

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Main report and annexes

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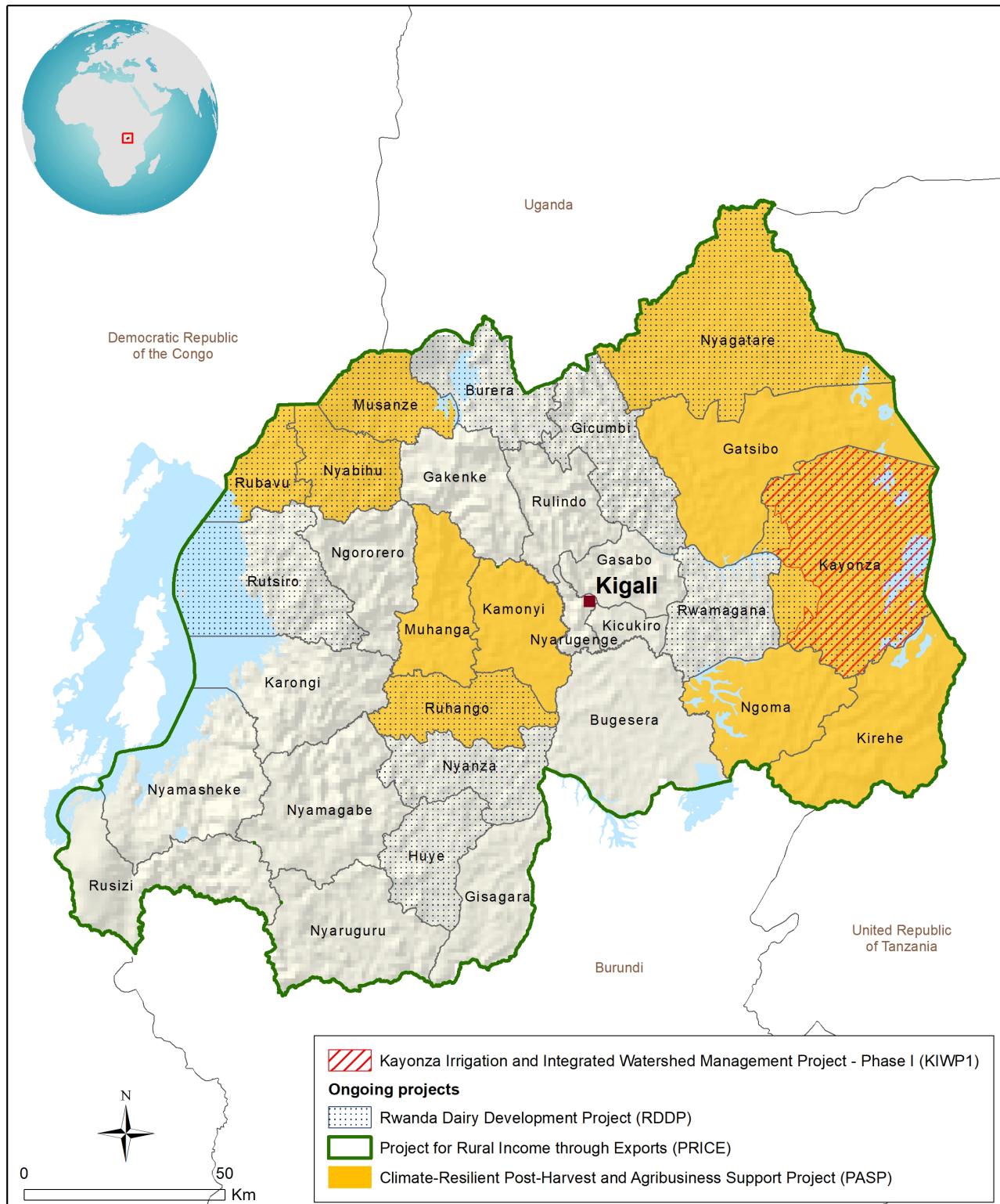
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Map of the Project Area



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 10-03-2020

Abbreviations and Acronyms

AfDB	African Development Bank
AFR	Access to Finance Rwanda
AH	Animal Husbandry
AIDS	Acquired Immune Deficiency Syndrome
AWPB	Annual Work Plan and Budget
BDF	Business Development Fund
BDSP	Business Development Service Provider
CESB	Rwanda Capacity Development and Employment Services Board
COSOP	Country Strategic Opportunities Programme
CSA	Climate Smart Agriculture
DG	Director General
EDPRS	Economic Development and Poverty Reduction Strategy
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FaaB	Farming as a Business
FAO	Food and Agriculture Organization
FE	Foreign Exchange
FFS	Farmer Field School
FIRR	Financial Internal Rate of Return
FS	Feasibility Study
GALS	Gender Action Learning System
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GoR	Government of Rwanda
KWAMP	Kirehe community-based Watershed Management Project
HH	Households
HIV	Human Immunodeficiency Virus
HoReCO	Horticulture in Reality Cooperative
IFAD	International Fund for Agricultural Development
IFMIS	Integrated Financial Management Information Systems
IMF	International Monetary Fund
IMTA	Irrigation Management Transfer Agreement
IWMI	International Water Management Institute
IWUO	Irrigation Water User Organisation
KM	Knowledge Management

