policy is triggered when a project activity causes the involuntary taking of land and other assets resulting in: (a) relocation or loss of shelter, (b) loss of assets or access to assets (c) loss of income sources or means of livelihood, whether or not the affected persons must move to another location. Therefore, people are in most cases compensated for their loss (of land, property or access) either in kind or in cash of which the former is preferred. The resettlement policy applies to all displaced persons regardless of the total number affected, the severity of the impact and whether or not they have legal title to the land. Particular attention should be paid to the needs of vulnerable groups among those displaced.

The policy also requires that the implementation of the resettlement plans are a pre-requisite for the implementation/start of the construction to ensure that displacement or restriction of access does not occur before necessary measures for resettlement and compensation are in place. For chosen sites involving land acquisition, it is further required that these measures include provision of compensation and of other assistance required for relocation, prior to displacement, and preparation and provision of resettlement sites with adequate facilities, where required. In particular, the taking of land and related assets may take place only after compensation has been paid, and where applicable, resettlement sites, new homes, related infrastructure and moving allowances have been provided to displaced persons.

It is to be noted that SAIP will trigger this policy as activities related to the construction of postharvest infrastructures will acquire land, and therefore, affect land and properties.

Physical Cultural Resources (OP/BP 4.11)

The Bank operational policy on safeguarding cultural properties aims at protecting cultural assets and knowledge of communities in all bank financed project areas. Safeguarding cultural property policy requires the determination of what is known about the cultural aspects of the proposed project site. The policy calls for consultation involving all parties including scientific institutions and NGOs as part of this process.

The policy defines cultural property as sites having archaeological, paleontological, historical, religious and unique natural value. These sites, when stumbled upon, require that the authorities are informed and the site is demarcated and protected.

The SAIP AF project triggers this policy as some of the project activities may interfere with physical cultural heritage resources that need to be protected. The ESMF will address impacts on physical cultural resources and will require preparation and submission of a detailed physical cultural resources (PCR) management plan where required and prior to the commencement of civil works. The PCR Management Plan will also include “chance finds procedures”.

Safety of Dams (OP/BP 4.37)

The World Bank distinguishes between small and large dams for application of its policy on safety of dams, OP 4.37, states:

- a) Small dams are normally less than 15 meters in height. This category includes, for example, farm ponds, local silt retention dams, and low embankment tanks.
- b) Large dams are 15 meters or more in height. Dams that are between 10 and 15 meters in height are treated as large dams if they present special design complexities (for example, an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, or retention of toxic materials). Dams under 10 meters in height are treated as large dams if they are expected to become large dams during the operation of the facility (e.g. Tailing dams).

Dam safety plans are also required for high hazard dams. High hazard dams are those between 10 and 15 m height, with special design complexities, e.g. unusually large flood handling requirements, location in zone of high seismicity, foundations that are complex and difficult to prepare, or retention of toxic materials.

Though SAIP is not constructing a new dam, the protection and safety measures to existing dam and night storage constructed under LWH project will be strengthened through tree planting, training and awareness campaigns of local community. The live fence around the existing dam was established while the night storages were fenced with barbed wire. During SAIP implementation, the protection measures will be strengthened or maintained. The awareness campaigns for dam safety to community in the vicinity of the reservoirs will also be continued. Furthermore, SAIP plans to construct a solar panel system and river diversion. For protection and safety purposes, the solar panel area will be fenced with barbed fire and guarded while a live fence will be established around the river diversion.

Projects on International Waterways (OP/BP 7.50)

This policy applies to the following types of international waterways:

- (i) any river, canal, lake, or similar body of water that forms a boundary between or any river or body of surface water that flows through, two or more states, whether bank members or not;
- (ii) any tributary or other body of surface water that is a component of any waterway described in (i) above and;
- (iii) any bay, gulf, strait or channel bounded by two or more states or, if within one state, recognized as a necessary channel of communication between the open sea and other states and any river flowing into such waters.

This policy applies to the following types of projects:

(i) hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial and similar projects that involve the use or potential pollution of international waterways as described in paragraph 1 above, and

(ii) Detailed design and engineering studies of projects under paragraph 2 (i) above, including those to be carried out by the Bank as executing agency or in any other capacity.

The Project ascertains whether riparian agreements are in place, and ensures that riparian states are informed of and do not object to project interventions.

The SAIP AF will co-finance small scale irrigation (SSI) infrastructure and support package (maintenance and business plan development). The SSI technology includes ready to use 1ha, 5ha, and 10 ha complete sprinkler, drip and rain-gun kits with portable diesel/petrol pump-units and pipes as well as the treadle pump, etc. Given that the activities to be financed by the project will not adversely change the quality and quantity of water flows to the other riparian, SAIP AF has requested for a riparian notification exception in line with the requirements of OP/BP 7.50.

Comparison between Rwandan and World Bank EA System

This section compares the similarities and differences between the National requirements and the World Bank environmental and social safeguards policies.

The gaps identified between environment and Social management framework between national requirements and World Bank safeguards policies are presented below:

Table 1: Differences between Rwanda E&S regulations and World Bank OP4.01 policy

Item	National Standards	World Bank Safeguards policies	Gap	Bridging Measures
Categorization of Projects for ESIA studies	National Regulations classify projects under three categories 1, 2 and 3	Provide four categorization of projects (A, B, C, FI) in terms of Environmental and Social Considerations.	While the WB categorization of projects is mainly based on potential impacts and sensitivity of hosting environment, the national categorization is mainly based on size of project.	SAIP subprojects will be categorized based on WB policies and will follow the most equivalent category in national Regulations.
Environmental and Social instruments	In Rwanda only EIA, SEA and Environment audit are regulated instruments	Recognizes various safeguards instruments including SEA, ESIA and RAP, ESMF, etc	Though national regulations recognize environmental safeguards aspects, but there is not provision to prepare ESMF	For investments with significant impacts/ risks, the ESMF will be prepared and implemented based on WB safeguards policies
Assessment of alternatives	The national law on environment and ESIA procedures requires lead agency to explore project alternatives but is silent about avoiding, minimizing involuntary resettlement.	Requires borrower to consider feasible alternative project designs to avoid or minimize land acquisition or restrictions on land use, especially where this would result in physical or economic displacement, while balancing environmental, social, and financial costs and benefits, and paying particular attention to gender impacts and impacts on the poor and vulnerable.	While WB policy requires the borrower to explore alternatives that avoid or minimize resettlement impacts, the national regulations only require the provision of compensation	For investment proposed under SAIP, alternatives should be assessed to avoid or minimize involuntary resettlement and other sensitive areas.
Grievance Mechanism	Article 33 of expropriation law states that Within seven (7) days after the approval of the valuation report by the proponent/borrower, any person to be expropriated who is not satisfied with the assessed value of his/her land and property incorporated thereon shall indicate in writing grounds for his/her dissatisfaction with the valuation report. Any person contesting the assessed value shall, at his/her own expense, engage the services of a valuer or a valuation firm recognized by the Institute of Real Property Valuers in	Complies with World bank that requires project proponents/borrowers to ensure that expropriator, any person to be a grievance mechanism for the expropriated who is not satisfied with project is in place, as early as possible in project development to address specific concerns about compensation, relocation or livelihood restoration measures raised by displaced persons (or others) in a timely fashion. Where possible, such grievance mechanisms will utilize existing mechanisms will engage the services of a valuer or a formal or informal grievance valuation firm recognized by the Institute of Real Property Valuers in purposes, supplemented as needed	National regulations provide only steps and timeframe for contesting valuation report	Grievance redress mechanism will be established at project level, district level and site level

	Rwanda to carry out a counter-assessment of the value.	with project-specific arrangements designed to resolve disputes in an impartial manner.		
Documents Approval and Disclosure	The law specifies the Institution competent for ESIA review and approval (ie RDB) but remains silent on its disclosure.	WB 4.01 requires that prepared documents are approved by the Bank and disclosed at WB external website	National regulations remain silent on disclosure of environmental documents	Apply OP4.01 for the disclosure of approved environmental safeguards tools

Table 2. Differences between Rwanda E&S regulations and World Bank OP4.12 policy

Item	National Standards	World Bank OP4.12	Gap	Bridging Measures
Eligibility criteria for Compensation	<p>National regulations recognize Affected people:</p> <ul style="list-style-type: none"> - who have land titles and documentary evidence that he/she is the owner of property incorporated on land. A person dispossessed of land or unlawfully occupying land or having developed activities on land on which such activities are prohibited after the enactment of relevant laws shall receive no compensation. 	<p>Recognizes Affected persons who:</p> <ul style="list-style-type: none"> Have formal legal rights to land or assets; Do not have formal legal rights to land or assets, but have a claim to land or assets that is recognized or recognizable under national law; or Have no recognizable legal right or claim to the land or assets they occupy or use. 	<p>The WB policy diverges with the Rwanda Law whereas the law in Rwanda refuses to recognize illegal land owners and does not provide any Compensation</p>	<p>The compensation and resettlement measures should be provided to all affected person including those with no land title and tenants. Those who don't have legal right on the land will be compensated for assets and properties established on the land</p>
Compensation and Benefits for Affected Persons	<p>The national Regulations (expropriation law, art 27) defines properties subject to valuation for the payment of fair compensation due to expropriation in the public interest are:</p> <ul style="list-style-type: none"> 1° land; 2° activities carried out on land for its efficient management or rational use; 3° compensations for disruption caused by expropriation. 	<p>Applies World bank Policies and When land acquisition or restrictions on land use (whether permanent or temporary) cannot be avoided, expropriation requires Borrower to offer affected persons compensation at replacement cost, and other assistance as may be necessary to help them improve or at least restore their standards of living or livelihoods.</p>	<p>Loss of income is not covered under national regulations and regulations are silent on livelihood measures or assistance to vulnerable people</p>	<p>(i) During the preparation of resettlement plan, livelihood restoration measures will be considered for where physical relocation is expected.</p> <p>(ii) Vulnerable people will be identified and special attention provided to them to ensure that all affected people improve or restore livelihood</p>
Timeframe for Compensation and provision of resettlement measures	<p>Article 36 of the Expropriation law (2015) state that approved fair compensation shall be paid within a period not exceeding one hundred and twenty (120) days from the day of its approval.</p>	<p>Requires that the Borrower takes possession of acquired land and related assets only after compensation in accordance with World Bank Policies.</p>	<p>National Regulations allows the SAIP to take the land even before the compensation as long as the compensation is made in 120days.</p>	<p>Compensation and provision of resettlement measures will be given prior land take and any construction works.</p>

	Subsequent to receiving fair compensation, the expropriated person shall have a period not exceeding one hundred and twenty (120) days to relocate.			
Community participation and consultation	Article 24 of expropriation law requires the District or City of Kigali administration or the relevant Ministry to inform the persons to be expropriated in the public interest of the expected start date of take over, measurement of land and inventory of property incorporated thereon.	Requires the Borrower in principle, project proponents etc. consult with local stakeholders through means to that induce broad public participation to a reasonable extent, in order to take into consideration, environmental and social factors in a way that is most suitable to local situations, and in order to reach an appropriate consensus	While the OP4.12 policy requires consultation with affected communities and other stakeholders, the national regulations require only communication to the affected people.	As per WB OP 4.12, persons to be displaced should be actively be consulted and have opportunity to participate in planning and design of resettlement programs
	Such a communication shall be made through an announcement posted on the office of the Cell of the place designated for the implementation of the project. The communication shall also be made through at least one radio station with a wide audience in Rwanda and at least one of Rwanda-based newspapers with a wide readership.	Disclosure of relevant information and meaningful participation of affected communities and persons will take place during the consideration of alternative project designs and thereafter throughout the planning, implementation, monitoring, and evaluation of the compensation process and livelihood restoration activities.		
Grievance Mechanism	Article 33 of expropriation law states that within seven (7) days after the approval of the valuation report by the expropriator, any person to be expropriated who is not satisfied with the assessed value of his/her land and property incorporated thereon shall indicate in writing grounds for his/her dissatisfaction with the valuation report. Any person contesting the assessed value shall, at his/her own expense,	Complies with World bank that requires project proponents/borrowers to ensure that a grievance mechanism for the project is in place, as early as possible in project development to address specific concerns about compensation, relocation or livelihood restoration measures raised by displaced persons (or others) in a timely fashion. Where possible, such grievance mechanisms will utilize existing	National regulations provide only steps and timeframe for contesting valuation report	Grievance redress mechanism will be established at site level

	<p>engage the services of a valuer or a formal or informal grievance valuation firm recognized by the Institute of Real Property Valuers in Rwanda to carry out a counter-assessment of the value.</p>	<p>mechanisms suitable for project purposes, supplemented as needed with project-specific arrangements designed to resolve disputes in an impartial manner.</p>		
Planning and Implementation	<p>Article 10 of expropriation law requires the project to prepare an application that shall indicate:</p> <ul style="list-style-type: none"> - the nature of the project; - the indication that the project aims at the public interest; - the master plan of land where the project will be carried out; - the document indicating that the project has no detrimental effect on the environment; - the document confirming the availability of funds for fair compensation; - the explanatory note detailing that such land or place suits the project; <p>the minutes indicating that the concerned population was sensitized about the project and its importance;</p>	<p>Where land acquisition or restrictions on land use are unavoidable, the Borrower will, as part of the environmental and social assessment, conduct a census to identify the persons who will be affected by the project, to establish an inventory of land and assets to be affected, to determine who will be eligible for compensation and assistance, and to discourage ineligible persons, such as opportunistic settlers, from claiming benefits.</p>	<p>The measures gap in terms of planning and implementation is the absence of socio-economic assessment of project affected and inventory of affected assets in the application report. during decision making about a</p>	<p>The socio-economic survey is part of Master Plan preparation and detailed Socio-economic survey for the affected people and inventory of affected assets will be part of Resettlement Plan</p>
Cut-off date	<p>The national Regulations requires the District or City of Kigali administration or the relevant Ministry to inform the project proponent/ the Borrower shall establish a cut-off date for persons to be expropriated in the public interest of the expected start date of measurement of land and inventory of property incorporated thereon.</p> <p>Such a communication shall be made through an announcement posted on the office of the Cell of the place</p>	<p>Applies world bank provision whereby the project proponent/ the Borrower shall establish a cut-off date for persons to be expropriated in the public interest of the expected start date of measurement of land and inventory of property incorporated thereon.</p> <p>Such a communication shall be made through an announcement posted on the office of the Cell of the place</p>	<p>The only gap identified is that the national regulations does not include warnings to the persons settling in the project area after the cut-off date may be subject to removal.</p>	<p>The cut-off date will be established and communicated to all affected people</p>

	<p>designated for the implementation of project area after the cut-off date may be subject to removal.</p> <p>the project. The communication shall also be made through at least one radio station with a wide audience in Rwanda and at least one of Rwanda-based newspapers with a wide readership for the relevant parties to be informed thereof.</p>		
Economic Displacement	<p>National Regulation are silent about economic displacement and does not provide any livelihood restoration program</p> <p>In the case of projects affecting livelihoods or income generation, the Borrower's plan will include measures to allow affected persons to improve, or at least restore, their incomes or livelihoods. The plan will establish the entitlements of affected persons and/or communities, paying particular attention to gender aspects and the needs of vulnerable segments of communities, and will ensure that these are provided in a transparent, consistent, and equitable manner. The plan will incorporate arrangements to monitor the effectiveness of livelihood measures during implementation, as well as evaluation once implementation is completed.</p>	<p>Livelihood restoration and economic displacement are not considered under national regulations</p>	<p>Both Physical and Economic displacement will be considered and livelihood restoration plan prepared as appropriate</p>

2.3 World Bank Group (WBG) industry Sector Guidelines for Agribusiness

The WBG Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice (GIIP). The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors. The EHS guidelines should be used together with the relevant Industry Sector Guideline(s). The WBG industry Sector EHS guidelines for Agribusiness cover EHS Guidelines for annual crop production, aquaculture, breweries, dairy processing, fish processing, food and beverage processing, mammalian livestock production, meat processing, perennial crop production, poultry production, poultry processing, sugar manufacturing and vegetable oil processing.

SAIP AF is anticipated to comply with the annual crop production, perennial crop production as well as food and beverage processing (possible processing of vegetables like tomato, sweet pepper and chili as well as fruit raw materials such as passion fruit, tree tomato, watermelon, etc into value-added food and beverages).

The Environmental, occupational health and safety and community health and safety issues both in annual crop production and perennial crop production primarily include Soil Conservation and Management, Nutrient Management, Crop Residue and Solid Waste Management, Water Management, Pest Management, Use and Management of Pesticides, Fertilizers, Biodiversity and Ecosystems, Genetically Modified Crops, Energy Use, Air Quality and Greenhouse Gas (GHG) Emissions. Occupational health and safety (OHS) issues associated with annual and perennial crop production include the physical hazards (operational and workplace hazards, machinery and vehicles, confined and restricted space entry, exposure to organic dust), risk of fire and explosion as well as biological and chemical hazards.

The potential exposure to pesticides and presence of pesticides or by-products in potentially harmful concentrations in foodstuffs and postharvest products, potential exposure to pathogens associated with the use of manure, potential exposure to air emissions from fires, burning of crop waste, residues, or solid waste and increased risk of vehicle or machinery injuries on roads and access routes around the community are the major community health and safety risks. These guidelines provide specific recommendations and performance indicators to monitor to minimize risks to communities which SAIP AF will observe.

CHAPTER THREE: ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

3.1 Project sites locations

During the SAIP preparation, it was agreed that its implementation will focus on LWH and RSSP3 sites but these may be expanded during SAIP implementation as needed by the GoR. These sites comprise of Karongi 12 and 13 in Karongi and Rutsiro districts, Nyabirasi site of Rutsiro District, Nyabihu of Nyabihu District in Western Province, Nyanza 23 of Nyanza District in Southern Province, Muyanza of Rulindo District in the North and Rwamagana 34 of Rwamagana District, Gatsibo 8 and Rwangoingo in Gatsibo District, Kayonza 4 of Kayonza District and Ngoma 22 of Ngoma District in the Eastern Province. Nyabirasi, Rwangoingo and Ngoma 22 are new sites for additional financing. Small scale irrigation will be implemented in each of the project Districts. The map showing project sites locations is presented below.

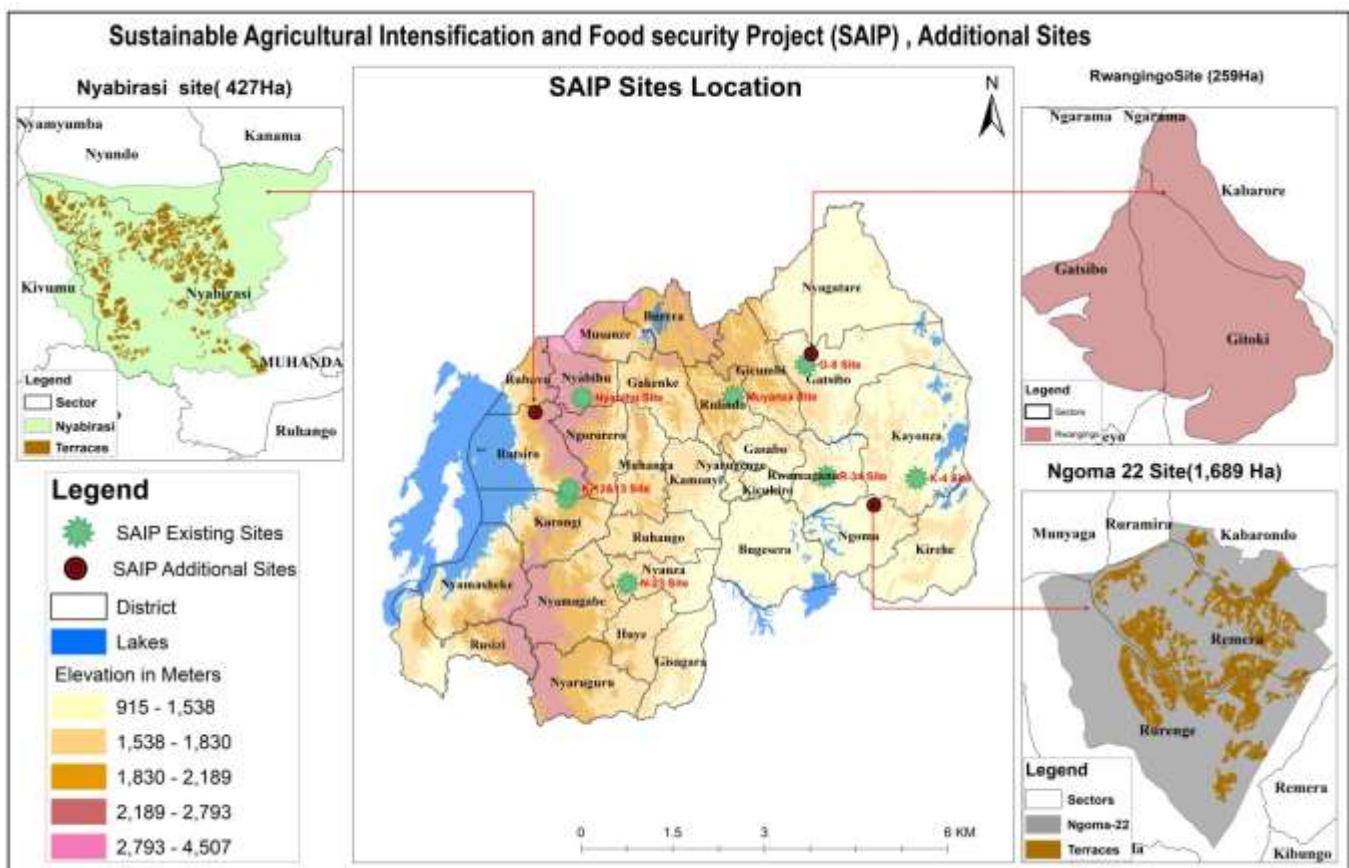


Figure 1: Location of SAIP –AF sites

This section below describes the overall baseline condition of the proposed sites in terms of biophysical environment as well as the socio economic and cultural attributes.

3.2 Physical environment

Rwanda is a mountainous landlocked country, located in Central Africa, at latitude 2.00 S and longitude 30.00 E, bordered to its south by Burundi for about 290km, Tanzania to its east for 217 km, Uganda to its north for 169km and the Democratic Republic of Congo (DRC) to its west for 217 km. Rwanda has a total surface area of 26,338 sq. km of which the total land area is 24, 948 sq. km and 1,390 sq. km is water.

The project sites can be divided into three topographical regions as follows:

- ✚ Highland region including sites in Nyabihu, Karongi and Rutsiro Districts;
- ✚ Middle land region comprising of sites in Nyanza and Rulindo Districts,
- ✚ Low land region covering Gatsibo, Kayonza, Ngoma and Rwamagana Districts.

3.2.1 Climate

a) Highland sites

Karongi 12 and 13 sites fall in the Moist Mid-Highland agro-climatic zone, which covers 41.65% of the land of Rwanda with greater potential for agriculture. The annual rainfall of the area is around 1300mm, with rainfall maxima exceeding 200mm/month, observed in April, during the main wet season of the year which lasts from mid-February to June. The second wet annual period from late September through December, shows monthly rainfall maxima of more than 100mm. The long dry season extends from June to August or early September, with July as the driest month. The short dry season extends from January to mid-February.

The Karongi 12 site covers Rubengera and Rugabano Sectors of Karongi District while Karongi 13 is located in Rubengera and Mukura sectors of Karongi and Rutsiro Districts respectively. The mean annual temperature at the project site is less than the 18°C. The mean annual rainfall is estimated at 1371mm, with mean monthly maximum in April (204mm) and minimum in July (18mm).

Nyabihu site, which covers Muringa, Rambura, Jomba and Karago Sectors of Nyabihu District, is characterized by high, rocky and steep mountains.

The climate is generally mild, with an average temperature of 15°C, and rainfall reaching 1,400 mm per year. Two rainy seasons and two dry seasons are also observed in Nyabihu and not different from those in Karongi. The climatic conditions of Nyabirasi site are not different from those of Nyabihu site. Nyabirasi site partially covers the Sector of Nyabirasi in Rutsiro District.

b) Middle land sites

Muyanza and Nyanza 23 were selected sites in the middle land areas of Rwanda. Both sites with large dams have hillside irrigation components. Muyanza site partially covers Burega, Buyoga, Tumba, Cyinzuzi and Ntarabana Sectors of Rulindo District while Nyanza 23 is comprised of Rwabicuma, Cyabakamyi and Nyagisozi Sectors of Nyanza District and a small portion of Rwaniro sector in Huye District.

Nyanza 23 also falls in the Moist Mid-Highland agro-climatic zone. The annual rainfall of the site is around 1,177 mm, with rainfall maxima of 200 mm/month and rainfall minima of around 7 mm/month in July. However, the variation, as observed from the 35 years data is frighteningly high. For instance, at dry year, the total rainfall can be as low as only 788 mm while at wet year it could be nearly double or as high as 1,595 mm. For June, July and August, the minimum mean monthly rainfall is recorded as zero. The site has two rainy seasons and two dry seasons. The temperature at Nyanza-23 is excellent for plant growth. The wind speed is low and the relative humidity shows that there is quite good amount of moisture in the air. The sunshine hours are short in all months except in the driest months of Jun, July and August.

The seasonal pattern of the rainfall regime at Muyanza site is such that there are two (2) rainy seasons extending from February to May and late September to November with generally high spatial and temporal rainfall variability. The seasonal variation indicates the relatively dry period between June and August with monthly rainfall amounts predominantly below 40 mm. July is the driest month in the catchment while the wettest month is April with the average rainfall amounts recorded as high as 173 mm. The average annual rainfall recorded for Muyanza catchment is estimated at about 1,183 mm. The temperatures at Muyanza are relatively constant. The mean minimum temperature is 15°C and a mean maximum reaches 26°C.

c) Lowland sites

Gatsibo 8, Rwango, Kayonza 4, Ngoma 22 and Rwanmagana 34 sites are selected sites in lowlands of Eastern Province. Gatsibo 8 and Rwango sites cover Gatsibo, Gitoki and Kabarore sectors while Kayonza 4 site include Kabare Sector. Rwanmagana 34 site partially comprises of Mwurire, Gahengeri, Rubona and Nzige Sectors of Rwanmagana District. Ngoma 22 covers Rurenge and Remera Sectors in Ngoma district.

The annual rainfall for the Kayonza-4 site is 990 mm with annual dependable rainfall of 815 mm. On average 83% of the annual total rainfall falls during the wet seasons. The dependable rainfall varies from 81 mm in February, peaking to 110 mm in April, and declining to 18 mm/month in June and from 43 mm in September rising to 102 mm in November. It is less than 20 mm during the dry season; often with little rainfall from June through August.

The minimum cloud cover is observed during the month of April and November. The high maximum and low minimum monthly temperatures are observed in September and July respectively; relative humidity is at its minimum in July and sunshine duration at its maximum in June.

From August to October average temperature reaches a maximum because of high day maxima and limited night cold; wind speed is also at a maximum. In August/September and January to May, the daily variation of temperature is low. Relative humidity is high in April and November. Sunshine duration is short in November and wind speed is low in April. Gatsibo 8 is characterized by two main seasons: the dry season with the annual average temperature varying between 20.3 °C and 21.7°C and the rainy season. The rainy season is short and negatively influences the availability hydraulic for agro-pastoral activities.

The project site falls in the Dry Low Land agro climatic zone with a mean annual rainfall of about 863.5 mm (ranging between 827mm and 900mm) and these rain falls are bimodal. Main rainy season extends from February to mid-June; the maximum rainfall is in March, exceeding 120 mm/month. In November the project area receives the largest rainfall as part of the second rainy season (October to December). The driest month is August. In fact, rainfalls are both very weak and very unpredictable to satisfy the needs in agriculture and livestock.

Rwamagana-34 project area is located in the Lake Mugesera basin, part of the Akagera basin. The climate of the project area on the northern shore of Lake Mugesera is dominated by the April and November rains. The seasonal rainfall is characterized by two wet seasons from March to May and from October to December displaying a bimodal pattern whereby monthly rainfall varies from 119 mm in March, 162 mm in April declining through to 9.3mm in July. The annual rainfall for the Rwamgana-34 site is 931 mm with annual dependable rainfall of 772 mm. On average 71% of the annual total rainfall falls during the wet seasons. The dependable rainfall varies from 74 mm in February, peaking to 123 mm in April, and declining to 90 mm/month in May and from 50 mm in September rising to 88 mm in November. It is less than 20 mm during the dry season; often with little rainfall from June through August.

This seasonal pattern determines the annual variation of all climatic parameters. The minimum cloud cover is observed during the month of November. The high maximum and low minimum monthly temperatures are observed in September and November respectively; relative humidity is at its minimum in July and sunshine duration at its maximum in June. From August to October average temperature reaches a maximum because of high day maxima and limited night cold; wind speed is also at a maximum. In August/September and January to May, the daily variation of temperature is low. Relative humidity is high in April and November. Sunshine duration is short in November and wind speed is low in April.

3.2.2 Relief

Karongi 12 and 13, Nyabirasi and Nyabihu sites have a hilly and mountainous relief with an altitude ranging between 1600 m and 3000 m. Nyabihu and Nyabirasi sites are dominated in the Northwest by the volcanic ranges consisting of five volcanic massifs of which the highest is Kalisimbi with 4,507 m. Karongi 12 & 13 sites have steep and undulating topography with elevations varying from +1922m to +1616m. Muyanza and Nyanza sites present a relief of hills with an altitude ranging between 1,500 m and 2,000 m. Rwamagana 34, Gatsibo 8, Rwangingo, Kayonza 4 and Ngoma 22 are part of the lowlands of the Eastern Province, a region essentially dominated by hills with low slopes and an average altitude between 1,300m and 1,700m above sea level.

3.2.3 Hydrology

Rwanda has abundant water resources estimated at 417,000 ha, including 101 lakes covering almost 128,000 hectares, water courses (7,260 ha) with 6,400 km of rivers and 860 marshlands spanning an estimated 278,000 hectares. The country is divided into two hydrographical basins with a separating line called Congo-Nile Ridge, moving from the North to the South and approximately perpendicular to the volcanic chain, making natural obstacles exchange between the catchment basins of the Northern Kivu and the Southwest of Uganda and those of Rwanda.

In the West of that line, there is the Congolese basin (33 % of the surface of the national territory) that drains 10 % of water resources of the country. In the East of the Congo Nile Ridge, there is the Nile basin which covers 67 % of the National territory and drains 90 % of Rwandan waters by two main rivers namely Nyabarongo and Akagera. Nyabirasi and Karongi sites belong to the Congolese basin while the remaining sites are part of the Nile basin.

The hydrographic network is very limited in the Eastern Province sites but becomes so dense in Western, Southern and Northern Province sites. Very few and small rivers, some of them erratic and intermittent, are observed in Eastern Province sites. Nyakagezi in Gatsibo 8, Cyinzange stream and four small streamlets in Kayonza 4, Nyirabidibiri stream in Rwamagana 34 are some of the water bodies in lowland sites. Rwamagana 34 and Ngoma 22 are close to Mugesera lake while Kayonza 4, located in the vicinity of Akagera National Park (at about 5 km), flows into Gishanda lake.

Surface water resources in the Muyanza catchment include Muyanza river and its small tributaries from the hills. There are no major wetlands and swamps located within the Muyanza catchment, except for the small narrow wetland area along the Muyanza River. The latter is one of the major tributaries of Nyabugogo river. Kagondo stream, and many other small streamlets, tributaries of Mwogo river are found in Nyanza 23 site. Ndaba and Ntaruko rivers in Karongi sites and many other streams are permanent water courses flowing into Kivu lake. Giciye river with many tributaries is the main river in Nyabihu site.

The quality of water is generally good with a pH ranging between 6 and 7.5. Surface water often carries a lot of soil sediments and, in mining and volcanic regions, the water can contain traces of arsenic, lead, mercury, fluoride, iodide and other toxic metalloids and heavy metals, leading to water resources degradation. The physico-chemical pollution of water is not frequent due to the low level of industrialization and use of agricultural chemical inputs. The microbiological pollution is often observed and it comes from various domestic wastes and debris carried by rain water. The pollution of watercourses and lakes by the water hyacinth and other invasive species is a very recent and alarming phenomenon in Rwanda.

3.2.4 Wetlands

Wetlands cover a total area of 278,000 ha or about 10.6 % of the national territory. They include a variety of ecosystems, ranging from large, permanently flooded swampy peat-lands to smaller, seasonally flooded wetlands with a more mineral soil.

The wetlands are composed of marshes, lakes, rivers and streams representing around 10.6 % of the national territory. In the highland sites, there is Kivu lake.

In the Central and the Eastern part of the country, wetlands are associated with rivers crossing the sites, such as Nyabarongo and Muyanza. Mugesera and Gishanda lakes are located in the downstream part of Rwamagana 34 & Ngoma 22 and Kayonza-4 sites.

Given the importance that the Government of Rwanda attaches to wetlands, in 2003, Rwanda ratified the RAMSAR Convention (or convention on wetlands) and has already registered on the RAMSAR list the site of Rugezi and identified other potential sites that will be registered in the future, like the complex of Mugesera-Rweru, Kamiranzovu marshes and the wet zones of the Akagera National Park. However, none of them falls under the project sites.

3.2.5 Soils

The Rwandan pedology is characterized by six types of soils namely: Soils derived from schistose, sandstones and quartzite formations (50%); Soils derived from granite and gneissic formations (20%); Soils derived from basic intrusive rocks (10%); Soils derived from recent volcanic materials (10%); Soils derived from old volcanic materials (4%); Alluvial and colluvial soils (6%). There is also an assortment of deposits of minerals such as tin, wolfram, Colombo tantalite and gold with the mining sector playing significant role in the national economy and as one of the key drivers of foreign direct investment in the country. Rwanda's soils contain many of the metal compounds found in laterite soils, but are generally lighter, more fertile, more workable, and less problematic to farmers than true laterite soils. There are two sub zones, with vastly different soils. To the northwest and the lower portions of the larger river valleys are very fertile volcanic soils covering approx. 10% of the country. Elsewhere, the largely metamorphic bedrock has produced generally poor quality with fertility varying and depending on extent of erosion and leaching. Volcanic soils, humic acrisols and cambisols in highland areas, Humic Acrisols and Dystric cambisols in Nyanza 23, Anthrosol and Mollic-Nitisol in Muyanza, Haplic Ferralsols in Rwamagana 34 and Kayonza 4 and haplic Acrisols in Gatsibo 8 are the major soil types in project sites.

About 30% of Rwanda's land is suitable for farming, and another 30% for grazing. Except where the land is seriously eroded or leached by heavy farming, the soils have good humus content and fertility. Intensive food crop production, often on steep slopes, has led to serious soil erosion.

3.2.6 Air

Rwanda in general and Project sites in particular, have one of the lowest emissions per capita in the world, estimated at 0.65 tonnes CO₂/person (including land use change), compared to a global average of 4.63 tonnes CO₂/person (Nsengimana *et al.*, 2011). The majority of greenhouse gases (GHG) emissions were CO₂ (87%) at 531 Gg, dominated by transport (52%) and industrial processes (28.5%).

The air pollution from dust particles and vehicle emission is increasingly growing. During the dry season, there is a marked increase in air borne diseases due to dust particles emission especially in urban areas (REMA, 2009). Poorly maintained roads, motorcycles and vehicles cause an increasing concentration of different air pollutants (Henninger, 2009). The air pollution resulting from dust is not expected to increase during SAIP implementation.

3.3 Biological Environment

The Project sites are covered with diverse ecosystems that include forests, savannahs, wet and aquatic zones, and agro ecosystems. All these ecosystems have a rich flora and fauna.

From the initial environment assessment, the proposed sub projects do not affect any critical natural habitats, as it will be implemented in the already cropped areas. There are no protected areas in the project sites.

3.3.1 Biodiversity of wetlands

The Lake Kivu contains very poor aquatic flora and the density of the phytoplankton is relatively low due to the lack of mixture of layers (the nutrients are found at the bottom of the lake). Aquatic fauna in the lake is also poor due to its physical isolation.

The flora in Mugesera and Gishanda wetlands is dominated by the papyrus, *Cyperus papyrus* mixed with *Miscandium violaceum* and *Nymphaea nouchallii*. An invasive species, the Water Hyacinth (*Eichornia crassipes*), is present and has recently started spreading, thus posing a threat to biological diversity of the lakes. Crocodiles in Mugesera, hippopotamus in Gishanda, fish species (mostly Tilapia and Clarias, various bird types in those wetlands dominate the fauna within the sites.

3.3.2 Biodiversity in agricultural systems

a) Croplands

The LWH project has developed 2,855 ha of agricultural land in Nyanza 23 (471ha), Gatsibo 8 (45ha), Kayonza 4 (420ha), Ngoma 22 (300ha), Karongi 12 (145ha) & 13 (107ha), Muyanza (1100ha) and Rwanmagana 34 (267ha) sites for hillside irrigation. The Project has also developed more than 9,629 ha with land husbandry in the catchments for rainfed production (7,063ha for parent project and 2,566ha for AF). The developed areas have various crops that play an essential role in the national economy. These crops are usually grouped in two categories: subsistence and cash crops. Some of the food crops include beans, maize, wheat, irish potato, peas, sojabean, banana, various vegetables (chili, tomato, cabbage, carrot, etc) and fruits (passion fruits, watermelon, tree tomato, etc). The expected size for new sites is 1,689 ha in Ngoma 22 (command area of 300ha inclusive), 259 ha in Rwaningo and 427ha in Nyabirasi.

The importance of each crop varies according to regions. Some crops, like bananas, maize, potatoes, vegetables, fruits are subject to high commercial trade. Potatoes, beans, maize and banana are also present everywhere for the daily diet of the people.

b) Pastoral zones

In Rwanda, the essential part of animal husbandry is comprised of one family ownership with a small number of animals per household. As agriculture occupies the biggest portion of land, the cows graze in paddocks, on roadsides, and in some parts of marginal lands. This obliges farmers to adopt the zero grazing or semi-permanent farming and grow fodder crops such as *Tripsacum laxum*, *Setaria spp*, *Desmodium spp*, *Pennisetum purpureum*, *Mucuna pruriensis*, *Cajanus cajan*, *Calliandra calothyrsis*, *Leucaena diversifolia*, *Sesbania sesban*, etc. There are no developed pastures within the Project sites and zero grazing is adopted across all sites. The farmers harvest fodder from the terraces' embankments. These were planted with fodder grass and shrubs by the project.

c) Forestry and tree cultivation

The maintenance of existing forests in the selected sites, the plantation of new forests in unsuitable agricultural areas and planting of agroforestry trees on terraces' embankments have been the focus of SPIU RSSP-LWH. Most of the existing or rehabilitated forests are dominated with *Eucalyptus* spp while the agroforestry in terraced zones includes *Grevillea*, *Cedrella*, *Maesopsis*, *Calliandra*, *Leucena*, *Alnus*, etc.

3.4 Socio-Economic Environment

3.4.1 Population and demographic characteristics

Rwanda is classified among the densely populated countries of the world. The Fourth Rwanda Population and Housing Census of 2012 places Rwanda's population at 10,515,973 residents, of which 52% are women and 48% men. The 2020 population of Rwandan is estimated at 12,952,218. The population density in 2012 was 415 inhabitants per square kilometer. Compared to neighboring countries, Burundi (333), Uganda (173) or Kenya (73), Rwanda is the highest densely populated country in the region. In general, urban districts have the highest population densities, particularly the districts of Nyarugenge with 2,124 inhabitants/ km², Kicukiro with 1,911 inhabitants/km², Gasabo with 1,234 inhabitants/km² and Rubavu with 1,039 inhabitants/km². Low densities are recorded in rural districts; those with the lowest density are Bugesera (280 inhabitants/ km²), Gatsibo (274 inhabitants/km²), Nyagatare (242 inhabitants/km²) and Kayonza (178 inhabitants/ km²).

The population of Rwanda is still largely rural, with 70% living in rural areas. The majority of the population of Rwanda lives in private households with an average size of 4.3 persons. Households are a bit smaller in urban areas with 4.0 persons. The Rwandan population is young, with one in two persons being under 19 years old. People aged 65 and above account for only 3% of the resident population; this has consequences in that the demographic dependency ratio, measuring the number of potential dependent persons per 100 persons of productive age, is 93 at national level (NISR, 2012).

The paragraphs below describe the socio-economic patterns in the project areas:

a) Karongi District

The estimated total population of Karongi district as provided by EICV3 survey in 2010–2011 is 355,000, representing 14% of the total population of Western Province and 3% of the total population of Rwanda. Females comprise 54% of the population of Karongi district.

The average size of the household in Karongi district (4.6) is below the national average household size (5). Only about 38% of the population in Karongi district are identified as non-poor; 22% is poor (excluding extreme-poor) and 40% extreme-poor. Within Western Province, Karongi is the second poorest district after Nyamasheke district. Most of the population aged 16 and above have Agriculture as their main industry (86%), followed by Trade with 4%. All other industries are under 3%.

The mean size of land cultivated per household in Karongi district is 0.5 ha, which is slightly lower than the national average (0.59ha), 81% of all households in Karongi district raise some type of livestock.

b) Nyabihu District

Nyabihu district is located in the western province of Rwanda. The total population of Nyabihu district is 330,000. The average size of the household for Nyabihu district is similar to the national average (4.8). Nyabihu district is among the districts which have the lowest percentages of extremely poor and poor population categories. It has 28.6% of extremely poor and poor people.

In Nyabihu district, the overall employment rate is 82% of the resident population aged 16 years and above, and the economic inactivity rate is 17.9%. The household income is driven by agriculture (43%), followed by wage income (25.7%) and business income (12.4%). The smallest contributor to household income in Nyabihu district is rent (5.6%). For Nyabihu district, the mean size of land cultivated per household is 0.46 hectare. The mean size of land cultivated per household at national level is 0.5 ha.

c) Rutsiro District

Nyabirasi site is located in Rutsiro District. The latter has a total population of 324,654 (NISR,2021) with a density of 280 persons/ km2.

d) Nyanza District

Nyanza district is located in the southern District of Rwanda and is divided into 10 sectors. Its population is 323,719. The population of Nyanza district is predominantly female; 166,069 are women corresponding to 51.3 % of the total population.

The average size of the household in Nyanza district is below the national average household size. It is about five persons per household (4.6). Around half (50%) of the population in Nyanza district is identified as non-poor, with the other 50% consisting of 22% who are poor and another 28% extremely poor. Compared with the other districts of Southern Province by levels of non-poor, Nyanza is in third place after Huye (53.4%) and Kamonyi (53.3%). It ranks 11th least poor among all districts.

The overall employment rate is 82% of the resident population aged 16 years and above in Nyanza district, the unemployment rate is 0.4% and the economic inactivity rate is 17.4%. Most people aged 16 years and above in Nyanza are independent farmers, with 71% having this as their main occupation; Household income is driven by agriculture income (53%). The mean size of land cultivated per household in Nyanza district is 0.52 ha.

e) Rulindo District

The EICV3 survey results show that the total population of Rulindo district in 2010–11 was 294,000. This represents 16% of the total population of Northern Province and 2.7% of the total population of Rwanda. Females comprise 52.7% of the population of Rulindo district.

The average household size is 4.7 for Rulindo district, which is slightly lower than the national average of 4.8. In Rulindo district, 57.1% of the population is identified as non-poor, 23.2% as poor and only 19.7% as extremely poor. Compared with other districts in Northern Province, Rulindo district has the highest percentage of extreme-poor. Agriculture is the main industry for 77% of the population aged 16 and above, followed by Trade (5.6%), Mining and Quarrying (5.3%), and Construction (4.1%).

The mean size of land cultivated per household is 0.7 ha, which is above the national average (0.59), rural average (0.6) and urban average (0.46). Rulindo district also has 84.1% of cultivating households that cultivate under 0.9 ha of land.

f) Gatsibo District

Gatsibo District is located in the Eastern province of the country. The estimated total population on of Gatsibo district as provided by EICV3 survey results in 2010–11 is 491,000. This represents 19% of the total population of Eastern Province and 5% of the total population of Rwanda. Only about 57% of the population in Gatsibo district is identified as non-poor; 24% are poor (excluding extreme-poor) and 18% extreme-poor.

The overall employment rate is 84.3% of the resident population aged 16 years and above in Gatsibo district; the unemployment rate is 0.1% and the economic inactivity rate is 15.7%. The household income is driven by agriculture (60%), followed by wage income (16%) and business income (8%). The smallest contributor to household income in Gatsibo district is public transfers' income (2%).

The mean size of land cultivated per household in Gatsibo district is 0.76 ha and 68% of households of Gatsibo cultivate under 0.9 ha of land.

g) Kayonza District

The population of Kayonza district is 332,000; about 55% are aged 19 years or younger. People aged 65 years and above make up 3% of the population. About 52% of the population is female individuals and the majority of the population is young, with about 83% still under 40 years of age.

The average size of the household in Kayonza district (4.7) is below the national average household size. Kayonza comes eleven from bottom by average size of household. In terms of the other districts of Eastern Province, Kayonza and Kirehe have lower household sizes. Kayonza has 43% of its population identified as poor (including extreme poor).

Agriculture is the main economic activity and source of income for about 80% of households. However, more than three-quarters of adults aged 16 years and above are underemployed, Kayonza is ranked sixth for underemployment in the nation.

Nearly seven out of ten cultivating households cultivate under 0.9 ha of land (which is the average size that the Food and Agriculture Organization estimates that a Rwandan household requires to conduct sustainable agriculture), including 22% with under 0.3 ha of land. 64% of all households in Kayonza district raise some type of livestock; this figure is above rural and country-wide average.

h) Rwamagana District

The population of the district is 318,000 and about 53% are aged 19 years or younger. People aged 65 years and above make up 4%. The majority of the population is young, with about 82% still under 40 years of age.

The average size of the household in Rwamagana district (4.7) is slightly below the national average household size. It comes 12th bottom by mean household size countrywide.

About 70% of the population in Rwamagana district is identified as non-poor, 18% as poor (excluding extreme-poor) and 12% as extreme-poor. Compared with other districts of Eastern Province, Rwamagana district comes first for proportion of non-poor. The household income is driven by agriculture (42%), followed by wage income (22%), business income (21%) and rents (10%). The smallest contributor to household income in Rwamagana district is public transfer income, with 0.2%. The mean size of land cultivated per household in Rwamagana district is 0.7 ha.

i) Ngoma District

The total population of Ngoma District counts 336,928 persons among which 48.0% are male and 52.0 % female (NISR, 2012). The project area partially covers Remera and Rurenge Sectors with a total population of 56,177 people including 52% of women. The majority of the population is young and able to work, with about 83% still under 40 years of age. People aged 65 years and above make up 4% of the population. The average household size is 4.8, similar to the national one. About 48% of the population are identified as extreme-poor.

The mean size of land cultivated per household is 0.83ha while households with under 0.3ha land are 23.9%. The Agriculture is the main source of income for 57% of households against 21% whose source of income is wage.

3.4.2 Energy and transport

In Rwanda, Woody fuels, biomass wastes, methane gas of Lake Kivu representing 57 billion m³ and solar energy are the sources of energy used in households, industries and handcrafts. The transport sector is generally dominated by road transport. In the sub sector of air transport, the country has two international airports (Kigali and Kamembe) and aerodromes (Huye, Rubavu and Musanze) used in internal transport. Lake transport is used mainly on Lake Kivu for connecting districts of the Western Province.

In the Project sites, woody fuels and biomass wastes are the main sources of energy in households. The road transport dominates the transport sector.

3.4.3 Industry and Mining

The industry sector of Rwanda is modest and recent. One of the major problems is related to the location of industrial units as some of them are installed near residence houses, others in valleys (wetlands). These installations are sometimes sources of pollution because of their wastes, liquid (waste waters) or gaseous (dust, smoke, smell), and noise. Tea factory in Nyabihu, patchouri processing unit in Kayonza 4 are the only processing units found in the project areas.

Mines and quarries are found on hills surrounding all project sites. Some are still operational while others are abandoned. The rehabilitation of abandoned mines and quarries has not yet been done but it is currently a preoccupation of the Government of Rwanda.

3.4.4 Agriculture

Agriculture is the main socio-economic activity in the project areas. It is an important sector of the Rwandan economy with a contribution of 32% to the GDP.

The agriculture production system is based on small family exploitations whose production is consumed by the owners. The systems of crops are complex, based on the diversification of productions and the association of crops.

The little use of chemical fertilizers and pesticides, the low level of equipment and the very limited use of research-based technologies result in small yields which are also very vulnerable to climatic changes.

The extensive agriculture practiced by the Rwandan population contributes to the degradation of environment. The agriculture intensification at the level of projects was often realized without taking into account the adverse environmental impacts from inputs like fertilizers, pesticides, herbicides etc.

3.5 Summary of key environmental and social issues in proposed project sites

The project sites are not yet confirmed but they will be selected from highland, middle land and lowland, the main topographic features across the country. The key issues in terms of environment and social concerns and which are significant to the design, planning and implementation of SAIP are summarized below:

- Soil erosion and soil fertility deterioration;
- Loss of cultivable land/ to canal construction and post-harvest facilities
- Reduced water flow for downstream users;
- Water wastage;
- Labor influx in search of employment
- Water quality deterioration due to soil erosion and use of agrochemicals;
- Occupational health and safety risks (ie spread of communicable diseases, Covid-19 inclusive; accidents, etc
- Emergence of pest and crop diseases;
- Loss of income due to missing one growing season by farmers due to land husbandry works
- Conflict on land ownership and water use, etc.

CHAPTER FOUR: PUBLIC CONSULTATION AND PARTICIPATION

4.1 Introduction

Project stakeholders' consultation is a vital component of the ESMF process. The consultation process focuses on providing information on the proposed project in a manner that can be understood and interpreted by the relevant audience, seeking comment on key issues and concerns, sourcing accurate information, identifying potential impacts and offering the opportunity for alternatives or objections to be raised by the potentially affected people, nongovernmental organizations, members of the public and other stakeholders.

The stakeholder's consultation meetings help in highlighting the socio-economic and environment concerns and impacts that could arise from the project and coming up with appropriate mitigation measures. Consultation has also been found to develop a sense of stakeholder ownership of the project and the realization that their concerns are taken seriously, and that the issues they raise, if relevant, will be addressed in the ESMF and will be considered during project design refinement.

During the preparation of SAIP parent project, the consultation meetings were arranged for 5 sites located in 4 Districts. The visited sites were randomly chosen on the basis of the landscapes where SAIP will be implemented, ie highland, middle land and lowland. Rwamagana 34 and Muyanza sites are located in low land and middle land regions respectively whereas Nyabihu and Karongi sites are all located in the high land regions.

Districts leaders/ staff, cooperative leaders and local farmers are among the stakeholders met during consultation meetings. These engaged among others affected people in the project sites, Cooperative leaders, and District authorities (Vice-Mayor or his representative in certain Districts, Agronomists, District Executive secretary, District Environmental officer, etc). The farmers' representatives were invited from the local farmers' organizations, private sector, civil society and other community opinion leaders. Consultations with Districts and farmers' representatives were organized in the represented Districts and conducted in Kinyarwanda.

During the AF preparation, consultations were held in Ngoma 22 site where representatives of scheme users (cooperatives and WUA leaders) and local authorities were separately met on April 6, 2021. Ngoma 22 site, one of the three SAIP additional located in Ngoma district, was selected because it has both irrigation and rainfed components and is far away from other project parent sites. The Director of Agriculture and Natural resources, District Environmental Officer, District cash crop officer and Agronomists of Remera and Rurenge Sectors are local authorities contacted. The representatives of site WUA, KOTUNGO and SUBIZA cooperatives, managing respectively irrigation infrastructures, developed command area and rainfed areas in Ngoma 22 site were consulted through face-to -face meeting. Technicians of WAMCAB and HORECO, respectively project and company assisting technically Ngoma 22 scheme users were also invited to the meeting.

4.2 Public consultation findings

4.2.1 Consultations with District authorities

Various meetings with districts authorities have been conducted in project sites by the SPIU staff. The latter met with the Vice Mayor in charge of economic affairs, the Director of Agriculture and Natural Resources and the Environmental Officer in Rulindo, Nyabihu, Karongi and Rwamagana Districts to explain the project and get their views on the project for its smooth implementation. These meetings were organized on March 2nd, 2018 in Karongi District, March 13th, 2018 in Nyabihu and Rulindo Districts and on March 15th, 2018 in Rwamagana District. The authorities met appreciated the RSSP3 and LWH contribution to the development of their respective Districts and welcomed SAIP. They thank the Government of Rwanda and the World Bank for this support and promised their support for the smooth running of SAIP.

The Ngoma district authorities contacted (Director of Agriculture and Natural Resources, Cash crop officer, District environmental officer and sectors agronomists) appreciated the project, thanked the GoR and World Bank for this support and committed their full support during the project implementation.

4.2.2 Consultation with cooperatives and WUA leaders

The farmers from each developed scheme were organized in cooperatives and water user's association (WUA). Before the meeting with the local communities, separate meetings with Cooperative leaders were also arranged by the SPIU team to explain the proposed project and get their views on the project. Cooperatives in Muyanza, Nyabihu, Karongi 12 &13 and Rwamagana 34 sites were separately involved in the consultation during the ESMF preparation for the parent project. The minutes of consultation meetings and lists of participants in Nyabihu, Muyanza, Karongi 12&13 and Rwamagana 34 are presented in Annexes 6, 7, 8 and 9 respectively.

The leaders of KOTUNGO and SUBIZA cooperatives and WUA in Ngoma 22 site as well as technicians of HORECO and WAMCAB were also consulted during the updating of ESMF for SAIP AF. The photo below illustrates Cooperatives and WUA leaders during the meeting.



Figure 2: Participants in the meeting with Cooperatives and WUA leaders in Ngoma 22 site

The meeting with the Cooperatives and WUA leaders, representatives of the local community, was organized to comply with local Covid-19 containment measures and ensure the project information reaches a good number of beneficiaries.

As per the Rwandan Cabinet resolutions of March 29, 2021, the physical gatherings are allowed but attendance should not exceed 30% of the venue capacity and Covid-19 testing is required for meetings of more than 20 people. The executive committees and Commissions' chairpersons in each cooperative and WUA operating in Ngoma 22 scheme as well as the technical team were invited and a total of 17 people, including 11 men and 6 women, attended the meeting. The list of Ngoma 22 participants is presented in Annex 10. The Ngoma 22 group consulted appreciated the project and perceive it as a possibility of increasing economic activity in the area through increased agricultural productivity and creation of jobs.