KOICA	Korean International Cooperation Agency
LPA	Lead Project Agency
LWH	Land husbandry, Water harvesting and Hillside irrigation project
M&E	Monitoring and Evaluation
MIDIMAR	Ministry of Disaster Management and Refugees Affairs
MINAGRI	Ministry of Agriculture and Animal Resources
MINECOFIN	Ministry of Finance and Economic Planning
MINIRENA	Ministry of Lands, Environment, Forestry, Water and Mines
MoU	Memorandum of Understanding
MPCI	Multi Peril Crop Insurance
MT	Metric Ton
MTR	Mid Term Review
NCCLCD	National Strategy on Climate Change and Low-Carbon Development
NAEB	National Agriculture Export development Board
NGO	Non Governmental Organisation
NRM	Natural Resources Management
OFID	OPEC Fund for International Development
ORMS	Operational Results Management System
O&M	Operation and Maintenance
p.a.	Per Annum
PA	Priority Area
PASP	Climate-resilient Post-harvest and Agribusiness Support Programme
PEFA	Public Expenditure and Financial Accountability
PPP	Purchasing Power Parity
PRICE	Project for Rural Income through Exports
PS	Permanent Secretary
PSC	Project Steering Committee
PSTA	Strategic Plan for the Transformation of Agriculture in Rwanda
4P	Public Private Producers Partnership
RAB	Rwanda Agriculture and Animal Resources Development Board
RCA	Rwanda Cooperative Agency
RDDP	Rwanda Dairy Development Project
REMA	Rwanda Environment Management Authority
RNRA	Rwanda National Resources Authority
RSSP	Rural Sector Support Programme
RWF	Rwandan Franc
RWFA	Rwanda Water and Forestry Authority
RYAF	Rwanda Youth in Agribusiness Forum
SCC	Sub-Catchment Committee
SDG	Sustainable Development Goal
SECAP	Social, Environmental and Climate Assessment Procedures

SOE	Statement of Expenditure
SPIU	Single Project Implementation Unit
SSIT	Small-Scale Irrigation Technology
STARS	Strengthening African Rural Smallholders
SUN	Scaling Up Nutrition
SWC	Soil and Water Conservation
TBD	To Be Determined
TOC	Theory of Change
ToT	Training of Trainers
UNEP	United Nations Environment Programme
USD	United States Dollar
VC	Value Chain
WoP	Without Project
WP	With Project
WLUO	Water for Livestock User Organisation
WUO	Water User Organisation

In line with IFAD11 mainstreaming commitments, the project has been validated as:

Gender transformational Youth sensitive Nutrition sensitive Climate finance

Executive Summary

Political and economic background. Small and landlocked, Rwanda is a low-income country, with a densely packed population of about 12.5 million people^[1] who are mostly under 20-year old, and a total land area of 26,338 km² of which 68.7 per cent is classified as arable agriculture land. From a tragically low starting point in 1994, Rwanda has enjoyed political stability in the last two decades which, combined with good governance and policy consistency, has created an enabling policy environment ensuring successful delivery of development programs. Since the turn of the century, Rwanda's Gross Domestic Product (GDP) per capita has increased from US\$242 to US\$729, and poverty has been reduced from 60.3 per cent to 39.1 per cent of the population.

Rwanda's growth in 2016 and early 2017, while below historical standards, remained robust relative to the region, with 2017 growth estimated at 5.2 per cent. Consumer price inflation has continued to decline since February 2017, reflecting improving food supply conditions and declining transport costs. Performance under the PSI-supported program (Policy Support Instrument) and Standby Credit Facility arrangement remained strong, with most quantitative targets and structural reform benchmarks being met. In the most recent debt sustainability analysis by the International Monetary Fund (IMF), Rwanda is assessed to be at low risk of debt distress. Rwanda's external debt portfolio remains mostly constituted of concessional loans^[2], and this is expected to continue being the main source of funding for public projects going forward.