After getting explanations on raised issues, they all appreciated the project and requested for support in the following domains:

- ✓ Capacity development of the cooperatives' members in the production of high value crops like vegetables and fruits in Rwamagana 34 and Muyanza sites;
- ✓ Strengthening farmers' capacity in assessing of crop diseases and adequate application of fertilizer and pesticides
- ✓ Providing or availing good quality seeds of irish potato as well as potato postharvest infrastructures in Nyabihu and food crops in Ngoma 22 site;
- ✓ Technical support for the production of selected crops in each site through demonstration plots
- ✓ Conducting soil tests in the terraces of Karongi 12&13 sites, Nyanza 23, Nyabihu and Muyanza;
- ✓ Capacity building on nutrition and balanced diets;
- ✓ Capacity building of WUA & cooperatives on water use efficiency;
- ✓ Rehabilitation of access roads in Ngoma 22 to facilitate the transport of the produce to market.

4.2.3 Consultation with local communities

The local communities, beneficiaries of LWH and RSSP projects, were consulted and informed on the parent project in 2018. They were allowed to give their feedback and their suggestions were documented and will be considered during the project design and implementation. The meetings with the affected people were conducted in five sites out of 8 selected. These are Muyanza, Rwamagana 34, Nyabihu, Karongi 12 and Karongi sites. In total, about *Four hundred and seventy eight (478) people disaggregated by gender as 278 Men and 200 Women* in five sites were consulted between February and March 2018. In general, all the consulted categories are in favor of the project and perceive it as a possibility of increasing economic activity in the area through increased agricultural productivity and creation of jobs.

The overall benefits of the consultation meetings are:

- Clarity concerning roles and responsibilities for each stakeholder
- Early engagement of the community and the local administrative authorities
- Understanding of the different challenges encountered from similar projects and sustainable solutions
- Increased ownership from all the concerned parties

- Better strategies for effective communication among all the concerned parties

Below, are some photos from several consultation meetings



Figure 3: Consultation meetings in Muyanza, Nyabihu and Rwamagana 34 sites

The table below highlights the key outcome of the meetings

Table 3: Key outcomes of the consultation meetings

Outcomes of the consultation meetings in Muyanza site	
Issue raised	Response provided
Beneficiaries asked if SAIP will connect them to buyers for their produce.	<p>The project will connect the farmers to reliable market outlets targeting both domestic and regional markets especially for staples and horticulture.</p> <p>The project will also support farmers in accessing existing (and future) market information systems</p>

Beneficiaries asked if SAIP will facilitate them with post-harvest infrastructures for horticulture produce	Post-harvest handling needs have been identified; This includes drying shelters, drying grounds and collection points, nearer to the fields, for immediate post-harvest handling. For the horticulture sector, cold rooms will be constructed to increase shelf life and preserve quality and nutrient content, and reduce post-harvest losses.
Construction of additional terraces	There will not be any construction of terraces, however SAIP will facilitate farmers to add value to their produce grown on hillsides and connect farmers to markets for the selected value chains.
Beneficiaries requested that the project will facilitate them to find other sources of income ie Tailoring, Small processing industries etc	
Beneficiaries further requested that the project will offer capacity building in good agriculture practices.	
Beneficiaries requested that SAIP will help them to fight malnutrition by providing small livestock at the household level.	
Outcomes of the consultation meetings in Rwamagana 34 site	
The beneficiaries asked for the expected community benefits likely to occur from the project implementation.	<ul style="list-style-type: none"> - Employment opportunities during civil works where PAPs will be given priority - Overall increased agricultural productivity -Capacity building for farmers - Improved nutrition among the project beneficiaries at the household level -Gender equity and engagement of the youth and vulnerable
The beneficiaries further asked for clarity concerning the management of grievances and conflicts during expropriation and compensation procedures	<ul style="list-style-type: none"> -Grievance redress mechanism strategies will be put in place, including grievance redress committees that will be elected by the local communities. <p>These GRCs will be close to the PAPs and shall be trained on conflict redress mechanisms.</p>
The beneficiaries requested for support in capacity building of post-harvest handling processes and operation and maintenance of the project facilities.	

Increased access to market for their produce

Outcomes of the consultation meetings in Nyabihu site

After explaining to the participants about the scope and objectives of SAIP, the beneficiaries requested for the following:

1. To facilitate the farmers to acquire Irish potato seeds that are pest resistant
2. Access to reliable markets with fair prices
3. Support the farmers to establish an agricultural inputs (seeds and fertilizers) fund
4. Capacity building/Trainings in regard to cooperative management
5. Establishing a centre for nutrition
6. Hiring nutrition agents per village who will assess nutrition issues and train households
7. Facilitate farmers to become seed multipliers by establishing at least one green house in the sector where the project will be implemented.

Outcomes of the consultation meetings in Karongi 12 and 13 sites

The beneficiaries asked the relationship between LWH with SAIP

SAIP will build on the results of LWH and RSSP sites and will continue capacity building activities of the farmers' organizations (WUAs, SHGs, cooperatives) established under these projects, help them link better to the markets to create additional livelihood opportunities and expand activities to further scale up nutrition sensitive and climate resilient agriculture.

The cooperatives informed the meeting of the benefits obtained from LWH project that include among others: Soil conservation through terraces, Postharvest infrastructures, Good agricultural practices, cropping throughout all the agriculture seasons, use of organic and inorganic fertilizers and access to markets and finance.

The beneficiaries requested that SAIP will facilitate them in:

1. Increased access to financial institutions and facilitation to bank services like credit etc
2. To connect them to buyers both locally and internationally
3. To hire support staff for the cooperative
4. To expand the command area
5. Provision of more irrigation equipment since the ones they have are insufficient
6. Capacity building in improved nutrition
7. Carrying out regular soil tests to check the for the quantity needed for fertilizers
8. Provision of small livestock that will help them in compost making
9. Construction of temporary dryers per zone (The existing one is far)
10. Capacity building in operation and maintenance of the irrigation systems

Outcomes of the consultation meetings in Ngoma 22 site	
The beneficiaries asked what SAIP AF will do to improve water use efficiency and combat malnutrition?	Capacity building of WUA, availing and use other efficient irrigation technologies For malnutrition, capacity building programmes, support of poultry/ small animal rearing are among planned activities
Is the project going to strengthen the capacity of cooperatives and WUA in farmer's organization management, infrastructure maintenance and horticulture production?	Capacity building sessions will be arranged for farmers' organizations in cooperative & WUA management and crop production and post-harvest handling
Rehabilitation of access roads in Ngoma 22 site	This activity is not planned for but advocacy can be made.
Beneficiaries asked if SAIP will facilitate them with post-harvest infrastructures for horticulture produce	Post-harvest handling needs have been identified; This includes drying shelters, drying grounds and collection points, nearer to the fields, for immediate post-harvest handling. For the horticulture sector, cold rooms will be constructed to increase shelf life and preserve quality and nutrient content and reduce post-harvest losses.

CHAPTER FIVE: POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND GUIDELINES FOR MITIGATIONS

5.1 Introduction

This chapter identifies potential impact that could arise from the activities of the project either during the construction phase or the operational phase. The identified impacts apply to the socio-economic environment as well as the bio-physical environment. These impacts can be positive or negative and direct or indirect.

5.2 Positive Impacts

The SAIP AF implementation across the country will bring about many impacts. The identified positive impacts for different phases of the project cycle are discussed in the following sections. The key positive impacts from SAIP are discussed below:

5.2.1 Impact during Planning and Design phase

a) Employment opportunities

During the planning and design period, new jobs will be created for the skilled and unskilled labour in the community to conduct topographical investigations. The unskilled labour will be sourced from the local residents. Indirect employment will be in the form of suppliers and other forms of sub-contracted works that will be required for planning and design of project components. Women and youth will also have an opportunity to secure employment.

b) Skills transfer

The international consultant will associate with local partners. In the process of planning and design, the local technical manpower will work with the international experts. This process of working together will transfer design and planning tools, computer design software and other useful guideline which are used in similar topographical conditions in the world.

5.2.2 Impacts during construction phase

a) Rural employment and income generation

The post-harvest infrastructure constructions are labour intensive activities and for that reason, the labour needed in the project area will create much needed employment opportunity to the local community. The developer will commit to a policy that gives priority to the locals in the neighborhood at the time of employing casual or skilled labour.

It is also anticipated that indirect employment opportunities will be created within local communities through the provision of services to the construction teams, such as the sale of food and beverages. Truck and machine owners will earn money from renting out their vehicles for excavation and transportation of construction material and machines that will do various construction activities (excavations, clearing, and loading, among others). The irrigation equipment and agricultural inputs will be bought and supplied to the project sites.

b) Capacity building of farmers

During the supply of irrigation equipment, farmers will be sensitized and trained on irrigation practices/ technologies and operation and maintenance of equipment, appropriate application of fertilizer, IPM, etc., thus imparting skills to them for improved production as well as to access markets, which they will utilize even after the project's exit.

c) Increased public revenues

Revenues shall be collected by both the national and local authorities from the procurement of construction materials and irrigation equipment, employees' salaries, VAT on materials and services, among others.

d) Health insurance and education

From their pay, Employees (Local people) shall afford medical insurance (Mutuelle de santé) and even pay school fees for their children and improvement of food security.

5.2.3 Impacts during operation phase

a) Increased irrigated areas and improved soil conservation

The developed schemes for irrigation and selected under SAIP AF cover a total irrigable area of 1,200 ha. The implementation of SAIP targets an additional area of 1,700 ha for water use efficiency, making the total irrigated area to 2,900 ha.

The developed land husbandry technologies in the command area and command area catchment contribute to soil conservation as a result of reduced erosion, proper management of runoff and soil fertility amelioration. As a result from livestock diversification, there will be an increase in the volumes of manure used to replenish soil fertility. Continued use of this manure will improve the soil quality and sustainably enhance soil fertility thus improving the yields. This will also improve on rural livelihoods. increased and diversified crop productivity

b) Increased crop production

The project promotes increased agricultural productivity, diversification of agricultural crops and commercialization of agriculture from subsistence. Due to use of increased and improved agricultural inputs, an increased and diversified crop production is anticipated. The improvement in crop productivity will raise the income for the rural poor above the poverty line of less than a dollar a day. This would additionally be due to better and reliable market access of high-value crop produce that would fetch a good selling price as well as increased volumes of marketable output of different crops. As a result of increased incomes, farmers will be able to access inputs which they will use to expand existing enterprises. The proceeds could also enable them to purchase more pieces of land elsewhere where they could grow food crops that do not require irrigation, in order to utilize the irrigable land for commercial farming only. It could also help them to meet other household's needs.

c) Rural employment and income generation

The intensive crop production, especially horticultural production will create much needed employment opportunity to the local community and farm income. The investor/ farmer must commit to a policy that gives priority to the locals in the neighborhood at the time of employing casual or skilled labour. It is also expected that indirect employment opportunities will be created within local communities through the sale

of produce, irrigation equipment and agricultural input. Trucks' owners will earn money from renting out their vehicles for transportation of the produce.

d) Capacity building of beneficiaries in proper application of chemicals (fertilizers, pesticides) and farming practices

During SAIP AF implementation, beneficiaries will be capacitated on different topics like application of fertilizers and pesticides, IPM, postharvest handling, irrigation technologies, operation and maintenance of irrigation equipment, etc. The Project will build on and further strengthen the existing farmer organizations (self-help groups, cooperatives, water user association and farmer unions; youth and women groups) created under SPIU RSSP/LWH to help them transform into dynamic, successful and sustainable enterprises, which are not depending on public investments.

The capacity building will be done through training, workshops, study tours, demo plots, etc. and will impart skills and knowledge to beneficiaries required for sustainable crop productivity.

e) Improved flood control

The irrigation channels cut off drains and waterways constructed control floods downstream by channeling and evacuating excess water during heavy rains. Flood control effect of the project will free more land for farming as well as prevent destruction of food crops for those farmers exploiting floodplains during dry season and command area in the wet season. Flood control will also help achieve food security, mainly for rain dependent crops and minimize the flood related impacts downstream, mostly crop and property destruction.

f) Appreciation of the value of land in the region

Due to land development with land husbandry practices and irrigation technologies, the nominal land price may increase, thus making the high value irrigable land useful for cultivation and marketable which was otherwise less favoured due to flooding and as a result of the improved potential of its productivity, then it would appreciate in value.

g) Improved Nutrition

The increased and diversified crop productivity is anticipated under SAIP. This implies that if the production is improved, there will be more food thus resulting in a decrease in prices hence making it affordable to all the members within the community to have access to food. In addition, the project plans to organize trainings of farmers on food nutritional aspects, healthy cooking menu /demo meals, promote nutrient-rich crops and animal proteins sources; kitchen garden demos with provision of bio-fortified seeds and promotion and distribution of poultry and small livestock, etc. This will lead to improved nutrition of project beneficiaries.

h) Reduced post-harvest losses and improved market access

The existing post-harvest infrastructures (PHIs) in project sites will be maintained while new others will be constructed. The project will construct drying and collection facilities near farmer fields for immediate post-harvest handling. The project will also co-invest in simple, primary processing equipment and business training of cooperatives and/or individual entrepreneurs managing the business. The various types of PHIs will be used for produce protection, conservation, processing, packaging, distribution, marketing and

utilization. This will improve the production by preventing or reducing post-harvest losses and adding value to agricultural products.

As the production increases, the farmers will rely on access to markets for their agricultural products. The poor farmers' organization and weak transport infrastructure may impact market access. The developed PHIs in an area with improved access roads is expected to reduce post-harvest losses, improve quality, increase quantities, ensure value addition and allow farmers to find reliable market outlets, leading to significant increases in income.

i) Efficient use of available water resources

The project will invest in provision of equipment for water harvesting and water distribution for irrigation purpose. This will minimize water losses and increase water availability to more areas and crops. It will also protect the hydrological systems from sedimentation, flooding and contamination. This will curb the rate of irrigation in the area and the country.

j) Market creation

The project will create market for farm inputs including seeds, fertilizers, compost and pesticides. It will also create opportunities for irrigation equipment.

5.3 Negative Impacts

The critical project activities that could potentially lead to adverse impacts mentioned below include;

1. Introduction or application of synthetic fertilizers and pesticides to boost overall productivity in treated areas;
2. Deterioration of soil and water quality due to inadequate chemicals use
3. Impact on biodiversity (insects, birds, etc).

5.3.1 Potential adverse impacts

a) Design and Planning and construction Phase

The design and planning phase of this project involves identification of sites and suitable areas for small scale irrigation and post-harvest infrastructure. There are no adverse impacts expected during this stage. The impacts expected during construction phase include:

(i) *Soil erosion and land degradation*

During the construction of post-harvest infrastructures and installation of SSIT kits (especially damsheets, energy source constructions, pipes) and other irrigation infrastructures, excavated soil will be exposed to agents of erosion, mostly water. Excavation of earth from borrow areas and stones from quarry areas may lead to loss of topsoil and soil erosion problem during rains; affecting otherwise productive farm land and degrading the aesthetic views of the landscape. Furthermore, the open pits may create additional habitats for water borne disease vectors and possible safety issues for people and livestock (drowning in deep/stEEP pits).

Most of the above impacts are of short duration, will occur during the construction, localized in the areas where excavation will take place and could be managed by the management plans. The proper management of borrow and quarry areas will be implemented during construction phase. This impact is a temporary and reversible change in land use pattern.

Soil erosion and land degradation occurring during the construction phase of the project can be avoided through:

1. Only clear areas earmarked for construction
2. Dispose of the excavated soils immediately after excavation completion;
3. Construct retention ditches below the construction area to control erosion risks
4. Reclamation of pits done in a way to leave the site in a safe, stable, and non-polluting condition with no remaining soils or stones unnecessary for post-operational use and prevent the establishment of stagnant water and erosion as well as support vegetation growth over long-term.

(ii) Increased Occupational health and safety risks

During the construction, workers will be subjected to situations that could be detrimental to their health and safety. Different types of accidents at the site like injuries caused by handling of construction equipment or from stepping on or using sharp objects or fire outbreak are anticipated.

Communicable disease hazards, mostly Covid-19, are likely to be disseminated due to manpower increase and interactions among the workers, local community or with service providers such as food vendors, especially during peak demand for manpower. Not forgetting transmission of HIV/AIDS, malaria, diarrhea, etc from workers that have migrated to the project site in search of employment plus locals willing to spend more due to increased income from construction wages.

The production of wastes during construction, including debris and packages and insufficient hygienic measures (like lack of sanitation facilities) can also pose health risks, mainly hygiene related diseases, to workers and local communities.

(iii) Air and noise pollution

There will be movement of construction equipment and humans at various project sites. The emissions of dust clearing during dry periods and excavation works and might cause respiratory dysfunctions and noise as well as other health risks. However, this impact will be of low significance as excavation works are likely to be light and the number of manpower limited.

(iv) Loss of properties

Due to clearing and excavations for various constructions (ie post-harvest facilities, SSIT, etc), there will be temporary or permanent land taking in post-harvest infrastructures (PHI) construction sites, irrigation infrastructures (especially damsheets, energy source and water pumping stations) leading to loss of land and assets on that land (crops, trees, etc). The small pieces of land that might be required for construction of small post-harvest storage and irrigation facilities is expected to be acquired through willing seller and willing buyer approach or it is owned by the project beneficiaries. However, where necessary ARAP could be prepared following the project approved RPF.

(v) Loss of biodiversity

The clearing of land for PHI construction and installation of irrigation infrastructures is expected to cause loss of biodiversity and, to some extent, ecological imbalances. It is anticipated that planned activities for SAIP AF sites will induce changes in the existing biodiversity (ie from common crops to high value crops;

pastures to cropland; tree component change; with more agroforestry fruit trees come fruit birds; with carrot and lettuce come rats and other rodents; with various vegetables come various birds types, etc.

b) Operation Phase

(i) Water and soil quality degradation

During SAIP AF implementation, the support to agricultural inputs including improved/bio-fortified seeds, fertilizers, pesticides, etc will be provided. The supplied fertilizer and pesticide will be applied in the fields and will pollute water resources in the streams and have cumulative effects in the basin and groundwater if applied in large amounts and at inappropriate time. Pesticides applied will bio-accumulate in the soaked soils of the command area, upset the natural ecological balance and biodiversity of the wetlands downstream.

The infiltration of irrigation water in excess of available root zone storage will penetrate beyond the reach of roots and eventually recharge groundwater. Nitrates, salts, and other chemicals used in crop cultivation that dissolves in the soil water will move with the water. Crops with high water and N requirements (like vegetables) will increase the potential risk of nitrate pollution to groundwater. Because they do not evaporate, nitrates/nitrites are likely to remain in water until consumed by plants or other organisms. The pesticide infiltrating in the soil can contaminate the soil by accentuating soil acidity or salinity depending on the type of pesticide used.

The impact can be high in terms of magnitude and depending on the quantities of agrochemicals used. The scope of the impact will be felt throughout the drainage system and beyond hence cumulative and will be long term for as long as the chemical runoff continue ending up in the drainage network causing nutrient load effect. However, taking into consideration the national consumption of fertilizers per hectare (less than 34 kg/ha/year) (MINAGRI, 2019) and pesticides (0.1 kg/ha/year), the impact of fertilizer and pesticide is not going to be severe.

The SAIP parent project has prepared an Integrated Pest Management Plan (IPMP) for the entire project which will provide guidance on the judicious use of pesticides in the cultivation and production of crops. This IPMP will remain valid for the SAIP AF. The updated ESMF and site ESIA/ESMP will also provide guidance on the proper management of fertilizers. Farmers will also be trained in good techniques of agrochemical applications (handling, transport and application of agro-chemicals under field conditions and waste management).

The training should be incorporated in a farmer's field school curriculum. Extension workers and agro-dealers should also be able to deliver awareness program on the amounts and conditions for applying fertilizers and pesticides to prevent water and soil pollution. Preventive measures will also include practicing IPM and use of organic manure and reduced use of agrochemicals.

(ii) Reduced water availability for downstream use

The small-scale irrigation involves blocking and deviation of the flow of water in the canal/ pipes to the identified area for irrigation. Due to this, the downstream water users might experience temporary shortfall in the amount of water available, therefore disrupting activities and sources of livelihood that depend on

the water. The small-scale irrigation activities using water from lakes or underground water are also expected to reduce water levels in those water bodies.

This is a short-term impact that only happens when the water will be diverted to small scale irrigation. The impact will be minimum in terms of magnitude, severity and scale. This is because the required amount for SSIT is too little.

Regulating water abstraction for irrigation and other uses and adopting irrigation water distribution saving approach, especially during dry period to enable schemes users downstream to continue to receive water all time and in adequate quantity is advisable.

(iii) Air pollution due to inappropriate pesticides application

During pesticides application, some residues are released into the air and can settle to the ground, be broken down by sun light and water in the atmosphere or dissipate into the surrounding air. The pesticides in the air become a health risk depending on toxicity level and quantity of the pesticides in the air as well as the quantity that a person breathes or gets exposed to.

In a bid to mitigate the negative impacts of pesticides, the following is proposed:

- ✓ Use IPM practices to control pests
- ✓ Monitor the weather when applying pesticides and avoid very hot or windy days
- ✓ Follow label directions when using pesticides
- ✓ Consider staying inside with doors and windows closed when pesticides are being applied near houses/ settlements;
- ✓ Wear adequate personal protective equipment when applying pesticides or nearby application zones of pesticides.

(iv) Loss of biodiversity due to pesticides use

There exists different species of birds, beneficial insects like bees in the project areas. In all instances where high input-dependent crop/pest practices are adopted, pesticide misuse is known to be common and can result in the following impacts:

- ▣ Destruction of crop pollinators leading to poor crop yields;
- ▣ Elimination of the natural enemies of crop pests and consequent loss of natural pest control that keeps the populations of crop pests very low;
- ▣ Development of pest resistance to pesticides, encouraging further increases in the use of chemical pesticides;
- ▣ Contamination of the soil and water bodies;
- ▣ Toxicity to fish and birds;
- ▣ Proliferation of aquatic weeds;
- ▣ Pesticide poisoning of farmers and deleterious effects on human health;
- ▣ Unacceptable levels of pesticide residues in harvested produce and in the food chain; and
- ▣ Loss of biodiversity in the environment, particularly of the aquatic non-target species.

The proposed mitigation measures include:

- ⊕ Avoidance of introduction of invasive/Exotic species and degradation of habitat: Care should be taken not to introduce invasive species during re-vegetation of the area. The water hyacinth *Eichornia crassipes*, responsible for much disruption of aquatic systems, must not be introduced in wetlands ecosystem;
- ⊕ Use IPM practices to control pests;
- ⊕ Adequately select and apply pesticides and monitor the weather when applying pesticides and avoid very hot or windy days.

(v) Increased pest and dissemination of crop diseases

The increased acreage of irrigated land will create a more humid environment that may result in an increase of agricultural pests and plant diseases. Change to a more uniform environment on the subproject areas will favour vigorous species adapted to a wide variety of conditions. Diseases and weeds will spread quickly via the re-use of waste-water and drainage water.

Increase pests and plant diseases will affect farm harvest and lead to food insecurity and malnutrition in areas of Southern part of the country. Increased pests and crop diseases will trigger increased use of pesticides leading to water contamination.

To mitigate against emergence of pests and diseases, an incorporation of IPM approaches are proposed. These measures should involve rotational cropping practices which preserve greater diversity in habitat thus reducing impact of pest and diseases. Crop varieties used in this project should carefully be selected and tested in order to avoid new diseases and pests.

(vi) Increased risks of occupational health and safety

(a) Increased Spread of Water Borne Diseases

There exist some households fearing that there would be an increase in the incidences of malaria and other water borne diseases because the water infrastructures like dam, night storages, dam sheets, and irrigation canals would serve as a breeding ground for mosquitoes.

Schemes users or workers are likely to use irrigation water for domestic purpose (drinking, washing). Depending upon the quality of irrigation water and sanitary conditions in the command area, the spread of other water borne diseases such as dysentery, diarrhoea, stomach-related disorders specifically infestation by worms, is also anticipated.

The impact of disease spread will be long term for as long as the reservoir, irrigation and drainage canals are habitats for disease vectors and the scale and severity is moderately high and can be severe especially for children under 5 years and pregnant mothers who are vulnerable to malaria.

The SAIP AF should develop a program in collaboration with the District/ Ministry of Health (MINISANTE) and the local communities which undertakes bi-annual survey of health records in Health Care Facilities (HCFs) to ascertain the spread of malaria and other water borne diseases.

This data should then be used to develop a disease prevention programme within the project area and its surroundings that could include use of Insecticide Treated Nets for malaria control, Indoor Residual Spraying, awareness campaign for water borne diseases prevention among others for residents within or in the vicinity of the project area.

(b) Covid-19 and other communicable diseases

During the operation phase, labour force will be employed across project sites for the day-to-day running of activities. A part of that labour force may come from outside the site and interactions between workers or workers and local community are anticipated to lead to community spread of Covid-19 if measures to defeat the pandemic are not considered.

Other communicable diseases not mentioned under (a) and (b) like AIDS/HIV and sexually transmitted diseases, hepatitis, etc are likely to be disseminated due to interactions among the workers or with service providers from outside the site.

This impact is also of medium significance in terms of magnitude, since it directly affects the humans. Contraction of diseases are common in public places but can be controlled through preventive measures.

To avoid or reduce the effects of some of these occupational health hazards, it is proposed that the following measures are implemented:

- Compliance with Covid-19 control measures by all workers on the site including masks, sanitation facilities (water and soap, hand sanitizer, etc), respect of social distancing, etc;
- Regular sensitization on ways of COVID-19 and other communicable diseases prevention, importance of proper hygiene is important during the operation of this project.
- The contractor together with local authorities is required to enforce acquiring medical insurance “mituelle de sante” for all workers as a means of affordability of treatment

(c) Spread of pesticides' use related diseases

In addition to environmental risks, there is overwhelming evidence that some of the pesticides are potentially hazardous to human health. Deaths and chronic diseases (like throat irritation, sneezing, coughing, cancer, etc), reproductive toxicity, etc. due to pesticide poisoning are reported in various sources.

In order to avoid the health impacts of pesticides use, the following is proposed:

- ✓ Give preference to the application method with the lowest EHS risk and ensure non target organisms are not affected;
- ✓ Ensure that all equipment is in good condition and properly calibrated to apply the correct dosage.
- ✓ Carry out surveys to assess impacts of pesticides' use related diseases within project areas.