Poverty and rural development context. While Rwanda has an impressive record in translating its sustained growth into poverty reduction, poverty remains a key challenge especially in rural areas. The agriculture sector has proven to be an avenue for propelling the country towards its vision of attaining middle-income status by 2020. The sustainable development of irrigated agriculture as a key driver to boost agriculture production and productivity is fully acknowledged in most of Rwanda's flagship policy documents, and is viewed as fundamental for poverty alleviation and rural development.

Land and agriculture. Rwanda's land is fragile due to its mountainous topography, thin soil layers and limited vegetative cover. Population pressure has forced settlement on marginal areas, resulting in overgrazing, severe soil erosion, and soil exhaustion, combined with high vulnerability of rural communities to climate and weather shocks. Agriculture is characterized by small production units - the average landholding size is 0.33 hectare, reflecting the high population pressure on the country's natural resource base. About 80 per cent of the rural population consists of subsistence farmers who use mostly rainfed production systems; less than 6 per cent of all cultivated land is irrigated.

Food and nutrition security. Rwanda has recently subscribed to the Global Compact to end hunger and malnutrition by 2025 and has also joined the Scaling Up Nutrition (SUN) movement. Official estimates show that 19 per cent of households are food insecure, often related to the stability of rural incomes, access to land, ownership of animals, and events such as crop failures and seasonal scarcities, which reduce access to food. Resource-poor households who farm small plots are the most food insecure. While there have been marked reductions in the prevalence of chronic malnutrition over the last decade, almost 38 per cent of children under five are still chronically malnourished. Agriculture has an essential role to play in overcoming the remaining barriers in chronic malnutrition by enabling rural households to improve the quality of their diets and food system.

Impact of climate change induced droughts. Climate change has resulted in Rwanda experiencing frequent and recurrent mid-season droughts. Recent rainfall trends show that rainy seasons are tending to become shorter but with higher intensity. While the North and South Provinces suffer from severe landslides and soil erosion due to heavy floods, the Eastern Province is regularly affected by drought events leading to decreases in agricultural production and livestock deaths. The economy of Kayonza District is mostly dependent on agriculture and livestock, which occupy the majority of the labour force. The district has fertile soils in almost all its sectors, permitting the growth of most types of crops. Although a significant proportion of land is unexploited, the majority of farmers cultivate small plots (0 to 1 hectare).

Project rationale. In 2016, the Eastern Province was affected by a severe drought that brought an additional burden to the systemic challenges faced by Rwandan farmers in terms of land pressure, loss of soil fertility due to unsustainable environment management practices and inadequate farmer participation in rural development planning. More than 47,000 households in the districts of Kayonza, Nyagatare, Gatsibo Ngoma and Kirehe became food insecure and the Government of Rwanda (GoR) had to provide food relief and water for livestock to support the affected districts.

Along with its strategy to mitigate the drought-induced calamities through improved use of untapped water resources, the Government has thus requested IFAD to formulate a new integrated irrigation and watershed development project, revolving around the most seriously affected district of Kayonza, and building on the experience of the recently completed KWAMP, the successful Community-based Watershed Management Project implemented in the neighbouring Kirehe District.

Lessons learned. KIIWP design builds on the strengths and lessons learned in the implementation of KWAMP but also the ongoing Project for Rural Income through Exports (PRICE) and Post-harvest and Agribusiness Support Project (PASP), and the just initiated Rwanda Dairy Development Project (RDDP) which has a significant emphasis on engaging with policy makers and other relevant stakeholders as well as assisting the government with the design and implementation of specific regulatory policies related to the dairy value chain (VC).

Goal and development objective. KIIWP's Development Goal is to 'Contribute to poverty reduction in the drought prone Eastern Province of Rwanda'. The Development Objective is to 'Improve food security and incomes of 50,000 rural households on a sustainable basis' and build their climate resilience. KIIWP will improve the resilience of smallholder farmers to droughts and effects of climate change through increased levels of production and productivity of selected food and cash crops, livestock and improved market access and business development. Through KIIWP, it is expected that smallholder farmers will see an improvement in

household food and nutrition security, income and asset ownership, particularly amongst vulnerable groups including women-headed households and youth. KIIWP's goal will be achieved through the development of sustainable, profitable and intensive small-scale agricultural activities supported through Public Private Producers Partnerships (4Ps) whenever opportunities exist in the selected project sites and areas.

Project outcomes. The main expected outcomes and outputs of the project include (i) improved access to land, forests, water and water bodies for production purposes; (ii) increased acreage of farmland under water-related infrastructure; (iii) increased acreage of farmland under climate resilient management and practices; (iv) increased capacity of smallholder farmers and local government to sustainably manage natural resources and climate-related risks; (v) enhanced use by farmers, including youth, of technologies, equipment and infrastructure adapted to smallholder agriculture; and (vi) increased farmers' economic benefits from market participation and increased sales.