(d) Safety hazards

Different types of accidents at the site are likely to increase due to rise in manpower and traffic. Injuries or fatalities caused by equipment operation and maintenance, use of sharp objects, drowning risks, fires, traffic or other machinery are expected to occur. Besides safety issues (including fatalities and injuries), some undesired effects like crime (theft) are likely to increase as a result of social interaction. Increase of gender based violence (GBV) cases, prostitutions or other sexual offences and use of child labour are also predicted

due to increased employment opportunities. However, the impact will be of short duration and reversible, but can be of a high significance in terms of magnitude since it directly affects the humans and can be controlled through preventive measures, including:

- Undertaking education and awareness of the local communities on avoiding safety risks at the reservoirs, river weirs, pumps and pumping stations, canals and PHIs, access roads, etc.
- Provision of community water points for domestic uses as a strategy and a way for reducing increased access to the reservoirs and to get water which causes incidents and posting of safety signposts at the reservoirs, along access roads, PHIs for compliance purpose;
- Regular maintenance of the established live buffer zones in the surrounding of the reservoirs and along irrigation canals, barbed wire fences of night storages and damsheets, pumps and pumping stations, warning signposts erected at the site, etc.
- Provision and use of appropriate protective equipment to sites workers such as wellington boots, helmets, masks, etc.
- Undertaking safety assessment at the site and maintaining records of all incidents and accidents arising from irrigation facilities, PHIs and access roads and providing correction measures where needed;
- Enforcing acquiring medical insurance “mituelle de sante” for all workers as a means of affordability of treatment by the contractor, SAIP AF together with local authorities;
- Conducting an assessment on GBV, sexual harassment and child labour risks;
- Awareness meetings on GBV, child labour and sexual harassment/ prostitutions preventions and gender equity;
- Establishing grievance redress mechanisms to handle site complaints, including social conflicts, etc.

5.3.2 Localized Impacts

Most of the developments or subprojects planned under the SAIP AF will vary from small to medium in scale. Consequently, the significance of the direct negative environmental and social impacts is likely to be low to moderate except where they accumulate in single watersheds.

5.3.3 Cumulative Impacts

Many of the SAIP AF subprojects may result in cumulative impacts on natural resources. Cumulative impacts are those that may result from individually small-scale activities with minimal impacts but which over time can combine to have a significant impact. They can also be defined as impacts that potentially develop from the combined impacts of more than one subproject. The increased use of agrochemicals, population influx in search of employment to communities with improved production systems and social infrastructure are some of the activities with cumulative impacts. The stakeholders will be provided with an opportunity to learn how to avoid or mitigate localized and cumulative impacts from initial subprojects so that measures can be integrated in subsequent activities.

5.3.4 Ecological Impacts and Land Degradation

A number of the proposed activities in the subprojects can lead to both localized and cumulative impacts on biodiversity, wetlands, soils and water quality.

Land degradation may arise due to subprojects that involve intensification of agriculture. The environmental and social screening tools identified in this ESMF will be used to identify and mitigate the potential impacts as they relate to certain types of community investments.

Considerable attention must, therefore, be paid to the environmental consequences of current pest management practices in Rwanda.

Table 4: General Environmental management for SAIP AF

Project Component	Specific activities	Receptor	Negative impact	Mitigation measure
Construction Phase				
Market and processing infrastructure	Construction of post-harvest, marketing and processing infrastructures	Human	<ul style="list-style-type: none"> The construction activities are expected to acquire private land hence resulting in displacement Destruction of property (crops and structures) Noise and dust pollution from movements of heavy vehicles and from employed labor Increased occupational health and safety risks (communicable diseases, Covid-19 inclusive, accidents) 	<ul style="list-style-type: none"> Prepare a RAP according to the RPF to fully compensate and resettle the displaced persons and lost/damaged property; Or apply willing seller – willing buyer approach to deal with land acquisition issues Use noise and dust mitigation measure to minimize impacts eg PPEs, watering of construction sites to reduce dust; Maintaining construction activities to acceptable hours Ensuring use of protective equipment for manpower Complying with Covid-19 control measures by all workers on the site including masks, sanitation facilities (water and soap, hand sanitizer, etc), respect

Project Component	Specific activities	Receptor	Negative impact	Mitigation measure
				<ul style="list-style-type: none"> of social distancing etc; - Regular sensitization on ways of COVID-19 and other communicable diseases prevention. Covid-19 testing where needed. - Contractor and local authorities to enforce acquiring medical insurance “mituelle de sante” for all workers as a means of affordability of treatment,
	Air		Air pollution from exhaust fumes and dust emission from activities of construction and movement of equipment	<ul style="list-style-type: none"> • Use dust mitigation measure to minimize impacts eg PPEs, watering of construction sites to reduce dust
	Soil		<ul style="list-style-type: none"> • Soil erosion from exposed land surfaces caused by vegetation clearing • Cutting of slopes which leads to land sliding • Increased waste and storm water to low lying areas causing floods of water 	<ul style="list-style-type: none"> • Minimize as much as possible, clearing of vegetation • Undertake soil control measures ie planting of grasses to stabilize embankments • Management of both the source and destination of wastewater and storm water.
	Water		Water pollution from sediment runoff from exposed areas mainly from vegetation clearing	<ul style="list-style-type: none"> • Prevent adding solid wastes in runoffs • Suitable storm water treatment systems

Project Component	Specific activities	Receptor	Negative impact	Mitigation measure
			Increase of stagnant water and water borne diseases	should be availed at sites <ul style="list-style-type: none"> Empty/drain all areas that may hold standing water
		Biodiversity	Loss of biodiversity due to land clearing for the construction of PHIs and irrigation facilities)	Where possible, native grasses and shrubs types will be replanted after construction activities
Operation phase				
Irrigation and water use efficiency	Small scale irrigation	Human health	Water logging increases the spread of waterborne diseases	Awareness and sensitization on waterborne diseases and spraying of nearby homes with insecticides. Provide communities with good sanitation and alternatives to the irrigation canals for domestic supply (e.g., boreholes). Involving the health centers in the vicinity of areas to be irrigated at the planning stage
		Soil	Soil salinity causes vulnerability of soils to erosion and nutrient loss	Practicing IPM and use of organic manure and reduced use of agrochemicals Conduct regular soil tests to regulate salinity
		Water	Irrigation increases the risk of contamination of ground and surface water.	Practicing IPM and use of organic manure and reduced use of agrochemicals
			Reduced water availability for downstream use	Regulating water abstraction for irrigation and other uses and adopting irrigation water distribution saving approach, especially during dry periods
Agriculture productivity	Enhancement of agriculture productivity	Increased occupational health and safety risks	Exposure to pesticides and other agrochemicals causing health problems, communicable diseases, Covid-19 inclusive	✓ Give preference to the application methods with the lowest EHS risk and ensure no

Project Component	Specific activities	Receptor	Negative impact	Mitigation measure
				<p>target organisms are not affected;</p> <p>✓ Ensure that all equipment is in good condition and properly calibrated to apply the correct dosage.</p> <p>✓ Carry out surveys to assess impacts of pesticides' use related diseases within project areas.</p>
			Increased Spread of Water Borne Diseases	Undertakes bi-annual survey of health records in Health Care Facilities (HCFs) to ascertain the spread of malaria and other water borne diseases and to develop a disease prevention programme within the project area and its surroundings
			Covid-19 and other communicable diseases	<ul style="list-style-type: none"> - Compliance with Covid-19 control measures by all workers on the site including masks, sanitation facilities, respect of social distancing, etc; - Regular sensitization on ways of COVID-19 and other communicable diseases prevention, importance of proper hygiene - The contractor together with local authorities to enforce acquiring medical insurance "mituelle de sante" for all workers as a means of affordability of treatment
			Accidents at the site like injuries	<ul style="list-style-type: none"> - Undertaking education and awareness of the local communities on

Project Component	Specific activities	Receptor	Negative impact	Mitigation measure
				<p>avoiding safety risks at the reservoirs, river weirs, pumps and pumping stations, canals and PHIs, access roads, etc.</p> <ul style="list-style-type: none"> - Provision of community water points for domestic uses and posting of safety signposts at the reservoirs, along access roads, PHIs for compliance purpose; - Regular maintenance of the established live buffer zones in the surroundings of irrigation facilities, warning signposts erected at the site, etc. - Provision and use of appropriate protective equipment to site workers - Undertaking safety assessment at the site - Enforcing acquiring medical insurance “mituelle de sante” for all workers - Awareness meetings on GBV, child labour and sexual harassment, prostitutions preventions and gender equity; - Establishing grievance redress mechanisms to handle site complaints,
			Soil	<i>Increased pest and dissemination of crop diseases</i>
			Water	Pesticides contaminated water

Project Component	Specific activities	Receptor	Negative impact	Mitigation measure
				zone before contaminated water joins rivers and streams
		Biodiversity	<p>Population decline and mortality in reptiles caused by agrochemicals</p> <p>Pesticides can eliminate some animals' essential food sources, causing the animals to relocate, change their diet or starve.</p>	<ul style="list-style-type: none"> ⊕ Avoidance of introduction of invasive/Exotic species and degradation of habitat : Care should be taken not to introduce invasive species during re-vegetation of the area. The water hyacinth <i>Eichornia crassipes</i>, responsible for much disruption of aquatic systems, must not be introduced in wetlands ecosystem; ⊕ Use IPM practices to control pests; ⊕ Adequately select and apply pesticides and monitor the weather when applying pesticides and avoid very hot or windy days

CHAPTER SIX: ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCESS

6.1 Introduction

This section describes the process for ensuring that environmental and social concerns are adequately addressed through mitigation measures, institutional arrangements and procedures used by the Project for managing the identification, preparation, approval and implementation of subprojects. It sets out the reporting systems and responsibilities of the institutions in implementing the updated ESMF including the details to be addressed by the ESMF and the specific steps to be undertaken to ensure adherence to the ESMF.

Based on the project implementation approach adopted by the project, the project and subproject preparation and reporting will be through the RAB/SPIU World Bank Funded Projects as the focal point for environmental compliance.

6.2 Environment and social screening process

The SAIP AF activities associated with environmental and social concerns comprise of small scale irrigation and water use efficiency, agricultural productivity enhancement and market and processing infrastructures. Both the SAIP parent project and additional Financing are assigned Category B.

As the project progresses, RAB/SPIU must conduct the screening at the project identification/planning phase to determine whether the project is environmentally feasible or not and if yes, which environmental analysis is required and safeguards instruments to be prepared for compliance with environmental and social safeguards requirements of both the borrower and World Bank. The screening checklist is presented in Annex 1.

The purpose of the screening is to (i) identify environmental and social risks associated with the proposed development as well as measures to mitigate adverse impacts, if any, (ii) assess the quality of the project design, (iii) facilitate informed decision making by providing clear and well-structured analysis of the effects and consequences of the proposed actions and (iv) to determine whether a full ESIA or partial ESIA (or ESMP) are needed or not.

The classification of each subproject under the appropriate environmental category will be based on the provisions of the World Bank operational policy on Environment assessment (OP 4.01). The environmental and social screening of each proposed subproject will result in its classification in one of the three categories A, B or C depending on the type, location, sensitivity, and scale of the sub project and the nature and the magnitude of its potential environmental and social impact.

The screening and review process for subproject identification will help determine which World Bank safeguard policies are triggered for each subproject, what similar RDB requirements may have, and what measures will need to be taken to address the potential adverse impacts. The matching grants activities falling under Subcomponent 1.2, Subcomponent 2.1 and Subcomponent 3.2 will need to be screened for potential environmental and social impacts.

Before the screening process is started, the review of plans, designs and technical and financial prefeasibility or feasibility reports are to be undertaken for every subproject submitted for funding to mainstream environmental and social concerns in the whole subproject review process.

Where there is no feasibility study that has started or planned for, discussions on activities proposed for each site may take place and environmental and social concerns considered.

Based on the screening findings and depending on the extent/ magnitude of the impacts, a full Environmental and Social Impact Assessments (ESIA) or a partial ESIA (simply an Environmental and Social Management Plans (ESMPs)) would be prepared for each subproject or a number of subprojects within an administrative location like Sector, District or Province. However, where necessary, as there exist full ESIA for schemes developed by LWH/RSSP projects except Nyabihu which does not have irrigation component and for which the ESIA/ESMP was not required for its development, the existing ESIA will be updated and an ESMP for Nyabihu will be prepared if the proposed subproject is to be executed within those developed schemes. This updated ESMF provides substantial guidance on how each subproject should be planned, designed and implemented to avoid or minimize adverse environmental impacts.

Before the preparation of a new ESIA or ESMP or updating existing ESIA or ESMP is conducted, the following are to be done:

6.2.1 Screening of subprojects submitted for funding

All subprojects considered for funding will be subjected to a screening which should be carried by the Environmental and Social Safeguards Team of the SAIP AF. The irrigation, post-harvest and agrochemicals related subprojects will be screened for their environmental and social risks before their approval for funding. The screening report, prepared on the basis of baseline data and subproject proposal, shall be shared with the Bank for information and consideration. The final screening results will basically inform the Bank on the potential environmental impacts likely to be caused by the proposed subprojects, an EA category assigned to each subproject based on the World Bank and GoR's safeguards requirements and safeguards instruments to prepare as agreed on by both parties.

6.2.2 Subproject registration process

Before the beginning of subproject EA study and based on the results of the screening, the Consultant hired by SAIP AF, will proceed with the registration of subprojects only requiring a full ESIA or partial ESIA (or ESMP) to RDB as there is no further EA action required for projects with minimal or no adverse environmental and social impacts.

The first step for subproject registration is the preparation and submission of a proposed subproject in the form of the project brief to the competent organ, Rwanda Development Board (RDB) by the Consultant on behalf of the SAIP AF/ RAB. The RDB will notice the project brief as the SAIP AF's formal application for an EA and records it.

The project brief provides information on the intended subproject as well as the basis for the screening and on which RDB approves the EA Terms of Reference (ToRs) submitted together with the project brief by the Consultant. It contains the following information:

- a) Name, title and address of the SAIP AF (or SPIU World Bank and KOICA Funded Project);
- b) Name, purpose, objectives and nature of the subproject, including attributes such as size of subproject, design, activities that shall be undertaken during and after the establishment of the project, products and inputs, sources of inputs, etc.

- c) Description of the proposed project sites and its surroundings and alternative sites, if any, where the project is to be located.
- d) Description of how the proposed subproject and its location conform to existing laws, regulations and policies governing such project and the use of the site/area proposed for its location.
- e) Any likely environmental impacts that may arise due to implementing various phases/stages of the project and proposed mitigation measures thereto.
- f) Description of any other alternatives, which are being considered (e.g. siting, technology, construction and operation procedures, sources of raw materials, handling of wastes etc., decommissioning/closure and site restoration).
- g) Any other information that may be useful in determining the level of EA required.
- h) Stakeholders in the project implementation

The project brief will be submitted together with the proposed terms of reference (ToRs) for review and approval. As per the current procedures, the submission is made online by the Consultant on behalf of SAIP. RDB will take some time (maximum of 15 days) to review the project brief, organize a site visit in collaboration with SAIP AF and review and approve the submitted ToRs. The ToRs will also be shared with the donor for review and clearance before the study process commences.

6.2.3 ESIA / ESMP preparation requirements

The SAIP parent project and additional funding involve among other activities small scale irrigation, application of agrochemicals and construction of post-harvest infrastructures. Significant adverse impacts that may arise include erosion, occupation health and safety, soil and water quality degradation, loss of biodiversity, loss of properties, reduction in water level or water flow for downstream uses and emergence of pest and crop diseases. Some sites development will require conducting an ESIA or ESMP (or partial ESIA) before the start of civil works. The existing ESIA/ESMP will be updated on subproject (or site) basis to cover environmental and social impacts of proposed subprojects.

The new ESIA study shall be conducted by a Consultant (a firm) hired by the lead entity, SAIP. The consultancy firm should be selected from environmental experts and firms registered with Rwanda Association of Professional Environment Practitioners (RAPEP). The selected experts or firms should have no direct or indirect interests in the subproject. The type of expertise needed in the ESIA/ESMP will vary with the location and magnitude of the project but should in any case include:

- ⊕ *Environmental Specialist*, with extensive experience in agricultural development activities;
- ⊕ *Soil Scientist*, with vast experience in soil and land management
- ⊕ *Ecologist or Natural Resource Management Specialist* with vast experience in ecosystems management (aquatic ecosystems, land ecosystem, protected areas, etc)
- ⊕ *Hydrologist or Water resource management Specialist* with experience in water consumption, runoff and water bodies;
- ⊕ *Social Specialist* in rural economy/development.

On the other side, the updating of the existing documents may be performed by the Project itself or hired consultant. The following are steps for the preparation of ESIA or ESMP, and updating existing instruments inclusive:

❖ Scoping

The next stage, after screening and determining that a proposed subproject activity should be subject to the ESIA or ESMP process, is to decide on the scope and content of the environmental impact statement (EIS). The land legislations, law on Environment and associated regulations determine a core of key topics that must be covered as the minimum information to be contained in an EIS.

The Consultant hired by the lead agency (SAIP) will identify all subprojects impacts likely to be of most importance, those thought to be not significant or negligible, those with unclear significance. The potential impacts of little concern will be eliminated from the scope of the study and potentially significant and unclear impacts are considered. This assessment will require consultations with the relevant authorities and stakeholders (affected communities inclusive) so that their inputs or comments can be taken into consideration. The field observations and desk review will also be relevant to this phase.

❖ ESIA Study and report preparation

This is a stage where intense consultations with the relevant authorities, stakeholders, affected communities and other interested parties are undertaken by the Consultant. Through public consultations and sites observations, relevant data are collected and analyzed, major impacts predicted and investigated in depth, mitigation measures and plans proposed for both adverse and beneficial impacts and compensatory measures recommended for immitigable impacts and monitoring measures developed. All project alternatives are thoroughly examined. Impacts are quantified in terms of magnitude (major, moderate, negligible), extent (regional, local, site specific) and duration (long-term, medium-term and short-term).

At the completion of the ESIA or ESMP study, the consultancy firm or project team produces a formal document, termed an environmental impact statement (EIS). This document should provide sufficient information to objectively appraise and either approve or disapprove of a proposed subproject. The EIS shall have the content outlined in Annex 3. While there is no limit to number of pages required, the EIS should be concise, addressing only the relevant issues based on logical assumptions and simulations. The guidelines for the preparation on ESMP are presented in Annex 2.

❖ Review of the EIS and decision making

At the completion of the study report and in accordance with Rwanda and World Bank's requirements, the Consultancy firm will deposit the report with the lead agency, SAIP AF, for review and validation. The project will set and convene the panel of experts and important stakeholders for receiving views and comments. The panel will also decide whether the EIS is adequate (ie whether it is legally compliant and in line with ToRs); the information is correct and whether the proposed mitigation measures are feasible and implementable. The lead agency will officially notify the consultant of the recommendation and comments of the panel. If the ESIA/ESMP study report is validated with comments, the consultancy firm will address comments and resubmit the revised report to the lead agency for approval. If not validated, the consultant will be informed of the gap and what is to be done for report improvement. The EIS should be validated once all comments were satisfactorily addressed.

Once the lead agency is satisfied with the EIS, the Project will share the report with Bank for review and clearance.

The same report will be submitted, to the local Competent Authority, RDB, for review and clearance as well. The review process will enable the decision-maker to decide whether the EIS is adequate, the information is correct, and whether it is unbiased. If it is, they are then in a position to use the EIS as information to be considered in determining whether the project should receive consent or not. The submission to both RDB and donor is made online.

Both World Bank and RDB might provide comments that need to be addressed before the document approval. The Project, through the consultancy firm, will address all comments and send back the corrected version to whoever provided comments for approval. Where needed, RDB may organize public hearings to get more comments on the environmental impact report and express views on the impact of the proposed development. In case the ESIA, ESMP study report is accepted, RDB issues Condition of approval and Certificate of approval to the lead agency. The World Bank also provides report clearance.

❖ Disclosure of ESIA

Subsequent to EIS clearance by both World Bank and RDB, the ESIA report will need to be disclosed by the Bank. In this case, the lead agency will disclose the approved report by making copies available at its head office and in District / Sectors where the subproject is situated. The copies shall also be made available to the Government's agencies (REMA, RLMUA, RWB, etc), the Environmental and Social Groups (like RAPEP) and other stakeholders. The Government of Rwanda will also authorize the Bank to disclose this report electronically through its External Website. The disclosure of the ESIA/ESMP report by the Bank means the authorization of the project to commence while the rejection means no project funding. This is to mean each subproject will be permitted to start after the clearance of the full ESIA or partial ESIA (or ESMP) report by RDB and clearance and disclosure by the Bank.

❖ Monitoring and Audit

Each subproject shall include an Environmental and Social Monitoring Plan (ESMP) which shall be a part to the ESIA/ESMP. The SAIP AF shall undertake self-monitoring, self-record-keeping and self-reporting. The monitoring of environmental parameters recommended by the ESIA/ ESMP study should be an ongoing responsibility of the lead agency who should bi-annually submit a monitoring report to the Bank with a copy to REMA.

This monitoring plan includes provisions made for on-site monitoring during site preparation, construction and commissioning phases, future maintenance requirements and provision for audit during the operation of the project. This Monitoring Plan shall set forth specific activities and indications to assess progress and efficiency in the implementation of environmental management measures as set forth by the ESIA/ESMP.

The monitoring shall follow a plan detailing a schedule for inspecting and reporting findings to World Bank and REMA. It shall also identify key indicators of the environmental quality and impacts to be monitored and threshold levels above which the impacts are significant, delineate responsibilities specifying who collects data, who acts, what specific actions and costs involved.

The environmental audit is a type of evaluation intended to identify the environmental compliance and management system implementation gaps, along with related corrective actions. It is carried out when a development is already in place and used to check on existing practices, assessing the environmental effects of current activities.

Under SAIP AF, the environmental audit will be set at the end of the project or whenever deemed adequate (in case of reasonable concern like environmental legislation, pressure from stakeholders, etc) and at the request of REMA, the Rwanda environmental regulator.

6.3 Mitigation and Management plan

Mitigation measures will be considered starting with the Environmental and Social Assessment process. Impacts identified as severe in consequence category and/or likelihood category will be further analyzed to identify additional mitigation measures that are potentially available to eliminate or reduce the predicted level of impact. Potential mitigation measures will include vegetation restoration plan, engineering design solutions, stakeholder's participation in finalizing mitigation measures, etc. The ESMP should be developed so as to counter the impacts assessed and also the likely impacts during the implementation of the works and operational phase.

6.3.1 Guidelines for mitigation measures

All significant adverse impacts are considered for mitigation. The mitigation options considered include project modification, provision of alternatives, and pollution control. In case where the effectiveness of the mitigation is uncertain, monitoring programmes will be introduced. The mitigation measures are applied to significant impacts arising from construction, operation and maintenance aspects of the various subproject projects. The contractor is responsible for determining the cost of mitigation and to include such cost as part of its total cost for executing the works. The SAIP AF is therefore required to include the mitigation measures as part of the Request for Proposal (RFP) or tender documents for contractors to enable them quote appropriately. This updated ESMF will make reference to the World Bank industry Sector Guidelines for Agribusiness to address potential impacts.

6.4 Compliance with ESMP Implementation

Monitoring the compliance of subproject implementation with the mitigation measures set out in its ESIA or ESMP and/or RAP will be required. The SAIP Environmental Specialist (ES) in collaboration with MIS department and District Environmental Officer (DEO) will have responsibility for carrying out this monitoring by visiting the subprojects, and pursuing the following corrective measures as required.

- (i) If a violation of the ESMP or RAP is detected during a site visit, the Contractor/operator will be notified of the violation, and the means of rectification, verbally. The ES and DEO will discuss with the Contractor/ Operator a realistic deadline for rectifying the violation.
- (ii) If a violation is reported to the ES and DEO by some other entity, they will conduct a site visit and, similarly, issue the verbal warning and deadline for rectification.
- (iii) The verbal warning will be confirmed in writing to the Contractor/ Operator within five working days.
- (iv) The ES and DEO will return to the site on the deadline, and if the violation is still occurring, he will notify the contractor / operator in writing of the continuing violation, informing him of actions/measures to be taken by the Project.

CHAPTER SEVEN: MONITORING PLAN OF THE ESMF

The objective of monitoring is twofold:

- 1) To alert project authorities by providing timely information about the success or otherwise of the environmental management process outlined in this updated ESMF in such a manner that changes can be made as required to ensure continuous improvement to SAIP AF environmental management process (even beyond the project's life).
- 2) to make a final evaluation in order to determine whether the mitigation measures incorporated in the technical designs and the ESMP have been successful in such a way that the pre-project environmental and social condition has been restored, improved upon or is worse than before and to determine what further mitigation measures may be required.

This section sets out requirements for the monitoring of the environmental and social impacts of the SAIP projects. Monitoring of environmental and social indicators will be mainstreamed into the overall monitoring and evaluation system for the project. In addition, monitoring of the implementation of this updated ESMF will be carried out by the key implementing institutions of SAIP.

7.1 Monitoring and reporting of Environmental and Social Indicators

Two opportunities will be taken to build a simple system for the monitoring and evaluation of environmental and social impacts:

- a) The Environmental Safeguards Specialist should consider the environmental and social criteria that require measurement (i.e. groundwater levels, levels of income etc); a list of initial proposals is given below;
- b) Using that list of criteria, a set of indicators can be integrated into the screening forms used in the project approval process in each site. This will ensure flexibility at the subproject design stage, integration of monitoring considerations throughout the subproject cycle, as well as a participatory approach to environmental and social monitoring.

Due to Covid-19 pandemic and its restriction measures and in order to enhance Monitoring and Evaluation (M&E) of SAIP AF implementation, efficient M&E tools like Geo-Enabling Initiative for Monitoring and Supervision (GEMS) will be adopted across all SAIP AF sites and used to collect structured digital data from sites and feed into the project monitoring and evaluation system. This will require capacity strengthening of project staff, both head office and field staff, and its stakeholders, mostly local leaders, cooperatives and WUA leaders on M&E system and GEMS tool.

Initial proposals

The key parameters to be considered under SAIP AF subprojects include monitoring of water quality, soil fertility, agricultural production, income generation, procedures and usage of agrochemicals (mostly pesticides) and PPE as well as occupational health and safety.

The goals of monitoring are to measure the success rate of the project, determine whether interventions have resulted in dealing with negative impacts, whether further interventions are needed, or monitoring is to be extended in some areas. Monitoring indicators will be very much dependent on specific project contexts.

Monitoring and surveillance of subprojects will take place on a “spot check” basis as it would be impossible to monitor all the subprojects to be financed under the project. The spot checks consist of controlling the establishment of mitigation measures. It is not recommended to collect large amounts of data, but rather to base monitoring on observations by project technicians and stakeholders to determine the trends in indicators.

Monitoring of Participation Process

The following are indicators for monitoring of the participation process involved in the project activities. Number and percentage of affected households consulted during the planning stage:

- Level of decision making of affected people;
- Level of understanding of project impacts and mitigation;
- Effectiveness of local authorities to make decisions;
- Frequency and quality of public meetings;
- Degree of involvement of women or disadvantaged groups in discussions.

The main components of the monitoring plan include environmental and social issue to be monitored; parameters to be monitored; monitoring indicators, methods; frequency of monitoring; institutional responsibilities for monitoring and supervision as well as estimated costs. Site specific monitoring checklists will be prepared by the designers for each subproject and be included as an integral part of site specific ESMP. Monitoring checklist should be prepared using the generic monitoring plan presented within this updated ESMF and respecting significant site-specific impacts and proposed mitigation measures elaborated in site specific ESMP document.

The contractors/ operators will have a dedicated public liaison officer (or safeguards staff), who will establish communication with the local residents that may be affected by the project and be responsible to inform them about all of the project related activities, especially those related to environmental impacts of the project and planned mitigation measures.