Strategic commodities will be supported by KIIWP that are central to the main livelihoods of the farmers in Kayonza District and for both provision of staple food and income generation. Paddy, maize, potatoes, soya, as well as horticulture are anticipated to be KIIWP major crops.

Project area. The project area comprises the eight drought-prone sectors of the District of Kayonza in the Eastern Province of Rwanda. These sectors, namely Gahini, Kabare, Kabarando, Murama, Murundi, Mwiri, Ndego and Rinkwatu are relatively hot, with limited rainfalls - averaging 900 mm per year - compared to the rest of the country, but have good potential for irrigation. The project area has a population of 262,967 people, of which 51.5 per cent are women, who face a serious challenge of water scarcity during nearly all dry months of the year. The landholding per capita of 0.5 hectare per household is moderately large compared with the rest of the country. In the eight sectors targeted by the project, in addition to crop production, 58 per cent of all households raise some type of livestock, 24 per cent have cows.

Target group. Based on the national wealth ranking system (*Ubudehe*), and consistent with the targeting strategy laid out in the Country Strategic Opportunities Programme (COSOP), KIIWP's direct target groups will comprise about 50,000 poor and food insecure rural households (HH) representing 225,000 persons who belong to the poorest *Ubudehe* categories 1, 2 and 3^[3].

Targeting strategy. KIIWP will reach the target group through various targeting mechanisms – geographic, self, direct, empowering and procedural. It is expected that women and youth will account for at least 50 per cent and 30 per cent of total beneficiaries respectively. Particular targeting mechanisms will be employed to ensure effective participation of women, women-headed households and youth through specific capacity building interventions targeted at these groups. Gender Action Learning System (GALS) will be used to improve equal access of men and women to economic opportunities, decision-making processes and share of workload. Youth will be particularly targeted as both beneficiaries and service providers through the young graduate programme initiated by MINAGRI to provide technical and managerial assistance to farmers' cooperatives, Water User Organisations (WUOs) and Water for Livestock User Organisations (WLUOs).

Alignment. KIIWP will be well aligned with IFAD corporate policies esp. on youth, gender, climate/environment, private sector, rural finance and nutrition. The project will contribute to strategic objectives (SOs) 1 and 2 of the draft new Rwanda COSOP 2019-2024. Specifically, it will sustainably increase agricultural productivity in food crop value chains (SO1) and strengthen market linkages between farmers and other value chain actors (SO2). In this regard, KIIWP will also contribute to the SOs in IFAD's Strategic Framework (2016-2025) to increase rural people's productive capacities, increase their benefits from market participation and strengthen the environmental sustainability and climate resilience of their livelihoods.

KIIWP will also directly contribute to the attainment of several Sustainable Development Goals (SDGs), notably SDG 1 (No Poverty, Target 4); SDG 2 (Zero Hunger, Targets 1 to 4); SDG 5 (Gender Equality); SDG 8 (Decent Work and Economic Growth, Targets 2 and 3); SDG 13 (Climate Action, Target 1 and 3) and SDG 15 (Life on Land, Target 1 and 3).

KIIWP will be implemented in two distinct phases. The two phases will be subject to distinct approval and financing processes, with the submission of KIIWP 2 for Executive Board approval at the end of KIIWP 1. The rationale for the phased approach is for KIIWP 1 to: respond to the urgent demand of the Government of Rwanda to tackle drought-related issues in the Eastern Province within the shortest possible time and to conduct the Feasibility Studies (FS) and Environmental and Social Impact Assessments (ESIA) and validate the irrigation schemes ahead of large irrigation development and farm business development support in KIIWP 2.

KIIWP 1 will comprise two components:

- **Strengthening resilience to droughts:** this component will invest in catchment rehabilitation, livestock and domestic water infrastructure development, and the establishment of efficient infrastructure management institutions. Specific Environmental and Social Management Plans (ESMPs) for these activities will be prepared during implementation, as the location of the sites are identified, prepared and implemented. Feasibility studies and ESIAAs will be undertaken for four potential irrigation schemes in the District. In addition, 5,000 hectares of area will be studied to prepare a pipeline of investment-ready irrigation schemes in case the pre-identified schemes fall short of the target area for development.
- **Institutional development and project coordination:** this component will provide the institutional, managerial and administrative support services needed to implement the above technical component. Key interventions include: (i) the capacity building of KIIWP implementation staff under the SPIU at the local and national level; and (ii) gender and youth mainstreaming. Opportunities to support the development and implementation of national policies, strategies and/or regulations related to the project interventions will be prioritized.