The contractors/operators will prepare their compliance reports in respect to ESMP, which document the implementation of environmental and social mitigation and protection measures (together with prescribed monitoring activities carried out during the reporting period) on quarterly basis and submit them to Project Coordinator who will, in turn, share the report with the Bank and REMA. However, in case of any kind of accident or endangerment of protected environments, reporting to project Management, participating District and World Bank will be immediate.

SAIP will have the authority for immediate suspension of works if operator/Contractor’s performance is found to be in serious contravention of the environmental standards and regulations.

Monitoring and compliance in accordance with ESMF and site specific ESMPs, including monitoring of implementation of site-specific measures on each sub project/section during project implementation will be undertaken by ES and reported in writing to SPIU/RAB and the Bank.

Annual Environmental Health and Safety (AEHS) reports, including monitoring indicators and reporting on the implementation of the requirements set forth in the ESMPs will be prepared by ES and submitted for the Bank's review. In case of fatalities or major incidents on sites, the Project will immediately report to World Bank.

In addition to the Project reports required by the World Bank and under the Law No 48/2018 of 13/08/2021 on Environment, an Audit on ESMF implementation will be prepared by the Project at Mid Term Review and at the project end and shared with REMA and the World Bank. The table below indicates project indicators to be monitored and reported against.

Table 5: Monitoring indicators for SAIP AF

Project Activities	Negative Impacts	Indicators	Methods of Monitoring	Responsibility	Frequency
Small Scale irrigation and water use efficiency	Potential absence of compliance to the ESMP, and RDB conditions of approval	Environmental records (PPEs, sanitation (water & toilets), waste management, signposts, etc.)	Routine inspections of the site	SAIP, District and Contractor, Supervising firm, Cooperative	Daily
	Reduced water flow downstream	Flow rate per second;	canal gauging	SAIP, Cooperative/ WUA, District	Seasonally
	Water wastage	Water saving irrigation Calendar	Install water meters in the intake point	SAIP, Cooperative/ WUA	Continuous
	Spread of water borne diseases	Increased cases of malaria and bilharzias among other waterborne diseases	Review of health records at near health centres in the project area	SAIP, Cooperative, District	Seasonally
	Spread of communicable diseases, mostly Covid-19 pandemic and waterborne diseases	Increased cases of Covid-19 and waterborne diseases among other communicable diseases	Review of health records at near health centres in the project area Conducting surveys on Covid-19 and	SAIP, Cooperative, District SAIP AF and District	Monthly Yearly

			waterborne diseases trends in project areas		
	Safety of livestock and humans	Reported cases of incidences and accidents	Review and evaluation of incidents and accidents Register	SAIP, District	Regularly
	Ecosystems damages	Change in ecosystem composition	Site observation	SAIP and RAB	During LH works
	Labour influx and child labour	List of workers, origin (within or outside the project area) and age (records on workers above 18 years old)	Routine inspections of the site	SAIP, District and Contractor	Biweekly
Promoting pesticides use and access the required inputs (chemicals and highquality seed)	Potential absence of compliance to the ESMP/ PMP including pesticides and PPE use and RDB conditions of approval	Environmental records (PPEs; sanitation like water & toilets; waste management; signposts; etc.)	Routine inspections of the site	SAIP, District and Contractor, Supervising firm, Cooperative and WUA	Daily
	Surface water pollution by chemicals	Water and soil quality	Soil and water Sampling and analyses	SAIP, REMA	Annually

	Soil degradation	Soil quality	Soil sampling and analysis	SAIP, REMA	Annually
	Change in the production	Change in exploitation levels of land	Yield measurement	SAIP, District	Seasonally
Construction of postharvest infrastructure (including drying shelters, drying grounds and collection facilities, processing units, etc)	Potential absence of compliance to the ESMP, and RDB conditions of approval	Environmental records (PPEs, sanitation (water & toilets), waste management, signposts, etc.)	Routine inspections of the site	SAIP, District and Contractor, Supervising firm, Cooperative	Daily
Occupational health and safety risks	Loss of land	Number of PAPs expropriated	Review the list of PAPs payment	SAIP, District and Contractor, Supervising firm, Cooperative	Before the start of civil works
	Various types of accidents at the site (injuries, fatalities)	Reported cases of incidences and accidents	Review and evaluation of incidents and accidents register	District & National Police, SAIP, Cooperative	Seasonally
	Covid 19 spread	Increased cases of the pandemic in the area & vicinity	Review of Covid-19 records at near health centres in the project area	District & MINISANTE/RBC, SAIP, Cooperative	Seasonally
	Dissemination of other communicable diseases hazards	Increased cases of (HIV/AIDS, diarrhea, malaria, etc)	Review of health records at near health centres in the project area Conducting surveys on communicable	SAIP, Cooperative, District SAIP and District	Seasonally Yearly

		diseases trends in project areas		
Crimes issues	Increased cases of crimes (theft)	Review and evaluation of theft reports	District &National Police, SAIP, Cooperative	Seasonally
	Increase of gender-based violence (GBV) cases, prostitutions or other sexual offences and use of child labour	Review and evaluation of GBV, sexual offences & child labour reports Surveys on GBV, sexual harassment and child labour risks in project sites	District &National Police, SAIP, Cooperative	Seasonally

7.2 Monitoring Roles and Responsibilities

a) Rwanda Environment Management Authority (REMA)

REMA will inspect the compliance with environmental safeguards by the Project. It will carry out this role by ensuring that the environmental and social management plans (ESMPs) contained in the cleared design package is being implemented as specified therein. REMA will monitor the reports on a regular basis, perhaps quarterly. They will rely on a bottom-up feedback system from the ground by going through the monitoring reports and making regular site visits to inspect and verify for themselves the nature and extent of the impacts and the success or lack off, of the mitigation measures.

b) RAB/SPIU

The SPIU/RAB Monitoring and Evaluation staff, jointly with the SPIU Environmental Safeguards staff will be primarily responsible for ensuring compliance to the monitoring framework; they will undertake review of the monitoring reports emanating from the implementing agencies and will then upon approval submit these monitoring reports to REMA and the World Bank. The SPIU will also provide overall coordination in monitoring including training coordinating of training in collection and analysis of monitoring data for data collectors.

Critical role of the SPIU will include data analysis, as well as maintenance of management information systems and all baseline data. Lately other than preparation of periodic reports, the SPIU will implement all the necessary modifications in the monitoring framework.

c) SAIP Implementing Partner Institutions

All the SAIP AF implementing institutions identified under this project, will monitor the specific components of project that they are targeted to execute. They include Ministry of Environment (MoE) and its agencies (RLMUA, RWB, Rwanda Forestry Authority), MINALOC, Ministry of health (MINISANTE and RBC), MINICOM and RCA, NAEB and Private Sector Federation (PSF).

The MoE and its Agency will support the project in water quality and ecosystem monitoring, land use and acquisition as well as in soil erosion control. The Ministry of local administration (MINALOC) through participating Districts will assist in mobilizing local communities in the project intervention areas for the adoption and ownership of the infrastructures and in resettlement process. Through the district environmental officer, and social protection officer, the district will monitor on daily basis the implementation of safeguards measures reflected in the safeguards documents. The Ministry of health (MINISANTE) will be responsible for campaigning and fighting against communicable diseases and monitoring their prevalence.

With regard to the Ministry of Commerce and Industry (MINICOM) and its agencies, especially Rwanda Cooperative Agency (RCA) will play a role in the formation, organization and capacity building of Cooperatives assisted by SAIP AF. It will also play a key role in the determination of prices for commodities supported by the project. NAEB will provide support in production, post-harvest handling and marketing of horticultural products. The Private Sector Federation (PSF) will be involved in providing services, supplying agricultural inputs and transformation of agricultural produces. All implementing partners will be required to prepare periodic monitoring reports for submission to SAIP Project Management and specifically to the Environment Specialist and the M&E Specialist.

d) Local Communities

Local communities will be useful agents in collection of data that will be vital in monitoring and as such they will play a role in the monitoring framework. Local communities in the project intervention areas will receive training and capacity building skills in data collection to be done by the implementing agencies so as to equip them with the ability to collect data. District Councils will, as part of the planning process, communities who will play a key role in identifying community infrastructure investments, prioritizing project interventions. Community consultation protocols will also ensure representation of potentially vulnerable and under-represented groups.

e) Specific Community Groups

Land husbandry self-help groups, youth groups will be formed by farmers within the developed area. They will oversee the maintenance of LH infrastructures and their exploitation.

7.3 Evaluation of Results

The evaluation of results of environmental and social mitigation can be carried out by comparing baseline data collected in the planning phases with targets and post-project situations. A number of indicators would be used in order to determine the status of affected people and their environment (land being used compared to before, how many clean water sources than before, etc). In order to assess whether these goals are met, the SAIP AF Environmental Specialist with technical support of the Advisor will indicate in the EMP, parameters to be monitored, institute monitoring milestones and provide resources necessary to carry out the monitoring activities.

The following are some pertinent parameters and verifiable indicators/questions to be used to measure the ESMF process, mitigation plans and performance;

- ✓ Has the Environment consultants trained a local social and environmental specialist?
- ✓ Has the EMP's and Final Designs been cleared by the REMA?
- ✓ Have the Civil Works Contractors got considerable legal muscle to enforce the ESMP?
- ✓ At what rate are the civil works been monitored by SAIP AF and by the REMA?
- ✓ How many violations of the contractors/transporters have been recorded and at what rate are they occurring.
- ✓ How many RAPs have been fully executed before PAPs are physically displaced?
- ✓ How many recorded grievance cases have been settled within one year?

CHAPTER EIGHT: INSTITUTIONAL ASSESSMENT, CAPACITY BUILDING AND TECHNICAL ASSISTANCE

8.1 Introduction

The effective implementation of this ESMF will require technical capacity in the human resource base of implementing institutions as well as logistical facilitation. Implementers need to understand inherent social and environmental issues and values to be able to clearly identify their indicators.

While preparing this updated ESMF, an institutional assessment was inbuilt to identify strengthening needs on social and environmental evaluation, screening, mitigation and monitoring.

8.2 Institutional Assessment and Capacity building

The overall SAIP AF management will be the responsibility of RAB under the Ministry of Agriculture and Animal Resources (MINAGRI). Though RAB does not have social and environmental staff to manage safeguards matter, the SAIP AF has a Safeguards Team familiar with Rwanda and WB safeguards policies.

The SAIP parent project has been focusing on the preparation of an environmental and social (E&S) screening tool to inform the Project on the potential environmental impacts and risks of subprojects submitted for funding and appropriate instruments to be prepared. Furthermore, following the outbreak of Covid-19 pandemic and its restriction measures, the safeguards monitoring process was constrained and the Project adopted the use of GEMS tool for real - time data collection and safeguards monitoring.

The SAIP activities are mostly centered on farmers. Community ownership is the key to ensure the success and sustainability of projects, mainly the need to make these communities aware of the E&S safeguards and compliance.

For the successful implementation of the Additional Financing (AF), much more efforts will be put on the E&S screening of all subprojects submitted for financing and the use of GEMS tool in safeguards monitoring. The strategies/responses to overcome Covid-19 pandemic like sanitation facilities will also be covered by AF. The updated E&S instruments (ESMF, ESMP, and updated ESIA & RAP) will be included in bidding documents and civil works contracts. Capacity building and empowerment of farmers' organizations (cooperatives, WUAs) and local authorities on safeguards compliance will be strengthened to raise the awareness and ownership. The project will ensure continuous training on ESMPs implementation to SAIP beneficiaries and stakeholders, especially the safe use of agrochemicals (fertilizers and pesticides). The existing Safeguards team will need to be strengthened through capacity building to be able to manage the tasks mentioned above for the implementation of SAIP AF.

8.3 Human Resource Capacity Requirements

The safeguards team at the SPIU is made of 2 staff (1 Social safeguard specialists and 1 Environmental specialist) who have been overseeing the overall issues related to safeguards in the SAIP parent project sites. There is no doubt they will still execute the same responsibilities for the implementation of SAIP AF.

SAIP will be implemented in close collaboration with participating Districts. Each District has one land officer, social protection officer and environmental officer among other staff who are responsible for the social and environment safeguard aspects of the development projects in the District. The staff at the sector

level that are responsible for the implementation of SAIP include; Agronomist, Social protection officer and land manager whereas the responsible staff at the cell level consist of the Cell Executive secretary and the Social and economic development officer. Due to limited budget, workload and capacity limitation, the engagement of the staff mentioned above is specifically restricted to minor community level development actions.

Social and environmental safeguards management aspects are daily cared for by the Cells and Sectors staff. However, their level of training and technical capacity on safeguards is not sufficient and will need to be enhanced.

The SPIU will emphasize on capacity building through trainings and workshops of the relevant district staff (land officers, social protection officers, environmental officers; Agronomists, Executive Secretaries, Grievance redress committees (GRC) and Self Help Groups (SHGs) on safeguards implementation and monitoring aspects (ie monitoring compensation, valuation, Grievance Redress Mechanisms, gender equity and GBV, child labor prevention, follow up of displaced PAPs, reporting, etc.). Such trainings and workshops shall be provided by the project management to ensure proper safeguards management under SAIP AF.

8.4 Technical Capacity Enhancement

Mobilization meetings, awareness campaigns and trainings on social and environment safeguards will be required for the following institutions and personnel:

1. RAB/ SPIU staff,
2. Local Government Authorities (District environment officer, District Social protection officer, Executive Secretary of Sectors & Cells, Agronomist, land officer) through Districts covered by SAIP AF activities.
3. Site specific Grievance Redress Committees (GRCs);
4. Contractors who will be contracted to undertake the construction works;
5. Investors in the developed schemes;
6. Farmers organizations (Cooperatives and Associations);
7. Community opinion leaders.

The Capacity building will cover the following topics:

- Overview on SAIP AF and Safeguards policies;
- Stakeholder engagement, consultation and partnerships;
- Implementation and monitoring the compliance of safeguards during both the construction and operation phase of the SAIP activities;
- Use of agrochemicals (mostly pesticides) and PPE;
- Implementation and Compliance with updated ESMF;
- Awareness and prevention of communicable diseases, including Covid-19 pandemic
- Organization and management of resettlement and compensation committees;
- Grievance Redress Mechanism;
- Reporting, monitoring and follow up.

CHAPTER NINE: ESMF IMPLEMENTATION ARRANGEMENTS AND BUDGET

The Environmental and Social Management framework implementation and budgeting process presented under this section considers institutional arrangements required to implement the environmental actions and an estimated cost for its implementation. It is worth to note that the real cost of the mitigation measures will be determined during the preparation of Environmental Management Plan (EMPs) and Resettlement Action Plans (RAPs) for each sub-projects/district.

9.1 ESMF Implementation

The Project will be implemented by Rwanda Agriculture and Animal Resources Development Board (RAB) under the Ministry of Agriculture and Animal Resources (MINAGRI). The SAIP AF will be administered through the existing Single Project Implementation Unit (SPIU) for Marshland and Hillside Irrigation which has experienced staff.

The implementation arrangement builds on responsibilities already in place to ensure that the requirements of this ESMF are met.

Table 6: Role and responsibilities in the ESMF implementation

No	Activity	Responsible institutions
1	Sub-project brief preparation	RAB/WB SPIU
2	Sub-project Screening and screening Checklist	RAB/WB SPIU and Rwanda Development Board
3	Preparation of terms of Reference	RAB/WB SPIU, World Bank and RDB
4	Approval of terms of Reference	RDB and the World Bank
5	ESIA study	Consultant hired by RAB/SPIU
6	Review of ESIA report	<ul style="list-style-type: none">- RAB/SPIU- Stakeholders- Participating Districts- Rwanda Development Board- World Bank
7	Approval of ESIA and Issuing ESIA completion Certificate	<ul style="list-style-type: none">- World Bank- Rwanda Development Board
8	Implementation of the ESMF	<ul style="list-style-type: none">- RAB/SPIU
9	Implementation of ESMPs	<ul style="list-style-type: none">- Contractors and Supervising Firms hired by RAB/SPIU- RAB/SPIU- Participating Districts- Investors and farmers

10	Monitoring of safeguards implementation	<ul style="list-style-type: none"> - Supervising firm hired by RAB/SPIU - RAB/SPIU - Participating Districts - REMA - World Bank
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During work execution, the Contractor and supervising firms must comply with the environmental, health and safety (EHS) guidelines provisions. These should be incorporated in the contractors/ suppliers tender documents and contracts. Contractors should be requested to:

- ✓ Execute all activities with the greatest potential to generate high noise level between 7.00 am and 7.00 pm;
- ✓ Use equipment and automobiles with certification of good working conditions from National Automobile inspection center to avoid exhaust fumes and excessive vibration;
- ✓ Minimize vibrations if construction site is close to community houses;
- ✓ Design and construct channels and ditches to control *on-site* or *off-site* sediment transport and avoid to discharge runoff into the water bodies (stream/ river, lake, etc);
- ✓ Use effective protection measures for slope stabilization, sediment control, etc;
- ✓ Avoid earthworks during heavy rains (mid-March to mid-May);
- ✓ Regular watering the construction site or the access roads to the site to minimize dust emission;
- ✓ Avoid open burning of solid wastes and apply dust suppression techniques to minimize dust from vehicle movements (eg regular technical control of motorized equipment at the site, operate repairing as needed, etc);
- ✓ Provide dustbins for waste collection and remove all garbage and unused materials out of the site and deposit them far away in approved dumping site;
- ✓ Maintain motorized machinery and equipment in service stations and carry out routine maintenance, repair of machines. The oil and fuel spills at the site should be avoided to minimize water and land contamination. If need be, provide adequate containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids, portable spill containment and cleanup equipment on site. These flammables must be stored and managed as per the manufacturer's safety data sheet.
- ✓ Use personal protective equipment (PPE) appropriate for the work to be done by all workers at the site (wearing high visibility vests when working or walking through heavy equipment operating area, boots or safety shoes, masks, etc).
- ✓ Ensure that all workers possess medical insurance and the contractor should adhere to the conditions of the security and policy.
- ✓ Provide sanitary facilities to workers (toilets, water, etc)
- ✓ Avail well equipped First Aid facility
- ✓ Avoid child labour, sexual harassment/ prostitutions and gender equity
- ✓ Carry out awareness campaigns for the control of communicable and non-communicable diseases), on gender based violence (GBV), gender equity, child labour, prostitutions preventions;

- ✓ Meet chance find procedures;
- ✓ Install safety signposts and guards at the site;
- ✓ Capacity building of contractors and supervising firms' employees on the compliance with environmental and social safeguards requirements.
- ✓ Provide flash weekly and monthly reports on the compliance with safeguards requirements.

9.2 Disclosure of updated ESMF

Following its preparation by RAB and clearance by the World Bank, the updated ESMF for SAIP will be disclosed by making copies available at the RAB/SPIU head office, Project website and to the local government agencies and other stakeholders. The site ESIA/ESMP reports will also be disclosed by making copies available at its head office, Project website, District headquarters, District websites and local government's agencies, REMA and other stakeholders of the SAIP AF. The World Bank will also disclose the updated ESMF and ESIA/ESMPs to be prepared under SAIP AF electronically through its external website.

9.3 Grievance Redress Mechanism

Grievances procedures are usually required to ensure that project affected people are able to lodge complaints or concerns, without cost, and with the assurance of a timely and satisfactory resolution of the issue. The procedures also ensure that the entitlements are effectively transferred to the intended beneficiaries. Grievances may arise from members of communities who are dissatisfied with eligibility criteria use, community planning and resettlement measures, actual implementation or compensation.

a) Established procedures and time frame for Grievance redress mechanism

Grievance redress mechanisms are increasingly important for development projects, where ongoing risks or adverse impacts are anticipated. They serve as a way to prevent and address community concerns, reduce risk, and assist larger processes that create positive social change.

The creation of a Grievance Redress Committee (GRC) will be given priority in each project site. The GRCs in parent project sites are constituted of scheme users, and also members of cooperatives and WUAs. They report to Cooperatives/ WUAs with copy to Cell administration and project management. Each GRC is formed of 5 members namely Chair, Vice-Chair, Secretary and 2 advisors, including a representative of gender and youth. This GRC structure has been operational across SAIP sites and helped for the management of complaints raised.

The same structure will be scaled up in new sites under AF as those sites are currently managed by Cooperatives. Therefore, the members of the GRC for SAIP AF in each site shall be all scheme users and include Chair, Vice-Chair, Secretary and 2 advisors, including a representative of gender and youth. The representatives of the Contractor, supervising firm and local authority (Executive Secretary of the Cell where works are conducted) will be part of the committee during additional site construction works. The GRC meetings shall be held at least once two weeks from the date of receiving complaints.

As SSIT sites are scattered in the district and mostly far away from the above sites developed under LWH/RSSP and in a bid to assure accessibility for affected people and GRC members working on voluntarily basis, a special GRC per SSIT site will be established at the sector level and the committee can be composed of 3 people and chaired by the Cell executive secretary or his representative.

The other 2 people may be the SSIT beneficiary and representative of SSIT affected people. The Contractor may be part of the GRC during the construction works.

b) *Grievance resolution approach*

The channels of receiving complaints include presentation of complaints via face-to-face meetings, written complaints, telephones, email communication, third party (e.g., farmers' organizations, Church, private sector, etc).

If the aggrieved person does not receive a response or is not satisfied with the outcome within the agreed time, s/he may lodge his/her grievance to the relevant Cooperative or WUA in a given site. Each LWH/RSSP site under SAIP is managed by one or more cooperatives and one WUA for crop production and irrigation facilities maintenance respectively. If requested, or deemed necessary by the Committee, the District Project Coordinator will assist the aggrieved person in this matter. The relevant farmers' organization will then attempt to resolve the problem (through dialogue and negotiation) within 30 days of the complaint being lodged. If no agreement is reached at this stage, then the complaint is dealt with through the local administration, mostly Cell and Sector authority.

Where matters cannot be resolved through local routes (farmers organizations and local administration), the grievance will be referred to local courts, starting with traditional court, Abunzi. If the issue is not resolved at this stage, then the lower, high court or court of appeal of Rwanda remains an avenue for voicing and resolving these complaints.

c) *Grievance Log*

The DPC will ensure that each complaint is appropriately tracked and recorded. The log will contain record of the persons responsible for an individual complaint, and records of dates for the following events:

- ✓ Date the complaint was reported;
- ✓ Date the Grievance Log was added onto the project database;
- ✓ Date information on proposed corrective action sent to complainant (if appropriate);
- ✓ The date the complaint was closed out; and
- ✓ Date response was sent to complainant.

d) *Monitoring Complaints*

The District Project Coordinator will be responsible for:

- ✓ Providing the sub-project GRC reports on a bi-weekly basis detailing the number and status of complaints. These reports will be a compilation of reports submitted by GRCs to their respective Cooperatives and WUA leaders with a copy to project staff.
- ✓ Any outstanding issues to be addressed; and
- ✓ Monthly reports, including analysis of the type of complaints, levels of complaints, actions to reduce complaints and initiator of such action.

9.4 ESMF Implementation budget

The Budget for the implementation of this ESMF will be provided by the Government of Rwanda and will mainly consist on preparation of safeguards tools.

The cost for mitigation measures will be included in the EIs, ESMPs and RAPs. The table below show the estimated cost for the implementation of the ESMF for the proposed project.

Table 7: Estimated budget for the implementation ESMF for SAIP AF

Component	Broad Activities	Activities	Cost (US\$)	Remarks
Irrigation and Water use efficiency Market & Processing Infrastructure Agricultural Productivity Enhancement	Small Scale Irrigation Construction of postharvest, marketing and processing infrastructure Agricultural Productivity Enhancement	Updating Environmental and Social Impact Assessment Study (ESIA study) or preparation of ESMP	168,000	Depending upon activities to be undertaken per site, there will be sites with full ESIA, ESMP and existing ESIA updating. The ESIA/ESMP reports under matching grant funding will be funded by the investor and SAIP AF will review prepared reports.
		Monitoring of ESMPs	30,000	Routine monitoring of ESMPs during the project period
		Capacity building	60,000	Trainings, workshops on safeguards implementation and IPM approaches with project staff, relevant district staff, Contractors and supervisors, Community representatives and GRCs Awareness and prevention of diseases, including Covid-19 pandemic and water related diseases
Total			258,000	
Contingency (10%)			25,800	
Grand Total			283,800	

CHAPTER TEN: CONCLUSION AND RECOMMENDATIONS

The Government of Rwanda (GoR), through MINAGRI, updated the ESMF for SAIP AF that will provide guidance on the management of environmental and social impacts and risks. The updated ESMF will also provide institutional arrangements as well as environmental and social safeguards instruments to be prepared as part of the implementation of SAIP AF activities in full compliance with Rwanda and World Bank environmental and social safeguards policies.

The policy, legal and institutional frameworks for this updated ESMF and the socio-economic baseline project were developed; public consultation and participation meetings conducted; the report provides potential environmental and social impacts and guidelines for mitigation. It also provides the SAIP environmental and social management process as well as the implementation and monitoring procedures.

This ESMF has an inbuilt grievance procedure that will be used to address grievances that arise during the ESMF implementation. The estimated budget for the ESMF is US \$ 283,800.

Given the nature of the project, the potential adverse impacts are minimal and can be controlled through proposed mitigation measures. The proposed subproject Environmental and social Impact Assessment (ESIA) if properly implemented will be prepared and propose site specific measures to mitigate adverse impacts.

Successful implementation of this updated ESMF will depend to a large extent on the involvement and participation of local communities. Specifically, it is recommended that:

- Environmental and Social awareness and education for the key stakeholders and affected communities must be an integral part of the updated ESMF implementation.
- District and local community structures should be adequately trained to implement the screening process, and where required to develop and to implement appropriate Environmental Management Plans.

This ESMF should be regularly updated to respond to changing local conditions. It should be reviewed and approved through the national approval process and by the World Bank prior to project negotiations. It should also incorporate lessons learned from implementing various Components of the project activities. This framework will apply to any project activity within the SAIP AF.

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ANNEXES

Annex 1: Environmental and social safeguards screening checklist

SNo	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
SECTION 1: GENERAL INFORMATION ON LOCATION AND CONTACT PERSON				
	Date of Visit:			
	District:			
	Sector			
	Cell:			
	Village:			
	GPS Coordinates:			
	Name of Contact person: -----			
	Business Title / position -----			
	Business Address -----			
	Telephone -----			
SECTION 2: DESCRIPTION OF THE SUBPROJECT				
	Name of Proposed Subproject-----			
	Date expected to start construction-----			
	Location of project ----- (Attach a map or maps, covering the proposed site and Surrounding 5 km radius)			
	Land Area ----- (Approximate land area and of proposed location)			
	Current Land use (Describe how the land is being used at present) -----			
	Describe any Possible Alternative Site(s) if any-----			
SECTION 3: BRIEF DESCRIPTION OF THE PROPOSED ACTIVITIES				
	Describe the type and scale of the likely activities to be undertaken (e.g. area, land required etc). Provide information on the activities including support/ancillary structures and activities to be undertaken. Describe how the activities will be carried out. Include description of support/activities and resources required for the construction/extension.			
A	Project's siting			
1.	Define project's boundaries and area of influence			
2.	Is the project site adjacent to or within any of the following sensitive receptors?			
2.1	Natural habitats and/ or legally protected areas (wetlands, forests, estuary, buffer zones, nature reserves); if yes, is there possibility of a critical habitat present?			