KIIWP 1 will revolve around (i) the catchment rehabilitation and protection of areas where rainfed agriculture is practised; (ii) the provision of water for livestock and domestic purpose in the most drought-prone sectors of Kayonza; (iii) the preparation of the FS and ESIAAs for large irrigation schemes; and (iv) the formation and capacity building of sub-catchment committees, WLUOs, district and scheme committees. All of these activities can be implemented as soon as the project is approved and will efficiently pave the way for smooth and fast rolling out of the main investments foreseen in KIIWP 2.

This PDR mainly focuses on the proposed activities and implementation arrangements for KIIWP 1. As explained above, the two phases will be subject to distinct IFAD Executive Board approval and financing processes, and the activities expected to take place in KIIWP 2 will be fine-tuned according to the results of the FS and ESAs to be produced and disclosed in accordance with the national environmental regulations and SECAP guidelines. Feasibility studies and ESAs are expected to be ready by December 2020. This will allow to further shape and finalize the design of KIIWP 2. Out of a total project duration of six years, KIIWP 1 is expected to last 2.5 years and KIIWP 2 will cover the remaining 3.5 years. Some activities initiated in KIIWP 1, like the capacity building of district & scheme committees, sub-catchment committees and WLUs might be continued based on their status and strength assessed towards the end of KIIWP 1.

The anticipated components and activities in KIIWP 2 comprise:

- **Strengthening resilience to droughts**: this component will promote climate smart agriculture for irrigated and rain-fed lands through Farmer Field Schools. It will include investment on water harvesting and storage, irrigation infrastructure development and marshland development. This component will also include the promotion of good nutritional practices and the GALS.
- **Support to farm business development**: this component will assist farmers to take advantage of the investments made under the component on strengthening resilience to droughts by strengthening their organizational and entrepreneurial skills and improving their backward and forward linkages to access input, service and output markets.
- **Institutional development and project coordination**: this component will continue supporting the project as described under KIIWP 1.

The main expected outcomes at the end of KIIWP 1 and KIIWP 2 combined include: (i) improved access to land, forests, water and water bodies for production purposes; (ii) increased acreage of farmland under water-related infrastructure; (iii) increased acreage of farmland under climate resilient management and practices; (iv) increased capacity of smallholder farmers and local government to sustainably manage natural resources and climate-related risks; (v) enhanced use by farmers, including youth, of technologies, equipment and infrastructure adapted to smallholder agriculture and (vi) increased economic benefits by farmers from market participation and increased sales.

Project costs and financing KIIWP 1. KIIWP 1 total costs, including physical and price contingencies are estimated at US\$24.73 million (RWF 22.2 billion), of which US\$23.62 million are baseline costs and US\$1.11 million are allowances for physical and price contingencies. The costs broken down by project component are as follows: (i) Strengthening resilience to droughts: US\$21.32 million (86.2 per cent); (ii) Institutional development and project coordination: US\$3.41 million (13.8 per cent). KIIWP 1 will be financed by: (i) IFAD up to US\$17.79 million (71.9 per cent), through a highly concessional loan; (ii) Government of Rwanda for a total of US\$5.4 million (21.9 per cent) in the form of tax exemptions and consultancies for the Ndego irrigation scheme; and (iii) beneficiaries for a total of US\$1.53 million (6.2 per cent) in the form of works.

In KIIWP 1, Component A, Strengthening resilience to droughts, is partially counted as climate finance. The total amount of IFAD climate finance for this project is preliminarily calculated as US\$8,263,396^[4], which represents 46.4 per cent of the total project amount.

The estimated costs for KIIWP 2 are approximately US\$59 million (RWF 53 billion), including US\$3.7 million in contingencies, broadly broken down by project component as follows: (i) Strengthening resilience to droughts: US\$44 million; (ii) Support to farm business development: US\$8 million; (iii) Institutional development and project coordination: US\$4 million. KIIWP 2 is expected to be financed by: (i) IFAD up to US\$26 million, through a highly concessional loan; (ii) Private sector for US\$322 thousand; (iii) ICCO for US\$ 246 thousand, (iv) Government of Rwanda for a total of US\$9 million in the form of tax exemptions; (v) Co-financiers for a total of US\$22 million; and (vi) Beneficiaries for US\$2 million.