SNo	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
2.2	Cultural heritage site			
2.3	Fragmentation of habitat of flora and fauna (Avifauna and mammalian fauna)?			
2.4	Is the proposed site located on agricultural land?			
2.5	Is the proposed site located on area used by vulnerable groups			
2.6	Unique or aesthetically valuable land			
2.7	Hydrology			
	a. Where does surface water runoff currently go?			
	b. Is there an existing stream, swamp, wetland in proximity to the site?			
	c. What is the approximate distance to and name of nearest stream, wetland, swamp or other body of water (in proximity to the site)?			
	d. Will the site storm water system be connected to an existing storm water drainage system?			
2.8	Natural Hazards			
	a. Is the site prone to landslides or flooding?			
	b. Is the subproject in proximity to a seismic zone?			
	c. The project located on steep slope which visible signs of erosion?			
	d. Has the design of the project incorporated specific measures to reasonably safeguard against these hazards?			
	e. What specific mitigation/ risk reduction measures have been included in subproject designs?			
	f.			
B	Potential bio-physical Environmental Impacts			
1	Is the local vegetation at project site mainly forest, swamp vegetation, or farmland			
2	Will vegetation be removed or any surface left bare			
3	Will the immediate or downstream effects of the project change the vegetation cover			
4	Will the project affect important species, habitats, or ecosystems in the area (in the immediate area or off site)			
5	Loss or destruction of unique or aesthetically valuable land			
6	Is the project site environmentally classified as sensitive area? Check the list of environmentally sensitive environments for Rwanda			
7	Is the project site located on a steep slope or very-gently-sloping land			
8	Is there potential for landslide and soil erosion impacts?			
9	Will sediments or wastes be prevented from entering water bodies			
10	Will slope or soil stability be affected by the project (e.g., by using heavy machinery)			
11	Will quarries or borrow pits be developed or operated under the project			
12	Will the present landscape be altered (e.g., by rock or soil removal, spoil dumping, or timber removal)			

SNo	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
13	Is the project using diesel pump or solar energy or other form of energy to pump water?			
14	Will the project generate waste products (including increased sewage or solid wastes)			
15	Are there any identified dumping sites for solid and liquid wastes			
16	Will the project or its waste disposal affect the quality of local water bodies (streams, groundwater or lake)			
17	Construction waste directly discharged to the surface water			
18	Will toxic chemicals (e.g., pesticides, fertilizer, oils spills, and other hazardous chemicals) be used or disposed of along the route of project			
19	Will hazardous substances (e.g., large quantities of fuels) be used or stored in the project area			
20	Will the project create dust or noise problems			
B Potential Socio-economical Environmental Impacts				
1	Does local community rely on the use of project site or stream water downstream			
2	Will be there additional demand on natural resources as a result of the project			
3	Will the project restrict people's access to natural resources at any time before, during, or after construction			
4	Will the project affect downstream users of resources, especially water resources			
5	Are future natural resource use opportunities being cut off			
6	Will the project affect land or water use, or require leases, or changes in tenure			
7	Will the project result in destruction of assets (structures and crops, etc.)			
8	Will the project result in the loss of primary residential structures and consequently involuntary resettlement			
9	Is the available land for crop production government or private			
10	Is this land enough for the project implementation or more land will be acquired			
11	Will the project result in construction workers or other people moving into or having access to the area			
12	Will the project provide a safe working environment			
13	Will the project output be targeted to meet the needs of vulnerable groups in the community (e.g., women, youths, elderly, or PWDs)?			
14	Is the project site culturally or archaeologically sensitive			
15	Are rock shelters present in the project site			
16	Are caves present in the project site			
17	Is the project site a place of worship			
18	Is it a project site located in or nearby a cemetery or memorial area			
19	Will project cause encroachment on historical/cultural/religious areas?			
C Potential Community and Occupational Health and Safety Impacts				
1.	Will the construction works disturb other commercial/community/ residential activities			
2.	Will the project create major noise/vibration?			

SNo	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
3.	Will it create dust problem around the site			
4.	Will there be a water logging problem at the project site			
5.	Will project's construction cause disturbance to the transportation in the project's site?			
6.	Will there be social conflict in case of workers hired from other region?			
7.	How will the subproject minimise the risk of accidents?			
8.	How will accidents be managed when they do occur?			
9.	Is the subproject likely to safeguard/endanger workers health and safety and public safety? If Yes, provide an addition of safety measures required or in place.			
10.	Are safety measures in place to protect the workforce and will all workers have the necessary Personal Protective Equipment (PPE) and be trained to use of safety equipment			
11.	Are fire-fighting and spill-clean-up materials / chemicals available for use at the project site (e.g., water, sand, detergent, acid, or alkali)			
12.	Risks to community health and safety due to both accidental and natural hazards during project construction and operation			

DECISION MAKING:

Is the sub-project found on the list of projects that require EIA or partial EIA as per the Ministerial Order N° 001/2019 of 15/04/2019 establishing the lists of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct environmental impact assessment?

Refer to Ministerial Order No 001/2019 of 15/04/2019 and the WB environmental and social safeguard policies:

If the answer to any of the questions is "yes",

- ✓ *The subproject is classified as Category A or B (according to WB policies) or Impact Level (IL) 3 or 2 (according to Rwandan regulation) and the ESIA or partial ESIA is respectively required.*

If the answer to any of the questions is "No",

- ✓ *The subproject is classified as category C (subprojects with minimal or no adverse environmental impacts) (according to WB policies) or IL1 (according to Rwandan regulation) and no further environmental analysis is required.*

Annex 2: GUIDELINES FOR PREPARATION OF ESMPs

1. The EA process involves the identification and development of measures aimed at eliminating, offsetting and/or reducing environmental and social impacts to levels that are acceptable during implementation and operation of the projects. As an integral part of EA, ESMP provides an essential link between the impacts predicted and mitigation measures specified within the EA and implementation and operation activities. The World Bank guidelines state that detailed ESMPs are essential elements for Category „A“ projects, but for many Category „B“ projects, a simple ESMP will suffice.

The minimum requirements for ESMP were set out in OP4.01 Annex C of the World Bank and the following are important elements constituting an ESMP:

a. Description of Mitigation Measure

2. Feasible and cost-effective measures to minimize adverse impacts to acceptable levels should be specified with reference to each impact identified. Further, the ESMP should provide details on the conditions under which the mitigation measure should be implemented. The ESMP should also distinguish between the type of solution proposed (structural and non-structural) and the phase in which it should become operable (design, construction and/or operation). Efforts should also be made to mainstream environmental and social aspects wherever possible.

b. Monitoring program

3. In order to ensure that the proposed mitigation measures have the intended results and comply with national standards and World Bank requirements, an environmental performance monitoring program should be included in the ESMP. The monitoring program should give details of the following:

- Monitoring indicators to be measured for evaluating the performance of each mitigation measure (for example: national standards, engineering structures, extent of area replanted, etc).
- Monitoring mechanisms and methodologies
- Monitoring frequency
- Monitoring locations

c. Institutional arrangements

4. Institutions/parties responsible for implementing mitigation measures and for monitoring their performance should be clearly identified. Where necessary, mechanisms for institutional coordination should be identified, as often, monitoring tends to involve more than one institution.

d. Capacity Development and Training

5. To support timely and effective implementation of environmental project components and mitigation measures, the ESMP draws on the EA's assessment of the existence, role, and capability of environmental units on site or at the agency and ministry level. If necessary, the ESMP recommends the establishment or expansion of such units, and the training of staff, to allow implementation of EA recommendations. Specifically, the ESMP provides a specific description of institutional arrangements--who is responsible for carrying out the mitigatory and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). To strengthen environmental management capability in the agencies responsible for implementation, most ESMPs cover one or more of the following additional topics: (a) technical assistance programs, (b) procurement of equipment and supplies, and (c) organizational changes.

e. Implementing schedules

6. Timing, frequency and duration of mitigation measures with links to the overall implementation schedule of the project should be specified.

f. Reporting procedures

7. Feedback mechanisms to inform the relevant parties on the progress and effectiveness of the mitigation measures and monitoring itself should be specified. Guidelines on the type of information wanted and the presentation of feedback information should also be highlighted.

g. Cost estimates and sources of funds

8. Implementation of mitigation measures mentioned in the EMP will involve an initial investment cost as well as recurrent costs. The EMP should include cost estimates into the sub-project design, bidding and contract documents to ensure that the contractors will comply with the mitigation

measures. The costs for implementing the EMP will be included in the sub-project design, as well as in the bidding and contract documents.

Annex 3: Content Environmental and Social Impact Assessment report

The EIS should entail the following:

- 1. Executive summary of the EIA report which should be brief and focus on following matters:**
 - Name and location of the project;
 - Name of the developer
 - Name of the agency preparing EIS;
 - Methodology for conducting ESIA study
 - Main impacts identified;
 - Mitigation recommendations;
 - Environmental monitoring plan;
 - Conclusion and recommendations
- 2. Introduction and objectives:** it provides the project context, problems to resolve and particular objectives.
- 3. Description of the proposal and its alternatives.** In this part, it is necessary to describe in detail the proposed project and its alternatives including those not subjected to pre-feasibility study or feasibility study. Attention should be concentrated to the comparison of different alternatives. The following are the required contents of the section "*Description of the proposal and its alternatives*":
 - The stage of the project cycle where the project is being implemented (pre-feasibility study, feasibility study or design);
 - Outlines of the plan for impact prediction and mitigation measures;
 - Raw materials, supplies, energy, water and equipment to be used for implementing the project and its alternatives;
 - Operational parameters such as capacity and product output;
 - Tables, photographs, diagrams and maps;
 - Comparison of characteristics of alternatives (extent, location, technology, products, energy and raw materials demands) in the present socio-economic, technical and environmental situation;
 - A summary of project technical, economic and environmental characteristics.
- 4. Policies, legal and institutional frameworks.** In this section, the proposal must be shown to be in line with policies, laws, institutional framework and development strategy of Rwanda.
- 5. Description of present (baseline) environmental status** (analysis of initial state). In this section, the environment in the project area should be appropriately described. The following aspects should be presented:
 - Environmental baseline conditions (natural and socio-economic);
 - Sensitivity and values (cultural, aesthetic) of environment in the project area.
- 6. Impact identification and assessment.** In this section, the spatial and temporal scope of the impacts and characteristics of different impacts (whether positive or negative, direct or indirect, their intensity, extent and significance) should be presented for the project and also for all alternatives considered. The following aspects should be presented:
 - Assessment of all impacts to the local population;
 - Environmental data base, study methods and assumptions;

- Limitations and reliability of the data and study results;
- Compliance with the environmental standards and license issuing procedures;
- Significance of impacts, criteria and standards used for assessment of impact significance;
- Measures to avoid and mitigate impacts.

In this section, methods of data collection, methods and criteria used for assessing degree of danger and significance of impacts must be indicated. Cumulative impacts must be emphasised. A summary table of impacts for each alternative should be provided.

7. Analysis of alternatives

The main content of this section is the comparison of the main positive and negative impacts, impact mitigation and monitoring measures of alternatives. The environmentally suitable alternative is determined based on the following aspects:

- Impacts with largest effects, measures for avoiding, mitigating and managing them;
- Impacts for which the developer has committed to take prevention measures and unavoidable impacts;
- Allocation of cost and benefit between the levels, partners and population of the project area;
- Information on protection measures or resettlement, acquiring opinions of the public;
- Environmental improvement opportunities.

8. Environmental management and monitoring plan (EMP).

In this section, tasks to ensure the implementation of mitigation measures and monitoring of impacts should be presented. This is a plan for monitoring and management of impacts during the implementation and operation of the project. This plan includes the following contents:

- ✓ *Environmental and social management plans (ESMP)*
 - Adverse impact for each planned activity
 - Description of proposed mitigation measures for each adverse impact;
 - Implementation schedule including indicators, costs, etc;
 - Assignment of responsibility for implementation;
 - Estimated cost
- ✓ *Environmental and social monitoring plans (ESMP)*

The matrix has been developed for the impact monitoring to facilitate the monitoring frame work which includes the following:

- Adverse impact,
- Parameters to be monitored,
- Indicators for measuring the impact,
- Method used for verification,
- Frequency of monitoring,
- Responsibility,
- Costs involved.

- ✓ *Implementation arrangements*
 - Institutional arrangement,
 - Grievance redress mechanisms,
 - Capacity building required,
 - Implementation schedule and estimated budget,

- Monitoring and reporting procedures.

9. Conclusion and recommendations

10. Annexes where tables, drawings, maps, documents and information used as reference should be presented.

Annex 4: Complaints Sample Form

Reference No:	
Full Name	
Contact information and preferred method of communication Please mark how you wish to be contacted (mail, telephone, e-mail).	<input type="checkbox"/> By Post: Please provide postal address: <hr/> <hr/> <hr/> <input type="checkbox"/> By Telephone: <hr/> <hr/> <hr/> <input type="checkbox"/> By E-mail <hr/>
Description of incident or grievance: What happened? Where did it happen? Who did it happen to? What is the result of the problem? Source and duration of the problem?	
Date of incident/grievance	<input type="checkbox"/> One time incident/grievance (date _____) <input type="checkbox"/> Happened more than once (how many times? _____) <input type="checkbox"/> On-going (currently experiencing problem)
What would you like to see happen to resolve the problem?	

Signature: _____ Date: _____

Annex 5: Environmental Guidelines for Contractors Undertaking Construction Work under SAIP

General Environmental Management Conditions

1. In addition to these general conditions, the Contractor shall comply with any specific Environmental Management Plan (EMP) for the works he is responsible for. The Contractor shall inform himself about such an EMP, and prepare his work strategy and plan to fully take into account relevant provisions of that EMP.

If the Contractor fails to implement the approved EMP after written instruction by the Supervising Energy expert to fulfill his obligation within the requested time, the Owner reserves the right to arrange through the SE for execution of the missing action by a third party on account of the Contractor.

2. Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance Requirements specified in an EMP. In general these measures shall include but not be limited to:
 - (a) Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, vibrating equipment, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.
 - (b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.
 - (c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
 - (d) Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water

bodies/reservoirs, and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.

(e) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.

(f) Upon discovery of ancient heritage, relics or anything that might or believed to be of archeological or historical importance during the execution of works, immediately report such findings to the Watershed Management Officer so that the appropriate authorities may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources.

(g) Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.

(h) Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.

(i) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.

(j) Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long distance transportation.

(k) Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.

3. The Contractor shall indicate the period within which he/she shall maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.

4. The Contractor shall adhere to the proposed activity implementation schedule and the monitoring plan/strategy to ensure effective feedback of monitoring information to project

management so that Impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.

5. Besides the regular inspection of the sites by the Supervising Energy expert for adherence to the Contract conditions and specifications, the Owner may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State environmental authorities may carry out similar inspection duties. In all cases, as directed by the Supervising Energy Expert, the Contractor shall comply with directives from such inspectors to implement measures required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of any works.

Work site/Campsite Waste Management

6. All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bonded in order to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed off at designated disposal sites in line with applicable government waste management regulations.

7. All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.

8. Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.

9. Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.

10. Construction waste shall not be left in stockpiles along the project site, but removed and reused or disposed of on a daily basis.

11. If disposal sites for clean spoil are necessary, they shall be located in areas, approved by the Supervising Energy Expert, of low land use value and where they will not result in material being easily washed into drainage channels.

Whenever possible, spoil materials should be placed in low-lying areas and should be compacted and planted with species indigenous to the locality.

Material Excavation and Deposit

12. The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.

13. The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.

14. New extraction sites:

a) Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steepground or in areas of high scenic value, and shall not be located less than 1km from such areas.

b) Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites.

c) Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.

d) Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.

e) Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.

f) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.

15. Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.

16. Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.

17. The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable EMP, in areas approved by local authorities and/or the Supervising Energy expert.

18. Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the Supervising Energy expert and appropriate local and/or national authorities before the commencement of work.

Use of existing, approved sites shall be preferred over the establishment of new sites.

Rehabilitation and Soil Erosion Prevention

19. To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.

20. Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.

21. Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.

22. Revegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.

23. Locate stockpiles where they will not be disturbed by future construction activities.

24. To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.

25. Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.
26. Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.
27. Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.
28. Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.
29. Minimize erosion by wind and water both during and after the process of reinstatement.
30. Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.
31. Revegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

Water Resources Management

32. The Contractor shall at all costs avoid conflicting with water demands of local communities.
33. Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.
34. Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.
35. Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities downstream, and maintains the ecological balance of the river system.
36. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.

37. Wash water from washing out of equipment shall not be discharged into water courses
38. Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

Health and Safety

49. In advance of the construction work, the Contractor shall mount an awareness and hygiene campaign. Workers and local residents shall be sensitized on health risks particularly of AIDS.
50. Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.
51. Construction vehicles shall not exceed maximum speed limit of 40km per hour.

Repair of Private Property

52. Should the Contractor, deliberately or accidentally, damage private property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the owner a certificate that the damage has been made good satisfactorily in order to indemnify the Client from subsequent claims.
53. In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through the Watershed Management Officer. This compensation is in general settled under the responsibility of the Client before signing the Contract. In unforeseeable cases, the respective administrative entities of the Client will take care of compensation.

Annex 6: Minutes of consultation meetings and attendance lists in Nyabihu site

INYANDIKOMVUGO Y' INAMA YAHUJE ABATURAGE B'UMURENGE WA RAMBURA NA MULINGA N'ABAKOZI B'UMUSHINGA LWH MU RWEGO RWO GUSOBANURIRWA GAHUNDA Y'UMUSHINGA MUSHYA(**SAIP**) UGIYE GUFATANYA NABO MU BIKORWA BY'UBUHINZI.

Inama yabereye ku biro by'Akagari ka Kibisabo yayobowe n'UmunyamabangaNshingwabikorwa w'Umurenge wa Rambura Bwana Rusingiza Eson, yari yitabiriwe n'abaturage b'Umurenge wa Rambura na Mulinga hari kandi n'abakozi b'umushinga LWH bakorera mu Karere ka Nyabihu.

Atangiza inama, UmunyamabangaNshingwa bikorwa w'Umurenge yahaye ikaze abakozi b'Umushinga LWH baturutse I Kigali ndetse n'abakozi bakorena Nyabihu, yashimiye kandi abaturage bitabiriye inama bo mu Mirenga ya Rambura na Mulinga, yabashimiye uburyo bari gushyira mu bikorwa igihembwe cy'ihinga cya 2018B, abasaba kwishutisha ihinga muri iki gihe imvura irimo igwa.

UmunyamabangaNshingwabikorwa yahaye ikaze umukozi w'umushinga LWH waturutse I Kigali ushinzwe gukurikirana ishyirwamubikorwa by'Umushinga(M&EO) Bwana **BIZIMANA Jean Claude** ngo asobanurire abaturage bitabiriye inama, gahunda y'Umushinga mushya ugiye kuza gufatanya n'abaturage guteza imbere ubuhinzi.

Umukozi w'umushinga wa LWH waturutse I Kigali Bwana Jean Claude Bizimana yasuhuje abaturage maze ababaza niba amaterasi bakorewe hari icyo abamarie, abaturarage bamusubije ko amaterasi abafitiye akamaro kanini kuko uretse guhagarika isuri yatwaraga ubutaka bwabo n'umusaruro wariyongereye, Umuturage witwa Barakengera wabajijwe iki kibazo yasubije ko isuri yatwaraga ubutaka bwabo yarahagaze, umusaruro nawo iyo umuntu yakoreshje imyongeramusaruro (imborera n'imvaruganda) wikuba inshuro kuva kuri eshatu (3) kugeza ku nshuro eshanu(5).

Umukozi w'Umushinga LWH yashimiye abaturage ba Nyabihu ubwitange n'umurava bashyira mu kazi kabu ka buri munsi n'imbaraga bashyira mugutegura igihembwe cy'ihinga cya 2018B.

Kuri gahunda y'umushinga mushyashya, uyu mukozi (M&EO) yabasobanuriye ko umushinga igiye kuza gufatanya nabo guteza imbere ubuhinzi witwa SAIP (Sustainable Agriculture for intensification Project), yakomeje abasobanurira ko uyu mushinga uzabunda ku bikorwa bikurikira:

1. **Kongerera ubushobozi inzego z'abuhinzi** (amatsinda, zone na Koperative) hakorwa amahugurwa n'ingendoshuri hamwe no gukorana n'ibigo by'imari.
2. **Iyamamazabuhinzi:** Guteza imbere igihingwa cy'ibirayi no kwigisha abaturage tekimiki zose zijyanye n'ubuhinzi kuva mu gategura ubutaka, gutera,gukurikirana ibihingwa kugeza bisaruwe ndetse no gufata neza umusaruro.
3. **Guteza imbere imirire:** Hazatangwa amahugurwa ku mirire mu rwego rwo guteza imbere imirire myiza (hakorwa amahugurwa mu gategura indyo iboneye ndetse no kubishyira mu bikorwa mu ngo zacu) hagamijwe kurwanya indwara ziterwa n'imirire mbi (Bwaki.)
4. **Ibikorwa remezo byo kongera agaciro umusaruro:** gufatanyiriza hamwe n'abagenerwabikorwa mu kongerera umusaruro agaciro no kuwugeza ku masoko.

Umukozi ushinzwe gukurikirana ibikorwa by'Umushinga LWH yasobanuriye abaturage ko umushinga mu Karere ka Nyabihu uzibanda mu guteza imbere igihingwa cy'ibirayi.

Nyuma yo kuganiza abaturage kuri gahunda z'umushinga mushyashya (SAIP) ugiye gutangira, Umukozi ushinzwe gukurikirana ibikorwa by'umushinga yahaye abaturage ijambo ngo batanga ibyizuzo byabo mu byo umushinga ugiye gutangira wazabafasha gukemura, maze abaturage batanga ibyifuzo bikurikira:

- A) Gufasha abaturage kubona imbuto y'ibirayi itanga umusaruro kandi yihanagnira uburwayi
- B) Kubonera abahinzi b'ibirayi nkunganire ku mbuto y'ibirayi kuko imbuto ihenda no kubafasha kubona isoko ritabahombya ku musaruro haba bejeje.
- C) Gufasha abahinzi gushyiraho ikigega cy'imbuto n'izindi nyongeramusaruro
- D) Guha amahugurwa abanyamuryango ba Koperative zashizweho ku micungire y'amakoperative
- E) Gushyiraho ikigo mbonezamire (Centre de formation nutritionnelle)
- F) Gushyiraho ihuriro ry'abahinzi b'ibirayi (potatoes platform).
- G) Gushyiraho abajyanama mu mirire muri buri mudugudu bakaba bashingwa kureba ingo zifite ibibazo mu mirire no kubafasha uko bagerwaho ndetse no gутегура indyo nziza.
- H) Gufasha abaturage uburyo bwo gutubura imbuto y'ibirayi hafi yabo hubakwa Greenhouse byibuze imwe mu murengé aho umushinga uzakorera.

Umukozi ushinzwe gukurikirana ibikorwa by'Umushinga LWH yasabye abaturage kwita ku materasi yakozwe na LWH abasaba ko igithe hagize iterasi risenyuka komite zasizweho zishinzwe kubungabunga ibikwarememezo ndetse na ba nyirimurima bagomba guhita barisana mu rwego rwo kwirinda ko byateza isuri no ku materasi ari munsi yiryo ryacitse.



Photo 1,2 &3: Umukozi w'umushinga aganiza abaturage kuri gahunda y'umushinga mushya.

Mu gusoza Inama umunyamabanga Nshingwabikorwa yashimiye byimazeyo. Umushinga LWH ku bikorwa byinshi wateyemo inkunga abaturage b'Akarere ka Nyabihu ariko cyane cyane abaturage b'Umurenge wa Rambura na Mulinga kuko aribo bazi ibyiza by'umushinga LWH.

UmunyamabangaNshingwabikorwa w'umurenge kandi yahaye ikaze umufatanyabikorwa mushya ariwo SAIP ko biteguye gufatanya mu bikorwa byose bifusa gukorera mu Karere ka Nyabihu by'umwihariko mu Mirenge ya Rambura na Mulinga.

Umunyamabanga Nshingwabikorwa kandi yasabye abaturage b'Akagari ka Kibisabo by'umwihariko nkuko bari babyiyemeje kuremura mugenzi wabo wahuye n'ikiza inkuba igahitana inka ze eshatu gushyira mu bikorwa bakamugurira inka y'inzungu bamwemereye.

Uyu moyobozi kandi yasabye abaturage gushyira ingufu mu kwihutisha igihembwe cy'ihinga cya 2018B cyane cyane ku baturage bahinga ingano, amashaza n'ibirayi kuko abahinze ibigori bo barimo kumenera yabasabye ko batarenza tariki ya 25/3/2018 bazaba barangije

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gutera imbuto birinda ko nyuma yiriya tariki imyaka bazatera yazahura n'izuba ntitange umusaruro.