Co-financing arrangements. It is anticipated that the total IFAD loan for KIIWP (KIIWP 1 + KIIWP 2) would amount to about US\$43.4 million, to be sourced from IFAD 11 financing cycle. Several development partners esp. the Korean International Cooperation Agency (KOICA), but also the African Development Bank (AfDB), the OPEC Fund for International Development (OFID), the Spanish Government and the European Union (EU) have expressed interest in co-financing KIIWP 2 once the results of the feasibility studies and Environmental and Social Impact Assessments will be disclosed. In case the level of co-financing for unexpected reasons will not be sufficient to fill the potential US\$22 million financing gap in KIIWP 2, resources under IFAD 12 financing cycle will be accessed.

The economic and financial analysis (EFA) of KIIWP 1 shows that the project would be profitable with an Economic Internal Rate of Return (EIRR) of 15.74 per cent and a Net Present Value (NPV) of US\$1.7 million at a 12 per cent economic discount rate. Sensitivity analysis carried out shows that the economic profitability of KIIWP 1 would remain satisfactory even if the project costs increase by 26 per cent, the project benefits decrease by 21 per cent or if the benefits lag behind by two years. Economic benefits derive from increased value of agricultural production and the value of improved access to water for domestic and livestock uses. Benefits also include the improvement of living conditions and nutrition, the positive spill-over effects of capacity building on the local community, and reduced land lost due to soil erosion control.

The overall EFA shows that KIIWP 1 and KIIWP 2 are financially profitable for rural households engaged in agricultural production with financial internal rate of return for farmers ranging from 20 to 27 per cent depending on the production system. The sensitivity analysis shows that the economic profitability would remain satisfactory even if the project costs increase by 46 per cent, the project benefits decrease by 31 per cent or if the benefits lag behind by two years.

The preliminary **environmental and social category is A.** However, KIIWP 1 activities are classified as category B, given that interventions focus on preparatory studies for irrigation schemes, integrated watershed management and planning activities. KIIWP 2 will include investments on water harvesting and storage, irrigation infrastructure development (area >100 hectares) and marshland development, that may be categorised as A.

Project implementation arrangements. KIIWP 1 institutional arrangements are fully aligned with the current implementation framework of IFAD-funded projects in Rwanda. The already established Single Project Implementation Unit (SPIU) is strategically positioned to manage KIIWP with benefits such as (i) realization of economies of scale and reduction of transaction costs; (ii)

improved coordination and creation of synergy; (iii) efficiency and effectiveness in project implementation oversight through improved M&E; (iv) improved staff retention leading to reduction in staff turnover and increase in institutional memory, and (v) increased knowledge and expertise as well as best practices in project management.

The Lead Project Agency will be the Rwanda Agriculture and Animal Resources Development Board (RAB) under the auspices of the Ministry of Agriculture and Animal Resources (MINAGRI). RAB has the general mission of championing the agriculture sector development into a knowledge based; technology driven and market-oriented industry, using modern methods in crop, animal, fisheries, forestry and soil and water management in food, fibre and fuel wood production and processing. District implementation will follow the devolution principle and day to day management of KIIWP 1 will be delegated by RAB to a District-level Project Coordination Unit (PCU) within the District of Kayonza which will be the main executing agency of KIIWP 1 at the district level.