Inama yasojwe saa kumi n'igice(16h30')

Umwanditsi w'Inama

SEBAZUNGU Modeste
M&EO LWH/RSPP/Gishwati Coordination



Umuyobozi w'Inama:

RUSINGIZA Esron
Executive Secretary of Rambura Sector



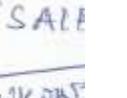
REPUBLIQUE YU RWANDA
INTARA YIUBURENGERAZUBA
AKARERE KA NYABITHU

URUTONDÉ RW'ABITABITIRE INAMA Y'ABAGENERWAPOKORWA B'UMUSHINGA
"SAIP" NURE SITE YA NYABITHU - ITARAKI 13/ 31/ 2018

No	ANAZINA YOMB	No YIRANGANINTU	UMWUGUDU	AKABARI	UNURENGE	UNU
1.	Niyigeme Damotha	1198970080503075	NYIRIKUKUMA	Mwigimike	Muninga	
2.	KWAMBAZEMUNGUBOXAL	1197480044358001	KABEZIA	KIBISABO	RAMBULA	
3.	NTIWUNG20BASHILU		NYAMPUHU	KIBISABO	RAMBULA	
4.	NYIRABAZERA Alphonse	1195970080503074	NYANGURAGUM	GURIRO	RAMBURA	
5.	AKIRE E. Emmanuel	1197080091522033	RATO	GURIRO	RAMBURA	
6.	SHIGA J. Samacene	1195680023525080	NYIRIRO	REGATRA	RAMBURA	
7.	NTAHONDI Félicien	1196480031909025	NTANDO	RWANTORO	RAMBURA	
8.	SEZIKEYE Anastase		NYUNDAREGYEN	RWANTORO	Mulenga	
9.	GASANA Jean Damascene	1196280034728091	KARAMPA	RWANTORO	Mulenga	
10.	HAGUMPHUG217 Secephir	1196680029652008	KYURURUZA	RWANTORO	Mulenga	
11.	MUKASINE Gladiane			Mwigimike		
12.	UMUTORA Janette		BUGONDE	KIBISABO	RAMBURA	
13.	NYIRASHYIRAMBEKE Rachel	11962700225042	NYATARE	KIBISABO	RAMBURA	
14.			NYAMPUHU	"	"	
15.	BWEGAMIRO		NYATARE	KIBISABO	"	
16.	ZANINKA Joseph					
17.	DUSABEMARIYA Christine		BUGONDE	"	"	
18.	MANISHIMWE Devotha		BUGONDE	"	"	
19.	MANIRAKIZA Immacule		NYAMPUHU	"	"	
20.	MUJAWAMARIYA Claudine		NYAMPUHU	"	"	
21.	AYINKAMIYE Tomitila		BUGONDE	"	"	

REPUBLIQUE DU RWANDA
INTARA YI UBURENGERA ZUBA
AKARERE KA NYABITU

URUTONDE RU'ABITABIRIVE INAKA & 'ABAGENERWA B'UMUSHINGA' SALLE
MURE SITE YA NYABITU + (TARIKI 13/03/2018)

NO	AMAZINA YONBI	NO YI IRAN GAMUNTO	UMUSHINGA	AKABARI	UMURENGE	UMUKONZ
1	Nzabekka Emmanuel	1198480084580192	Bugendo Gatane	Kibitabo Kibitabo	Rambura Rambura	
2	Nsobiyumwa Elie	1198080073811050	GANJILA KARANGA KINSHILA NYAMPUNHE	KIBISABO KIBISABO KIBISABO KIBISABO	RAMBURA RAMBURA RAMBURA RAMBURA	
3	Alystrophe Louise	1197880060090666				
4	NKUBITO Celeste	1097270041461015				
5	MUKAMUSOMI Beatrice	1095670023466036				
6	MUKAMUKUNZWE Sophie					
7	Mukagire Claudine	1197670060165068	Nauma KASEZA	Nyundo KIBISABO	Rambura RAMBURA	
8	NKURUNZIZA Jean Régis	1197380042075074				
9	Mukandekwe Bonalha	1198670044506483	KABEZA	KIBISABO	RAMBURA	
10	Mujyabahinkwa Theresse	1193270037775066	ICALOMI KINSHILA KINSHILA KINSHILA	KIBISABO KIBISABO KIBISABO KIBISABO	RAMBURA RAMBURA RAMBURA RAMBURA	
11	Sudarminangwa Vertine					
12	Muryarilange Emmanuel	1198580084513038	ICAROMI BAGOME	KIRAMBI KIRAMBI	RAMBURA RAMBURA	
13	BIGOZI MAMA JEP DANTISIKA	1197080039008073				
14	KARIMUNDA SEANT D'ambose	11983701719866				
15	Habiyaremye Jean Dower					
16	INGABERE Frédéric					
17	Bifumenu Remiye	1199280166817063	BUGORODE	MULINGA	MULINGA	
18	Kayitukaga P. M. JANCE	1198770072710025	PERAMBO	KIBISABO	RAMBURA	
19	Mugamuramugwa Paul					
20	Mulimungwa Beaertine	1198470084566053	KINTURIA BUGORODE	KIBISABO	RAMBURA	
21	WEABA KAKO FAUSTIN					

REPUBLIKA YU RWANDA,
INTARA Y'IBURENGERAGUBA
AKAZERE KA NYABHU

* SAP' MUL SITE YA NYAPU - ITARIKI 13/12/2018. ANAZINA KORNA BUMUSHIN

N°	NOM SITE - N° DÉPARTEMENT - DATE	N° YIRANGAMUNTU	N° UMUSUGUBU. AKAGAOU	UMURENGE. U.
1	KALIMULUMUYE Patrice	N°	Njanku bussa	Muryasite
2	HATE GE KIMAFIVA		Nyampurwe	Muringe
3	SEBUKURA Alain		Bugonde	Rambura
4	NDAYISABA		Dugonde	Rambura
5	BIZAKENGERAje de dieu	M:	Bugonde	Rambura
6	Soriamage J. Dumecene	11865800250 78064	Nyampuhu	Rambura
7	Uscaburuk Theoneste		Rwengzo	Rambura
8	MAZAKIRU Théophile	1186590051322068	Kintu po	Rambura
9	NDRQ SIMATA		Njampurwe	Rambura
10	Udegaminye		Kibisabo	Rambura
11	Bagisiru		Wawengzo	Rambura
12	NTORISIGONIENNE		Nyembabu	Rambura
13	Ntababukimana SAMSON		Bugonde	Rambura
14	Tumusambwe Theophile		Nyampuhu	Rambura
15	Kurzefo Maito palestin		Nyampuhu	Rambura
16	Munyeshunge Jean daniel	079 300 17 48	FRFR71737	Rambura
17	DUSENGIMA NA JOHNSON		Bugonde	Rambura
18	NZAMAMATREWATIKI Jean Claude	07891487888777	BUGENDA	Rambura
19	Mulazi ne M. Lwizi de	81199480088437043	Kintitika	Rambura
20	Kayira Bemafantise		Rwimbingo	Rambura
21	Hulu primaria j. Bemba	1197780048149067	ntango	Rambura
			kuandalupi	Rambura

REPUBLIKA YU RWANDA
INTARA YU BURENGERA ZUBA
AKARERE KA NYABITHU

URUTONZE RWAKINTABURUYE INTARA Y'ABAGENERWA BIKORWA B'UKUSTINGA" SA
MUDU 676 YA NYABITHU - ITARAKI 13/03/2018

NO.	AMAZINA YOMBO	NO. YIRANGANWU	UMUWOBWA	AKAGARI	UMURENGE	UMUKONO.
1.	Ndagijimana J. de dieu	1197480044377050	Nyamutesi Bwongende	Kibisabo	Ramburwa	<i>✓</i>
2.	Mukarumuda na Emmanuel	-	Kibisabo	Kibisabo	Ramburwa	<i>✓</i>
3.	Ngusije Flemonah	-	Kibisabo	Kibisabo	Ramburwa	<i>✓</i>
4.	Habiki na muri Stelline	-	Kimihina Bwongende	Kibisabo	Ramburwa	<i>✓</i>
5.	Nyabubwa na Emmanuel	1198880081447011	Kimihina Bwongende	Kibisabo	Ramburwa	<i>✓</i>
6.	Nyabubwa na Emmanuel	1197270042272054	Kimihina Bwongende	Kibisabo	Ramburwa	<i>✓</i>
7.	Nyabubwa na Emmanuel	119400084552052	Kimihina Bwongende	Kibisabo	Ramburwa	<i>✓</i>
8.	TK Mura muri yu Sellefan	-	Kanambi	Kibisabo	Ramburwa	<i>✓</i>
9.	Ndaramoyant	-	Kanambi	Kibisabo	Ramburwa	<i>✓</i>
10.	Nyinor burkana	-	Kanambi	Kibisabo	Ramburwa	<i>✓</i>
11.	Ntawururhimo	-	Birembo	Birembo	Ramburwa	<i>✓</i>
12.	Bwonyegimbi re	-	Birembo	Birembo	Kamburwa	<i>✓</i>
13.	Nyinabubwimka	-	Nyamukuru	Murjanika	Muringa	<i>✓</i>
14.	Ha kufi mema Leonidas	-	Kanambi	Riyandabo	Muringa	<i>✓</i>
15.	HABAZUWISIMA J. Christophe	1197480044375076	Kimihina	Kibisabo	Ramburwa	<i>✓</i>
16.	BUTUMBANO Peter	-	NTAMPUTU	KIBISABO	Ramburwa	<i>✓</i>
17.	MUHIZE Velente	-	NYANKOKUMA	KWISYANIKE	Muringa	<i>✓</i>
18.	TWAGIRAMARIZA M. Cleo	-	NYANKOKUMA	KWISYANIKE	Muringa	<i>✓</i>
19.	NSELANGAFITE Godance	-	NYANKOKUMA	KWISYANIKE	Muringa	<i>✓</i>
20.	Kamawere Josph	-	Bwongende	Kibisabo	Ramburwa	<i>✓</i>
21.	Z'Ramunwehola Cecilia	-	Kabantu	Kibisabo	Ramburwa	<i>✓</i>

REPUBLIQUE Y'U RWANDA
INTARA Y'IBURENGERAZURA.
AKAREZE KA NYABIRU

URUTONDE RW'ABURABIZIYE INAMA N'ABAGENERWA BIKORWA B'UMUK
"SAIP" MURI 877E YA NYABIRU - (TARIKI 13/08/2018)

N°	AMAZINA YOMB	N° YITIRANGAMUNTU	UMUHUGWE	AKAREZE	UMURENGE	UMUK
1	Teragiramainga Fransais		rwandangereza	rwandangereza	Munyaga	
2	Rwigemera Mostore Clément	11970 80042783026	Rwanda	Rwanda	Rwanda	
3	Barazelli Virgine	119687 00365 20098	Rwanda	Rwanda	Rwanda	
4	Zani nka Louvaille		Rwanda	Rwanda	Rwanda	
5	Marinawire Eugene		Rwanda	Rwanda	Rwanda	
6	Dagatore Angelique		Rwanda	Rwanda	Rwanda	
7	Nyakabuseba Belo uille	11970 70033031034	Rwanda	Rwanda	Rwanda	
8	Hagurumwanya J. Bokoséne	1198980075453089	Rwanda	Rwanda	Rwanda	
9	SEBASORE J. Pierre	1198990075661029	Rwanda	Rwanda	Muringa	
10	Habyaremy & J. Claudio		Rwanda	Rwanda	Muringa	
11	Murekatete J. J. J. J. J.	1197680045353046	Rwanda	Rwanda	Rwanda	
12	NTicwanziye Thérese		Rwanda	Rwanda	Rwanda	
13	Myingatigwa Rangwanda		Rwanda	Rwanda	Rwanda	
14	Mumukto Zabuoni		Rwanda	Rwanda	Rwanda	
15	Ngazizumuhire Faustine	1198280084413029	Rwanda	Rwanda	Rwanda	
16	Ndubize Angelique	119587 70075663053	Rwanda	Rwanda	Rwanda	
17	Hitiwana Joseph	11959 80029757021	Rwanda	Rwanda	Rwanda	
18	SAGATETU Théophile	11975 82044444049	Rwanda	Rwanda	Rwanda	
19	Boop. Otruit		Rwanda	Rwanda	Rwanda	
20	Miyonshuti		Rwanda	Rwanda	Rwanda	
21	NTezimana	1198170071816036	Rwanda	" "	" "	
22	Twiririzamunsi Pilvin	11970 800208 78026	Rwanda	" "	" "	
23	SEBASORE N. N. N. N. N.	1197785097 70800	Leo 4-8881 MRED			

Annex 7: Minutes of consultation meetings and attendance lists in Muyanza site

INYANDIKO MVUGO Y'INAMA ZO GUSOBAURA UMUSHINGA MUSHYA W'UBUHINZI URI GUTEGURWA

Nyuma y'imyaka iga kuri itanu (5) umushinga wo gutunganya ubutaka, gufata amazi no kuhira imusozi (LWH)ukorera kandi ukorana n'abaturage bo mu Mirenge yo mu Karere ka RUI,INDO, abaturage baguragaje ubufutanye no kugira uruhare mu migendekere myiza y'umushinga, igihe kikaba cyigeze ngo usoze igahe wari uteganijwe kumara.

Murwego rwo kubunganga ibyo LWII yagezehe, Leta y'u Rwanda, iri gutegura umushinga witwa SAIP uzafasha abagenerwabikorwa kubyaza umusaruro ibyo LWH yakoze.

Mu rwego rwo kwitegura gukorana n'umushinga mushya, abakozi b'umushinga LWH kuri site ya site ya MUYANZA gukorana ibiganiro n'abagenerwabikorwa hagamijwe kubasobanurira umushinga mushya no kumva ibitekerezo byabo.

Inama zabereye aha hakurikira: Akagali ka TABA na KARENTERI, Umurenge wa BUREGA, Akagali ka NDARAGE, GAHORORO Umurenge wa BUYOGA, zikaba zarabaye taliki ya 13/03/2018 mu nteko rusange z'abaturage.

Ibiganiro byibanzo kuri izi ngingo zikurikira:

1. Gusobanura mu magambo make umushinga mushya;
2. Kumva ico abagenerwabikorwa batekereza kumushinga mushya;
3. Kubaka ubushobozi bw'abahinzi binyuze mu matsinda no muri cooperatives;
4. Kongera umusaruro;
5. Kurwanya imirire mibi;
6. Kubegereza ibikoresho byo kuhira mu gice cyitazajya cyuhirwa n'amazi ya dam.

Abakozi b'umushinga mu nama zabereye mu tugari dutandukanye batangiye basobanura mu neamake umushinga mushya ariwo SAIP ukaba ari umushinga wo gukomeza ibyagezweho,kongera umusaruro no kurwanya imirire mibi. Bashimira uburyo abagenerwa bikorwa bitabiriye kwibumbira mu matsinda no kubungabunga ibikorwa byabakorewe birimo amaterasi, ibiti bivangwa n'imyaka, imirwanyasuri hamwe na hamwe ndetse n'urugomero rw'amazi azakoreshwa mu kuhira imirima.

Basalwe kuzakorana neza n'umushinga mushya cyane cyane mu gukomeza kwongera umusaruro w'ibikomoka k'ubuhinzi cyane cyane batekereza ku kwihaza mu biribwa no gusagurira isoko.

Kuri iyo ngingo yo kwihaza mu biribwa, abagenerwahikorwa basabwe kuzafatanya n'umushinga SAIP kwita ku mirire cyane cyane bategura indyo yuzuye mu mirire yabo ya buri munsi. Bakaba bateguzwa gutangira kuvugurira no gutekereza ku turima tw'igikoni.

Babwiwe kandi ko umushinga SAIP muri gahunda zavo harimo gufasha abahinzi batazagerwaho n'amazi y'urugomero rwa Muyanza kuhoma ibikoresho bitandukanye byo kuhira kugirango umusaruro w'ibikomoka k'ubuhinzi ukomeze kwiyongera.



Haganiriwe kandi ingingo yo kubungabunga ibikorwaremezo cyane cyane amatiyo yo kuhira, imihanda inyura mu cyanya cyuhirwa, ibiti bivangwa n'imyaka n'ibindi. Basabwa kubyitaho kuko ari ibyabo kandi buri wese akaba ijisho rya mugenzi we.

Ibibazo byabajije n'ibisubizo byatanzwe.

No	Ibibazo cyabajije	Igisubizo cyatanzwe
1.	Abagenerwabikorwa babajije niba umushinga uzabafasha kubona umuguzi kumusaruro w'ibigori n'ubutunguru.	Basubijwe ko umushinga uzabafasha kubahuza n'amasoko ajyanye n'umusaruro bazabu bejeje hakurikijwe kandi uburyo bawufushe neza.
2.	Abagenerwabikorwa babajije niba umushinga uzabafasha kwimuka bakava mu cyanya cyuhirwa murwego rwo kuhatunganya aho bari batuyc hagakorerwa ubuhinzi.	Basubijwe ko umushinga uafite gahunda yo kubakira amazu abatuye muri command area ahubwo bagomba kuuya bagenda bava mu cyanya kizubirwa buhoro buhoro.
3.	Abagenerwabikorwa babajije niba umushinga mushya uzaza ukora amaterasi mubice byagiye bisigara no mugice kitari leyerckeranye n'umugezi wa MUYANZA	Abagenerwabikorwa basobanuriwe ko umushinga SAP utazakora amaterusi ahubwo uzaja ufasha abaturage kubaka ubushobozi mubijyanye n'ubuhinzi bunoze no kurwanya imirire mibi, gufasha mukubona ibikoresho byo kuhira imyaka.
4.	Abagenerwabikorwa babajije ikibazo cy'uko bazubakirwa ubwanikiro cyane cyane abahinga ubutunguru mu gice kitazuhirwa	Basobanuriwe ko ubwanikiro ari muri bimwe umushinga uzaba ukara ariko hamaze kugaragazwa umusaruro ufatika uturuka mu matersasi y'indinganire yakozwe na I.W.H.

Ibyifuzo abagenerwabikorwa bagaragaje hyakongerwa mu mushinga mushya:

- Abagenerwabikorwa bifuje ko hazatekerezwa kubindi bikorwa byuzajya byunganira ubuhinzi: (Ubudozi bw'inyenda, ububaji, gukoru amasabune n'ibindi,...)
- Abagenerwabikorwa bifuje ko umushinga mushya wazabafasha mu kurwanya imirire mibi bahabwa amatungo (amaguli n'amaremore hakurikije ubushobozi bwa buri mugenerwabikorwa) urugero: inka, ibene, inkoko n'ibindi,...
- Bifuje kandi ko umushinga mushya wazabafasha abahinzi kubegereza hafi inyongeramusaruro n'imiti yo kurwaya ibyonnyi (fertilizers and pesticides);

d d

- Abagenerwabikorwa kandi bifuje ko bakongererwa ubushobozi mu bijyanye n'imihingire myiza yatzatuma amaterasi bakorewe yazabyanwa umusaruro kandi akamara igihe kirekire;
- Bifuje ko mu mushinga mushya bafashwa mu gukoresha no kubungabunga ibikorwa byo kuhira imyaka (Operation and maintenance of the irrigation infrastructure in CA).

Inama yashojwe abaturage bagaragaje ko bashimira Leta y'u Rwanda ko ikomeza kubatekereza ibagenera ibyahindura ubuzima bwabo bukarushaho kuba bwiza. Bijeje imikoranire myiza no gukomeza gufatanya mu bikorwa byose by'umushinga mushya.

Ku mugereka w'iyi nyandiko mvugo haragaragaraho urutonde rw'abitabiriye inama mu tugari dutandukanye two mu Mirenge itandukanye umushinga uzakomerezamo ibikorwa byakorwaga na LWH.



Abegeranyije ibitekerezo n'ibyifuzo by'abagenerwabikorwa:

- UWIZEYE Willy, CDO

Umuyobozi wa LWH Site ya MUYANZA

- MUKAMUGENGA Angelique, TL

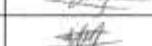
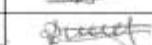
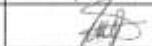
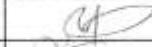
AKARERE KA RULINDO

UMURENGE WA..... *Bunyoro.....*

AKAGALI KA.....

UMUDUGUDU WA... *Angusora*.....

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	Hagenimana Alphonse	M	0728616891	
2	Kumwakirayi Augustin	M	0727405354	
3	Mukamanganga Alphonse	F		
4	Habineta Cyprien	M	0728055836	
5	Therese Ngoyimana Faustine	M		
6	Nyiragabatwase Ephraim	F		
7	Habimweye Emmanuel	M		
8	Mbonye Isidore Namwase	M	0722632153	
9	Nyirakamana Sylviose	F		
10	Buragamwa Faustine	M	0725821712	
11	Habineta Alphonse	M		
12	Mura byimana Gentiane	F		
13	Mwizemimana	F		
14	Mwanabera Alphonse	F	0727716467	
15	Mukamweza Odiletha	F		
16	Murabymana Verstine	F		
17	Kankindi Faustine	F		
18	Mukandabili Persephone	F		
19	Mukamanganga Alphonse	F		
20	Mukamweza So	F		

AKARERE KA RULINDO

UMURENGE WA... *PAUL RUMI GAK...*

AKAGALI KA... *PAUL RUMI*

UMUDUGUDU WA... *PAUL RUMI GAK...*

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	MURAGATEXTE <i>Paul</i>	M	0781771295	<i>Paul</i>
2	MAHARINE <i>Paul</i>	M	0784222688	<i>Paul</i>
3	MURAKATE <i>Salomé</i>	F	0782954027	<i>Salomé</i>
4	MIKADUHANA <i>Valentine</i>	F	0726286347	<i>Valentine</i>
5	KIMANA <i>Andréline</i>	M	-	<i>Andréline</i>
6	KARIMUNKA <i>Yedette</i>	M	-	<i>Yedette</i>
7	NAMUKAGA <i>Dielessphine</i>	M	-	<i>Dielessphine</i>
8	KIMONDO <i>Elmiste</i>	M	-	<i>Elmiste</i>
9	KARANGWA <i>Emile</i>	M	-	<i>Emile</i>
10	KAUKAMANA <i>Thérèse</i>	M	-	<i>Thérèse</i>
11	NEARAZMANA <i>Thérèse</i>	M	-	<i>Thérèse</i>
12	NEUKAGAMANA <i>Théodore</i>	F	-	<i>Théodore</i>
13	LEWAMAGORAN <i>Thérèse</i>	M	-	<i>Thérèse</i>
14	MEGBARWA <i>Emile</i>	M	-	<i>Emile</i>
15	TWAKIDWUMUHOR <i>Alphonse</i>	M	-	<i>Alphonse</i>
16	MIKASHYAKA <i>Elisabeth</i>	F	-	<i>Elisabeth</i>
17	GWANAMADA <i>Valentine</i>	F	-	<i>Valentine</i>
18	NAHORANTE <i>Thérèse</i>	M	-	<i>Thérèse</i>
19	NEAWIZERA <i>Thérèse</i>	M	-	<i>Thérèse</i>
20				

AKARERE KA RULINDO

UMURENGE WA... B.I.R.E.G.A.....

AKAGALI KA..... K.A.R.E.N.G.E.R.I.....

UMUDUGUDU WA... B.I.R.E.G.A.....

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	Muhire Justin	M	0785392727	Amuyi
2	Hurarasi JMV	M	0821600617	Other
3	KAHUFU ZY Ferencine	M		Other
4	Mwizeyimana S. Las	M	0723035687	Other
5	Mugabalinga quinton	M	078369824	Other
6	Mukizamalamuwa Boova	M		It's
7	Kalaza Alphonse	M		Yafe
8	Musabujimana Jean domine	M	0726310865	Amuyi
9	MUKANDAYISIKA Dorothy	F		Other
10	MOKARORINDA Falatene	F		It's
11	Mukabunginga Xavine	F	0783811049	Amuyi
12	Mukamobesi Josephine	F		Other
13	Mwizeyimana Enata	F		Other
14	Mukaruziga Benedictof	M	0245604162	It's
15	Mujimbarange Jeanne	F		Other
16	Mugabalinga rosario	F		It's
17	Musagirato	F		Other
18	MUKHO MIRE	F		It's
19	Nyirande Seyn chathal	F		Other
20	Bitabira Faliba	M		Other

AKARERE KA RULINDO

UMURENGE WA REGA

AKAGALI KA REGA

UMUDUGUDU WA REGA

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	BIZIMUNGU Jean Pierre	M	0781221803	<u>Rega</u>
2	NYIRABAGANDE Julie	F	—	<u>Rega</u>
3	MUKESHIMANA Clodine	F	0786602106	<u>Rega</u>
4	MUKANTABARA Innocent	F	—	<u>Rega</u>
5	Nsimye Dorothy	M	—	<u>Rega</u>
6	Ukuringenye Phumzile	F	—	<u>Rega</u>
7	Uwagayimwe Agathe	M	—	<u>Rega</u>
8	Kanyerwanda Felicia	M	—	<u>Rega</u>
9	Zanithon Solange	F	—	<u>Rega</u>
10	Mukandabuze Nephorus	F	—	<u>Rega</u>
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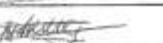
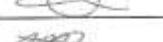
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UMURENGE WA 0216.08

AKAGALI KA RENOTU

UMUDUGUDU WA BUZAMUKO

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	Kazamuka Justin	M	0780543707	
2	Kabumugisha Fortune	M	—	
3	Kimwanya Cedric	M	—	
4	Habizi Faustin	M	—	
5	Kanegulu Angel		—	
6	Habimana Faustin	M	—	
7	Habiyakaze Rabith	M	—	
8	Habimana Celeste	M	—	
9	Habumugisha Celeste	M	—	
10	Razzaq Jean Nsabimana	M	—	
11	Rwababo Jeanne	M	—	
12	UZAHI EWA Gilbert	M	—	
13	Habivo Nsabimana	M	—	
14	Habumugisha Celeste	M	0782920257	
15	IMASHIMWE Jean Claude	M	0203283745	
16	Habiyimana Sandrine	F	—	
17	Habiyimana Sandrine	F	—	
18			—	
19			—	
20			—	

AKARERE KA RULINDO

UMURENGE WA B. B. G. A

AKAGALI KA T. B. B. A

UMUDUGUDU WA M. B. G. A

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	<u>N. B. G. A</u>	M*	0722735562	<u>✓</u>
2	<u>M. B. G. A</u>	F*		<u>✓</u>
3	<u>M. B. G. A</u>			<u>✓</u>
4	<u>M. B. G. A</u>	M*		<u>✓</u>
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AKARERE KA RULINDO
 UMURENGE WA *...*
 AKAGALI KA *...*
 UMUDUGUDU WA *...*

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	MURENGEWA T. A. DING	14-	0782460430	<i>...</i>
2	MURENGEWA THOMAS	14-	07822920846	<i>...</i>
3	TUYISHINGA SIX RENE	F	-	<i>...</i>
4	MUKAMURIGO BAPOLIMA	C	-	<i>...</i>
5	NSALIMARWA S. A. DING	14	-	<i>...</i>
6	RUBAFUKARWA GABRIEL	14	-	<i>...</i>
7	TURINGEYIWA AND FIDEL	14-	-	<i>...</i>
8	NGENGEWAMBO JOSEPH	14-	-	<i>...</i>
9	MUKOLABWA T. DANDIRO	F	-	<i>...</i>
10	MUKAMURIGO CATHARINE	F	-	<i>...</i>
11	MUKAMURIGO KYELEKHO	C	0782870847	<i>...</i>
12	KOKI ZIRINGA G. W. S	14	-	<i>...</i>
13	MUFUNDARWA G. K. MUSVITA	F	-	<i>...</i>
14	MUKAMURIGO	F	-	<i>...</i>
15	MUKAMURIGO WESTLINE	F	-	<i>...</i>
16	TUGAMURIGO IMADELL	F	-	<i>...</i>
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AKARERE KA RULINDO

UMURENGE WA BURIGA.....

AKAGALI KA HARANGA.....

UMUDUGUDU WA MAFABRA.....