1. Context

A. National context and rationale for IFAD involvement

a. National Context

1. **Political and economic background.** Small and landlocked, Rwanda is a low-income country, with a densely packed population of about 12.5 million people and a total land area of 26,338 km² of which 18,095 km² is classified as arable agriculture land. From a tragically low starting point in 1994, Rwanda has enjoyed political stability in the last two decades. Since the turn of the century, Rwanda has seen its economy grow by 7.9 per cent per year, such that it is currently more than 3.5 times larger than it was in 2000. In the same period, GDP per capita has increased from US\$242 to US\$729, and poverty has been reduced from 60.3 per cent to 39.1 per cent of the population.
2. Rwanda's growth in 2016 and early 2017, while below historical standards, remained robust relative to the region, with 2017 growth estimated at 5.2 per cent. Consumer price inflation has continued to decline since February 2017, reflecting improving food supply conditions and declining transport costs. In the most recent debt sustainability analysis by the International Monetary Fund (IMF), Rwanda is assessed to be at low risk of debt distress. Rwanda's external debt portfolio remains mostly constituted of concessional loans, and this is expected to continue being the main source of funding for public projects going forward.
3. **Poverty and rural development context.** Rwanda is ranked 158th in the 2017 Human Development Index^[5]. Significant socio-economic developments over the past couple of decades include steadily decreasing birth rates per woman (from 7.2 in 1990 to 3.9 in 2016), rising literacy rates among adults and youth (from 64.9 per cent and 77.6 per cent in 2000 to 70.8 per cent and 85.1 per cent in 2014) and widespread improvements in health, leading to markedly improved life expectancy at birth (from 34 years in 1990 to 67 years old in 2016).
4. While the country has an impressive record in translating its sustained growth into poverty reduction, poverty remains a key challenge especially in rural areas^[6]. Agriculture is estimated to have a share of 79 per cent in Rwanda's total employment, and 84 per cent of its workers are estimated to be poor, i.e. having less than Purchasing Power Parity (PPP) of US\$2 per day. The agriculture sector has proven to be an avenue for propelling the country towards its vision of attaining middle-income status by 2020. The sustainable development of irrigated agriculture as a key driver to boost agriculture production and productivity is fully acknowledged in most of Rwanda's flagship policy documents and is viewed as fundamental for poverty alleviation and rural development.
5. **Land and agriculture.** The Rwandan economy is still for the foreseeable future dependent on the agricultural sector which employs around 70 per cent of the population, provides 91 per cent of the food consumed in the country, accounts for 70 per cent of export revenues, and contributes 32.7 per cent of the GDP.
6. Rwanda's land is fragile due to its mountainous topography, thin soil layers and limited vegetative cover. Population pressure has forced settlement on marginal areas, resulting in overgrazing, severe soil erosion, and soil exhaustion, combined with high vulnerability of rural communities to climate and weather shocks. Agriculture is characterized by small production units – the average landholding size is 0.33 hectare, reflecting the high population pressure on the country's natural resource base. About 80 per cent of the rural population consists of subsistence farmers who use mostly rainfed production systems; less than 6 per cent of all cultivated land is irrigated. Land remains a binding constraint and generally calls for production intensification as the only environmentally sustainable pathway for continued growth of the agricultural sector.
7. The economy of Kayonza District is mostly dependent on agriculture and livestock, which occupy most of the labour force. The district has fertile soils in almost all its sectors, permitting the growth of most types of food. Although a significant proportion of land is unexploited, the majority of farmers cultivate small plots (0 to 1 hectare). The district has a good network of rural tracks and roads connecting it to other districts but has only three modern markets. The rural financial sector is also underdeveloped resulting in only 37 per cent of the district population with access to finance.
8. Improvements in the agriculture sector in the past decade have principally been driven by interventions in land management, input provision, and irrigation. The crop-livestock intensification agenda continues to be critical. Significant interventions have driven productivity gains, including implementation of the Land-Use Consolidation Policy and Crop Intensification Program, expansion of irrigated areas, and more productive utilization of extensive fertile marshlands areas. Table 1 shows the notable increases in yields for the main commodities.

Table 1: Food crop production in Rwanda from 2014 to 2018 ('000 tons)

Crops	2014	2015	2016	2017	2018
Total Crops	2,349	2,408	2,493	2,590	2,889
Cereals	353	368	401	425	434
Sorghum	40	31	48	42	37
Maize	284	295	300	324	333
Wheat	3	3	4	4	6
Rice	26	39	49	55	58
Legumes	242	257	261	156	263
Beans	233	245	249	145	251
Soya	9	12	12	11	12
Roots & tubers	1,218	1,240	1,280	1,405	1,587
Irish potatoes	339	335	370	379	439
Sweet potatoes	511	503	504	575	662
Cassava	368	402	406	451	486
Bananas	368	378	379	416	406
Vegetables and fruits	168	165	172	188	199

Source: National Institute of Statistics of Rwanda (2018)

9. The market for horticultural produce is growing, with the rapid rate of urbanization in Rwanda strongly increasing domestic demand. The demand for horticulture exports is also on the rise and cross-border trade is another substantial and profitable market during the dry season when regional horticultural production is low. Indeed, the horticulture sector is viewed as highly strategic by the GoR in terms of export revenues, and the National Agricultural Export development Board (NAEB) is intensifying its support to the sector through various interventions: modern packhouse in Kigali, promotion of Rwanda Fresh brand, establishment of accredited testing laboratories, etc.
10. Agricultural development is also being driven by the increasing involvement of the private sector. Local governments also play an important role in agricultural development through the decentralisation process. The Ministry of Agriculture and Animal Resources (MINAGRI) continues to provide strategic direction and coordination in the sector, while Districts have been given a leading role in the implementation of agricultural strategies, through the decentralization of functions and budget.
11. The Land Tenure Regularisation Programme registered all the land in Rwanda (10.3 million parcels) for the first time over a period of five years (up to 2013). This significantly increased tenure security for both female and male landowners. It is mandatory to register land property to both spouses married in a community and spousal consent is now required for transfer of the property. Current land laws provide for equal access to land without discrimination based on sex or origin. In case of State land acquisition, owners of land are compensated.