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	TUVISATI MIREBumane	M	0783412950	<i>✓</i>
2	IRABEBENCA OFARASH	M		<i>✓</i>
3	NSENGIMANA VINCENT	M	0786630347	<i>✓</i>
4	Mulambwa Siliane	M		<i>✓</i>
5	Mulambwa Genoanda	M		<i>✓</i>
6	Mulambwa Theodore	M	0785314844	<i>✓</i>
7	Nshimpumukiga Jufa	M	0788727643	<i>✓</i>
8	NShishira Bonda	M	0727853924	<i>✓</i>
9	MANIZABAYO	M	0786118756	<i>✓</i>
10	TWIZEMIMANA J. Dominique	M		<i>✓</i>
11	MANIKAREBA D. Batsal	M	0787013194	<i>✓</i>
12	Sibimana Sylvere	M	0782081086	<i>✓</i>
13	GASERA S. Bon de Dieu		078626725	<i>✓</i>
14	Turiyimana Augo	M	072354208	<i>✓</i>
15	NSENGIMANA J. Baptiste	M	0788294754	<i>✓</i>
16	NSENGIMANA Jean Claude	M	0788714510	<i>✓</i>
17	Mulambwa Thysline	F	0788850094	<i>✓</i>
18	Mulambwa Octilla	F	0788830226	<i>✓</i>
19	AKITIMANA marie	M	0726255760	<i>✓</i>
20	Mulambwa Rosemeli	M	0782743174	<i>✓</i>

AKARERE KA RULINDO

UMURENGE WA **BUYOGA**
AKAGALI KA **NDARAGE**
UMUDUGUDU WA **KARAMBI, GIKINGO**

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMB	IGITSINA	TELEFONE	UMUKONO
1	MPOGNAZI pascole	M	0783074866	0000
2	Ndohimana Donatien	F	0727786223	0000
3	Twagiramvura - Mouette	M	0725529081	0000
4	Mwendabaya Mathieu	M	-	0000
5	Mwendimana Philippe	M	0722867704	0000
6	Ngabwemimana JC	M	076995671	0000
7	Mwendabaya Céleste	M	-	0000
8	BIZIMUNGU Xavier	M	0725209207	0000
9	Habiyaremye Israël	M	0786077060	0000
10	Akobantezeye soleil	M	0783662289	0000
11	Amazima Jeanne Job	M	0725423684	0000
12	NDAHAY Charles	M	0797049934	0000
13	Fistera Donath	M	0782321518	0000
14	Washimana Agathon	M	07972856702	0000
15	Uwamukunda malika	F	-	0000
16	Mukarere Esmeralda	F	-	0000
17	Muhorareye Adeline	F	-	0000
18	Malefina Odile	M	-	0000
19	Nyiramana Isidore	F	0727382124	0000
20	Twagiramvura ESTER	M	0789514404	0000

AKARERE KA RULINDO

UMURENGE WA BUYOGA

AKAGALI KA N.DAPAGE

UMUDUGUDU WA K.A.R.A.MBI na GIKINGO

ABITABIRYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	KARACHELI Laurent	M	0726872762	<u>Stéph</u>
2	Mukamunsoni ruk	F	-	<u>Steph</u>
3	Mukamunsoni ruk	F	-	<u>Steph</u>
4	Mukamunsoni ruk	F	-	<u>Steph</u>
5	Bugingo sesituri	M	-	<u>Steph</u>
6	Nkhabuganza	F	-	<u>Steph</u>
7	Nkhabuganza	F	-	<u>Steph</u>
8	Nkhabuganza	F	-	<u>Steph</u>
9	Nkhabuganza	-	-	<u>Steph</u>
10	Kacucciclophias	M	0726877337	<u>Steph</u>
11	Mutumba muri Charles	F	0729622592	<u>Steph</u>
12	Mutaka amanyi	T	-	<u>Steph</u>
13	Mutujimana matikorezi	-	-	<u>Steph</u>
14	Mwendakha-jo	M	-	<u>Steph</u>
15	MUKARI Sa	F	-	<u>Steph</u>
16	Uwirayize	M	-	<u>Steph</u>
17	Sikomano Jean Pamo	M	-	<u>Steph</u>
18	Ndagijumanu Et. Et	M	0728491035	<u>Steph</u>
19	Harcote igarage - NA	M	-	<u>Steph</u>
20	MUNYANDUKA Gideon	M	072783170	<u>Steph</u>

AKARERE KA RULINDO

UMURENGE WA B. UYEGA

AKAGALI KA N. D. A. RAGE

UMUDUGUDU WA K. A. R. A. M. B. I. ha GIKINGO

ABITABIRIYE INAMA YO KUNGURANA IBITEKEREZO KUMUSHINGA MUSHYA URI GUTEGURWA W'UBUHINZI

S/N	AMAZINA YOMBI	IGITSINA	TELEFONE	UMUKONO
1	Uwamushoro Bectie	F		<u> </u>
2	Holengima natali	M		<u> </u>
3	MUKAHABYARIMANA	F		<u> </u>
4	Mukarobiki Damithilla	F	0723331319	<u> </u>
5	Kisobahute Alphonsine	F		<u> </u>
6	Hugabeday H. Louise	F		<u> </u>
7	Banyangaseke Em.	M		<u> </u>
8	HAROrimanana diec.	M		<u> </u>
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MUSHYA WIBUHINZI URI GUTTGURWA (BUYOGA-GAHOLLO)

Thuring

Anderson

1. NSEKONAKO Claudio
2. UKUNI SHYAKA Placien
3. taberuka Paolal
4. tihagaritse Jean
5. Munyentwari Jean
6. Kasalij Damascene
7. Ujeneza Vigitaliya
8. Mukayinamfa Sallome
9. Mukamijengoma Yosafina
10. Mukamirezi donatice
11. Twizingiyinana J. Damascene
12. Mukamara Medofis
13. MUSA BYIMANA Alphonse
14. Mukakakumya Christine
15. Murtuyi Mana
16. Muyeshi Mana
17. Mukandity
18. Mukanta Mousali
19. Mukakutuza
20. Mukarugumwaka
21. Mukaka Isafra
22. Nyira Baggeni
23. MINEGA Onisphore
24. Mukabaki
25. Niumgire Vaintha
26. Vuguzigize
27. Mukakakumya J. Damascene
- 28
- 29
- 30

MUSHYAWLIBUHI NDI LIRI QUTEQUREWA (BUDYOGA - GANTOLAY)

Amasing

1. ~~PANGARAKALU ASAMS~~
2. ~~Po ang amewabo Tolinyani~~
3. ~~Ryu mupabe sanave li~~
4. ~~Mukundayangap~~
5. ~~Musutbyemaraj~~
6. ~~Mu nyarangifor~~
7. ~~Rimbacina~~
8. ~~AKI nyo mu~~
9. ~~Nribire~~
10. ~~NSabi manu~~
11. ~~Nyi're nkuwajor~~
12. ~~Batlagajui zo~~
13. ~~N taboangong noma~~
14. ~~Muri unda habi~~
15. ~~NZAMURAMBHU~~
16. ~~BAT PTO KUERA~~
17. ~~Nyiramonyuor~~
18. ~~Mullarabe~~
19. ~~KAKLUNDIYOR~~
20. ~~Mukunurivivomor~~
21. ~~Mu nyapu~~
22. ~~Muguanefor~~
23. ~~Biyukunue~~
24. ~~Wengnunur~~

Uyakans

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Annex 8: Minutes of consultation meetings and attendance lists in Rwamagana site

ENYANDIKOMUGO Y. INAMA YO GUSOBANURA UMUSHINGA MUDHYA SAiP
 NO. KUNNA IBITEKERERO By. MENTU RAGE KURU VCO
 KUNNA 20/03/2018

Inama yatangije i see agenda na mukungabiri (15 R 20'),
 ijobwe na issa MAUNGURO rehagaranje umushinga mu karere
 ka Ruamagana yatangije na ubuyobozi bwizego zibarze
 zo mu gacu kabereyeno inama priebo umungamabanya nshinga-
 zo ijobwe akagera ka kagizi ndetse nabayobozi bimudugudu
 bikorwa zo akagera ka kagizi ndetse nabayobozi bimudugudu
 yitabirije inama orijo Ruwangojo, banatere na Kabonero.
 yatangije ashimira ababashije kuzitabira ubutemire bwirana
 ndetse akomeya abibutsa ibikorwa byakozwe n'mushinga LWT,
 abagaranagari ka akamaro kagizi muri kusage byari Kongera
 umusaruro no kuzamuna imbereko y. abagaranerwabikorwa.
 yatangije ababura ko hari undi mushinga mudhye utganya
 yitangira ukoba ubwa SAiP (Sustainable Agriculture intensification
 project) ikaba bishatse kuruga umushinga uganiye gikomeza
 gutenza imbere ubuhingi bwimuruga; ukaba uza fasha mu
 gikomeza neza ibikorwa neneza byubatwe ndetse no Kongera
 gikomeza nubuhobozzi bwabuhingi mu Kongera no gikomeza neza
 umusaruro vabo.

Yashishi karije abatirage kuzitabira gikomeza neza n'uvu
 mushinga ndetse abasaba no gutanya ibitekerero kubyo
 bishatse umushinga mudhye wazalafasha kugira y.0 barubeho
 kuzamuna imbereko yabo.

Abatirage bagaragojo ka bishimira leta y.0 Rwanda ikomeza
 kubatkerereyaho (kabatkerereza imushinga ibaliza intere bagaragoza
 ibijo fujo bikuritira).

- * gikomeza gehabura amashigura yo gikomeza neza umusaruro no
 kubangabanga ibikorwa neneza bokerere.
- * Kubona imashini zibafasha Kongerera agaciro umusaruro vabo
 no Kubona amashiki meza kureshello.
- * Kubona imashini zo kubira kubo babonye amazi hafi yabo
 bato bishabura cyane ku gikomeza kurucara n'mirere miti yibana
- * Kubona imashini mu gikomeza kuzafanya n'uvu mushinga
 bato bishabura cyane ku gikomeza cy. umudugudu.

Inama yasaje abatirage kuzafanya n'uvu mushinga
 mu gikomeza kuzafanya ubekere no kugira ku iterambere
 nisanje.

 Chantal UMULANGANEZA, CEO
 Umwadithi vco Inama.

URUTOREE RWABITABIRIYE INANA YO GUOSANURA UMUVIRNGA
 MUSITYA SAIP YO KUWA 20/03/2018

AMAZINA	UMUVIRNGA	UMUKONO
1. Bambundizi Amostase	Rwanzagaju	<input checked="" type="checkbox"/>
2. Niyitanga Denys	Rwanzagaju	<input checked="" type="checkbox"/>
3. Rukundo prence	Rwanzagaju	<input checked="" type="checkbox"/>
4. BIBOYIKI Mathew	Rwanzagaju	<input checked="" type="checkbox"/>
5. Niyohango Manuveri	Rwanzagaju	<input checked="" type="checkbox"/>
6. MUKAMANA Sezefasius	Rwanzagaju	<input checked="" type="checkbox"/>
7. MUKESHIMANA Vestine	Rwanzagaju	<input checked="" type="checkbox"/>
8. Bikeyiki Niwohsiya	Rwanzagaju	<input checked="" type="checkbox"/>
9. MUGABIWAZI Emmanuel	Rwanzagaju	<input checked="" type="checkbox"/>
10. NTANZERA	Rwanzagaju	<input checked="" type="checkbox"/>
11. MULANTAMWA Valentin	Rwanzagaju	<input checked="" type="checkbox"/>
12. MUKA RUTAKA Clotilde	Rwanzagaju	<input checked="" type="checkbox"/>
13. KAZAKURA Jean Claude	Rwanzagaju	<input checked="" type="checkbox"/>
14. HAFASHIMANA Valeris	Rwanzagaju	<input checked="" type="checkbox"/>
15. MABURESI Augustin	Rwanzagaju	<input checked="" type="checkbox"/>
16. Holtayi Niyoka	Rwanzagaju	<input checked="" type="checkbox"/>
17. Bampoliki	Rwanzagaju	<input checked="" type="checkbox"/>
18. Cuvandou Ares	Rwanzagaju	<input checked="" type="checkbox"/>
19. Mupandi Patrice	Rwanzagaju	<input checked="" type="checkbox"/>
20. Karangara Innocent	Rwanzagaju	<input checked="" type="checkbox"/>

AMAZINA	UMUANGUEN	UMUKONO
1. Dusabimana Lawrence	Kabonero	
2. Nyiramhanda Yozefina	Kabonero	
3. Bihoyiki Vestina	Kabonero	
4. Kanyange M. Goreté	Kabonero	
5. Uwimtabazig Gratia	Kabonero	
6. Nyirabure Kara Marie	Kabonero	
7. Ntakarorogi Liberata	Kabonero	
8. Mukaruzige Tanayana	Kabonero	
9. Lidivina Mukampayez	Kabonero	
10. Morekatete Bujenye	Kabonero	
11. Niyigimana Alex	Kabonero	
12. Ilaventuron Marol	Kabonero	
13. Habarurema Francis	Kabonero	
14. Karukino Nocata	Kabonero	
15. Mukandary Isabelle	Kabonero	
16. Bayingana Firibon	Kabonero	
17. Bitige Jean Corolle	Samatare	
18. Ntizimira Francois	Samatare	
19. Mukedanganico Jean	Kabonero	
20. Nyirampirima	Samatare	
21. Mukarugengira	Samatare	
22. Nyirabakozi	Samatare	
23. Mukandori	Samatare	
24. Kibibi Eustache	Kabonero	

Amazima	Umedugulu	Umeleko
1. Uwanerera Oller	Kabuero	Amazima
2. MU NYIMANA	Kabuero	Amazima
3. NTambara	Kabuero	Amazima
4. Mukamwizi	Sumatere	Amazima
5. Nyandar	Sumatere	Amazima
6. Karanahanga	Kabuero	Amazima
7. Hategka paul	Ruwenzig	Amazima
8. Kacizymene species	Ruwenzig	Amazima
9. Ntibazirikane J.B	Kabuero	Amazima
10. Nudigyiggi J.M	Kabuero	Amazima
11. MBARASHIMANA	Kabuero	Amazima
12. MURARA Carien	Sumatere	Amazima
13. MUNYANBINDA Claude	Sumatere	Amazima
14. NISTIMWE Elik	Sumatere	Amazima

Annex 9: Minutes of consultation meetings and attendance lists in Karongi 12 and 13 sites

INYANDIKOMUGO Y'INANJA ITEGURA UMUSHINGA SAIP HANWE N'ABAFATANYAGIKORWA NA KOPERATIVE.

Inama yatangije Ss. Sibi n'imirinda irindwi (13h07). yitabirwa n'obshing Lekagurariye abandi (Abayobozi ka Koperatice Kotsimuru (Komite myobozzi)), abayobozij w'amazone n'abayobozi b'amatareinde.

Ukagurariye umushinga muri npi nema, MBBAZI Fians, yatangije asobanwira abitalirije inama imiterere y'umushing SAIP ndetse anababwira ko umwanya muri Kugirango bigazageza atari icyulu n'ibindi bisibye bafye, ko byabiguramo imbarage Kugira njo banashaka gukorz ubuhing bw'umwaga nlete bage lungiza leko.

Ibyifijo by'abahagazire abahitzi

→ Guko neza Kubafasha Kubona injengerimushoro (Imbuto myba, ishugava,

→ Entenganya imihanda ifya muri site

→ Kubatese inkungu muri gutubata imbuto y'ibiragi muri green house,

→ Ubudorozj kwi amshengo magufi Kugira njo obshing ba bone ifumbire go gukorasha Compost.

→ Gukorozj obshing Kubona ishugava kuko hani amatareinde/ amazone menchi i lashyizwemo muri gile amalerci y'akorwaga

→ I kigega cyiharije cy'ibiragi

→ Gukorozj y'itegura amahigurwa n'ingendo shuri bw'obshing bw'umwaga

①



no kurihurira imbuto zoze bakenera (Ibirayi, Abgori, ibishyimbo; ...)

→ Amahugurwa aghera huri benohi (FAP, fomirire, iungamutengs n'ibarira muri, no gusoburwira abagore iko indyo yozige iayo nayo.

Umusanditsi w' inama

Rwirangwa Emile



Umuyozzi w' inama

Ishyava Leopold 
President | Komite



②

Inyandikomvugo y' inama yo gosobanura iby' umushinga SAIP

Inama yatangije saa munani n' rigice (14h 30)
ytdbrwa n' abahinzi n' abahagaraje abandi
abayebogi ba Koperative KOABIAKA (Komite
nyobazi), abayebogi b' amazone n' abayebogi b'
amatsinda.

Uhagarariye umushinga muri r'i y'i mama, MBABA21
Tiana, yatangije asobanira abitabiriye inama imiterore
y' umushinga SAIP ndetse amaburira ke umwanya
munini lugira ngo bagaragaze ahami, r'yuhu n'ibindi
bishiya bfuza lo byasbyirano imbaraga lugira
ngo barushelu gubera ubuhinzi bw' umushinga
ndetse bagahingira isole.

IBYOFUZA BY: ABAHAGARAJE ABAHINZI
IBYO UMUSHINGA LWTH WAFASHIJE ABAHINZI



- * Umushinga wafashije abahinzi kurwanya
isuri ha koma amaterasi y' indinganire.
- * Abahinzi basima ko umushinga narabafashije
ubabek ubwanikero bw' imyaka.
- * Umushinga watumye abahinzi bunguka ubumenyji
bu w' yya n' imihingire igezuhu.
- * Umushinga LWTH wafashije abahinzi burtabira
gukoresha imbutu y' indobanire n' amafumbire
(imvarnganda + imbarura).
- * Umushinga LWTH wafashije abahinzi gahinga
muri Seza (Season) zose bitewe n' like wafashije
abahinzi buhira imyaka mu gihye cy' imeshyji
- * Umushinga LWTH Wakanguriye abahinzi gukoresha
inyongeramusaruro kuri nkungzanire (Voucher)

IBYIFUZO BY'ABAHINZI KUGIRANGO UMUSARUZO
WIYONGERE MU BWINSHEHO MU BWIZA

- Abahinzi bifuzza le bahuza na za banki bakaba babarohereza mu gafata inguzanya.
- Abahinzi bifuzza le emazi yuhizwa.
- Gufasha abahinzi bataboneza isoko notse no kubahuza ni abeguzi yaba mu gihuza notse no hanze y'uzihuzu.
- Kubala ubushobozzi bura koperative (gushalira koperative abakezi, ...).
- Abahinzi bifuzza le  be bwakongerwa.
- Guhugura abahinzi  abandi mu byiciro bitandukanga.
- Guhugura eraturage ten misore meza.
- Kongere ikuhusho byifashishoo mu kuhira imyala (imipira guhuzu).
- Abahinzi bifuzza le u'ntaka bwakongerwa mo ishura za notse ni imborera zahajwe kongerwa ubatoga ubushobozzi bura gutangamusoro.
- Kubafasha kubala agasoko ni ibusamyrizo kugirango bitezze imbere kandi bahashire hafi.
- Kubafasha kubala umuhanda urambye (uboneg)
- Kubafasha kubala amatungo abafasha ye kugira ngo babasho kubone imborera nyishu (ihagije).
- Kubala uburumikiro muri buri zone.

- kongerera koperative ubushabozzi bw' uchurazo inyongera umusaruro
- Gufasha amahinzi kumenye imitare
y' ubutaka bwabo m' icyalurwa lugira n'ga
ubutaka bwange umusaruro muvinshi ushoboka.
(Conducting soil test)
- kongerera abahinzi ubushabozzi bw' gufata
neza ibikorwa renezo byifashishwa mu
buhinzi.

Umwanditsi :

BATUMANYETTO Gilbert ~~111~~

Umugobozzi w' inama :

GASHYE KERO Pascal ~~111~~

President / KOABIBIKA



URUTONDE RW'ABITABIRIYE INAMA KU KUNGURANA IBITEKEREZO KU MUSHINGA WA SAIP

SITE: KARONGI-12 & KARONGI-13

Date: 2/3/2018

N°	AMAZINA	UMURENGE	IGITSINA	UMUKONO
1	SIOZAGABAKWIRI Innocent	RUBENGERA	M	Patras
2	Hoveugabaniho Cyrius	RUBENGERA	M -	Patras
3	Sibomana Théogene	Rubengera	M -	Patras
4	Mtamunza Valens	Rubengera	M -	Patras
5	NGWABIGE Damien	Rubengera	M	Patras
6	KACUNYA Potokeis	Rubengera	M	Patras
7	KABARE Bonaventure	Rubengera	M	Patras
8	Mubamuhirwa Donatila	Rubengera	F	Patras
9	Mulafideli Yesefa	RUBABANDA	F	Patras
10	NIKOBIRENGE Juv	RUBENGERA	M	Patras
11	KARINGARIKE JAPCHO GASEKE	Rubengera	M	Patras
12	Simolihabubwanda	RUBENGERA	M	Patras
13	KAVUNSE XAVIO	Rubengera	M	Patras
14	MTHIRAMURUNA Michel	RUBENGERA	M	Patras
15	Kabanya wa Ciporante	RUBABANDA	F	Patras
16	Mukansonera Herena	Rubengera	F	Patras

URUTONDE RW'ABITABIRIYE INAMA KU KUNGURANA IBITEKEREZO KU MUSHINGA WA SAIP

SITE: KARONGI-12 & KARONGI-13

Date: 2/3/2018

Nº	AMAZINA	UMURENGE	IGITSINA, iBunda	UMUKONO
1	BWIRIKA Anastase	RUGABANO	IGUZUZO(M)	Am
2	Uwayisaba. Nellyse.	RUGABANO	DUFATANYE(M)	Am
3	U Riwabu. Patricia.	RUGABANO	TWITA BiRUMURIMO(F)	Am
4	Ntakamasta Se'	Rugabano	Ngor Moulahe (M)	Am
5	Umuuhale Emile	RUGABANO	Umuuhale (M)	Am
6	HAKIZIMANA Eric	RUBENGERA	Mwazabigu (M)	Am
7	SENYENZI Appolimeire	RUGABANO	TWITABIRUMURIMO(M)	Am
8	DUSABIMANA Eliane	RUBENGERA	MANA ZABIZU (F)	Am
9	NYIRAHBUGUJE Odette	RUBENGERA	II II (F)	Am
10	MUKAKARISA Berajifa	RUBENGERA	MANA ZABIZU (F)	Am
11	Rwizisotkeophie	Rubengera	Rukinga (M)	Am
12	YAKUJijemanirozi	Rubengera	MANA ZABIZU (F)	Am
13	Munkansonera Herena	Rubengera	MANA ZABIZU (F)	Am
14	Kabungana Siperans	Rugabano	Ngorimurese(F)	Am
15	Abobanze E.M.V	Rugabano	IGUZUZO GABI	Am
16	Simsibizamuka olive	Rugabano	M	Am

URUTONDE RW'ABITABIRIYE INAMA KU KUNGURANA IBITEKEREZO KU MUSHINGA WA SAIP

SITE: KARONGI-12 & KARONGI-13

Date: 2/3/2018

Nº	AMAZINA	UMURENGE	IGITSINA	UMUKONO
1	Hakizimana Amositosi	RUBENGERA	G	✓✓
2	Mukamugema RuPsiim	RUBENGERA	P	✓✓
3	MukemShimana Jemiem	RUBENGERA	P	✓✓✓
4	Udikumana EKiosi	RUBENGERA	G	✓✓
5	BALugayumba Friedek.	RUBENGERA	G	✓✓
6	Ntommemezi NARisisi	RUGABANDA	G	✓✓
7	MUSHIMUGA Siperasi	RUBENGERA	F	✓✓
8	MUKAKABERA ARVenor	RUGABANDA	F	✓✓
9	NYIRABUTOKAGURWA Kollerime	RUBENGERA	F	✓✓✓✓
10	Mwintoma Mzy Tapies	RUBENGERA	PI	✓✓✓✓
11	Simdihabulevalo	Muremesej RUBENGERA	✓✓✓	✓✓✓
12	Karimfamije Japolo	Castib RUBENGERA	M	✓✓
13			G	✓✓✓
14	Hakuzimana Claude	RUBENGERA	G	✓✓
15	Rwasibothophile	RUBENGERA	PI	✓✓✓
16	Yatijijembariota	RUBENGERA	F	✓✓✓

URUTONDE RW'ABITABIRIYE INAMA KU KUNGURANA IBITEKEREZO KU MUSHINGA WA SAIP

SITE: KARONGI-12 & KARONGI-13

Date: 2/3/2018

Nº	AMAZINA	UMURENGE	IGITSINA	UMUKONO
1	Shimyimono Elwajene	Rubengero	(Duhare) G	well
2	Miraneza Polinario	Rubengero	integos BF	✓
3	Mukahesera veritina	Rubengero	Intego) F	✓
4	Mukashulana Bipesiyaga	Rubengero	Intego) F	✓
5	Mugolimana Sarofima	Rubengero	Intego) F	✓
6	Minducyeye Dancille	Rugabano	turnanyinga H	✓
7	MUSHIMANA Félicien	Rubengero	swanyange M	✓
8	Gaslyel Llo pascal	Rugabano	turnanyinga H	✓
9				
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URUTONDE RW'ABITABIRIYE INAMA KU KUNGURANA IBITEKEREZO KU MUSHINGA WA SAIP

SITE: KARONGI-12 & KARONGI-13

Date: 2/3/2018

Nº	AMAZINA	UMURENGE	IGITSINA	UMUKONO
1	NYAMAREMYE Veniseles	MUKURA	M	<i>Julien</i>
2	NDITOMANA Daniel	MUKURA	M	<i>Pat</i>
3	NYABIMANA Idrissa	MUKURA	M	<i>Pat</i>
4	NGERAAAYO Evans	Rubengera	M	<i>Antony</i>
5	GAKWERERE Andree	MUKURA	M	<i>Thierry</i>
6	NYABENDA Thomas	MUKURA	M	<i>Pat</i>
7	NTIBIZONDE RWA Simonien	MUKURA	F	<i>Pat</i>
8	MBAHUNGIREHE Mansenina	MUKURA	F	<i>Pat</i>
9	NINYE MUKAGA Theogene	MUKURA	M	<i>Thierry</i>
10	BANTEGEYE Bomifinola	MUKURA	F	<i>Pat</i>
11	NZABONIMPA Celestin	MUKURA	M	<i>Thierry</i>
12	Sibalugingo ANOSIYANTO	MUKURA	F	<i>Sylv</i>
13	Rurihose Pascale	Mukura	F	<i>Pat</i>
14	BENGRITE Jean	MUKURA	M	<i>Thierry</i>
15	UNINDEA Appoline	Rubengera	F	<i>Thierry</i>
16	SEBURYAUNA- THEGENE	MUKURA	M	<i>Pat</i>

URUTONDE RW'ABITABIRIYE INAMA KU KUNGURANA IBITEKEREZO KU MUSHINGA WA SAIP

SITE: KARONGI-12 & KARONGI-13

Date: 2/3/2018

Nº	AMAZINA	UMURENGE	IGITSINA	UMUKONO
1	ISHYAKA Jeponed	MUKURA	M.	Shay
2	BIZANDORA Gashwoe	MUKURA	M	Biz
3	AKUMUNTU Yestimp	MUKURA	F	Shay
4	Simajimunure cyniu	rukuro	M	Simaj
5	rukuroyumba ionazijo	rukuro	F	rukuro
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Annex 10: Attendance lists of participants in consultation meeting in Ngoma 22 site

URUTONDE RU ABITABIRYE INAMA YO GUSOBANVRA SAIP - ADDITIONAL FINANCING				
S/N	NAME	ICYU UKORA	TELEPHONE	Signature
1.	Mukahobautore Pauline	VO presidente (Sub12A)	07837533440	
2.	Mukamugabe Biringe Helie	VO presidente (Sub12A)	0782639162	
3.	Mukamupirega Jeanne	VO presidente (Sub12A)	07816897472	
4.	MUMTAZ GITARAMA Donald	IBIDORUAREMEZO	042522172	
5.	MASAMAZA Janvier	Agronomie	0788404043	
6.	Muyememe Charlotte	Umwamulitio Kotengo	0783860376	
7.	Tugambaze Jonathan	Agronomie (IWVO) (WAMCAB)	0785685375	
8.	Tuyishime Maurice	Umujiyanama Muri Kepotitive	0783410788	
9.	Muryabaesu J. Damase	President COP Sub12A	0783837776	
10.	Ruganya Yo Getha	Umujiyanama Sub12A	0686345486	
11.	ndabeneise j. Damase	Umujiyanama KOTUNGA GO	0783784835	
12.	Ruganya Pierre	VO presidente (Sub12A)	0783339120	
13.	Perroo Audace	Umujiyanama Muri Kotengo	0789405408	
14.	MSI RYU Muzuri J. S. S. E. B.	0783837.5. KOTUNGA	0785354452	
15.	Platayunama Proteus	President KOTUNGA	0785849358	
16.	Miyobira Avisse	HOZELA Agronomie	0782629290	
17.	PIPIYI NA MAFISTIS	Conf. resolution	0782229157	