12. **Food security.** Rwanda has recently subscribed to the Global Compact to end hunger and malnutrition by 2025. Official estimates show that 19 per cent of households are food insecure, often related to the stability of rural incomes, access to land, ownership of animals, and events such as crop failures and seasonal scarcities, which reduce access to food. Resource-poor households who farm small plots are the most food insecure. In the target Kayonza District, 43 per cent of households are marginally food secure, 10 per cent are moderately food insecure and 1 per cent are severely food insecure.
13. **Relevant national policies and strategies.** Rwanda's long-term development goals are defined in the Vision 2020 and Vision 2050 documents that aim to transform the country from a low-income agriculture-based economy into a knowledge-based, service-oriented economy with middle-income status. The GoR has ambitions to move towards being an Upper Middle Income country by 2035, requiring an average annual growth rate of 10 per cent. To achieve this, the GoR has come up with a medium-term strategy: the *second Economic Development and Poverty Reduction Strategy* (EDPRS 2) outlines its overarching goal of growth acceleration and poverty reduction through four thematic areas: economic transformation, rural development, productivity and youth employment, and accountable governance. The GoR conducted a mid-term evaluation of its EDPRS 2 in July 2017. Areas for further attention going forward include among others **using PPPs to unlock business potential; modernizing agriculture and increasing resilience to climate change**, all areas that constitute the backbone of KIIWP's design.
14. The project also meets the objectives and priority areas of other key policies and strategies such as the *Strategic Plan for the Transformation of Agriculture* (PSTA 4) – the Government's flagship investment programme for the sector, the *National Strategy on Climate Change and Low-Carbon Development* (NCCLCD) for Green Growth and Climate Resilience and the *Nationally Determined Contributions* (NDCs).

b. Special aspects relating to IFAD's corporate mainstreaming priorities

15. **Climate change.** Climate change has resulted in Rwanda experiencing frequent and recurrent mid-season droughts. Recent rainfall trends show that rainy seasons are tending to become shorter but with higher intensity. While the North and South Provinces suffer from severe landslides and soil erosion due to heavy floods, the Eastern Province, including Kayonza District, is regularly affected by drought events leading to decreases in agricultural production and livestock deaths.^[7]
16. **Gender.** Rwanda has made great strides promoting gender equality, with strong Government backing. International indices that measure progress towards gender parity rank it among high income countries with high levels of human development. However, many of the benefits of this progress have yet to be felt in rural areas, where traditional patriarchal attitudes continue to prevail. Women provide the bulk of labour (86 per cent) in the agricultural sector. Yet, with lower levels of schooling and higher rates of illiteracy (23 per cent) they are constrained to subsistence farming with insufficient skills, access to markets and control over land and other key assets and agricultural services, compared to men. In male-headed households, women also work double the hours of men, on productive, domestic and community work. Rates of domestic violence, and tolerance for it by men and women, are relatively high. All of these result in a cycle of gender inequality and poverty that transcends generations.
17. **Youth.** Over 50 per cent of the population is under 20 years old and the median age is 22.7 years old. The 2015 National Youth Policy officially revised the definition of youth to people aged between 16 and 30 years old. Youth unemployment is relatively low (4.1 per cent) and more of an urban problem. Youth inactivity (37 per cent) mainly stems from young people still in education (75 per cent) or looking after their families (16 per cent). Two-thirds of employed youth work in agriculture, but the sector is characterized by low productivity, low earnings and precarious working conditions. Challenges to youth entrepreneurship and business development include a lack of collateral to access finance, business and management skills, bankable business plans, innovation and information technology as well as high interest rates. The Youth Policy thus identifies the modernisation of agriculture as a priority, especially by linking and improving farm value chains.
18. **Nutrition.** While there have been marked reductions in the prevalence of chronic malnutrition over the last decade, stunting continues to be above the World Health Organisation (WHO) high severity threshold and is a major public health concern. Almost 38 per cent of children under five are chronically malnourished.^[8] Only three districts have moderate stunting rates (<30 per cent). The persistent underlying causes of stunting in rural areas include: poor access to improved water and sanitation facilities by infants and children; inadequate infant feeding to meet minimum meal frequency and diet adequacy needs; food insecurity from subsistence farming on small plots of land; poor diet diversification leading to micronutrient deficiencies; and seasonal and chronic obstacles and climate shocks limiting access to mostly market-sourced food items. Rwanda joined the SUN movement in 2011 and several multi-stakeholder platforms have been set up at central and local level to scale up nutrition. Agriculture has an essential role to play in overcoming the remaining barriers in chronic malnutrition by enabling rural households to improve the quality of their diets and food system.

c. Rationale for IFAD involvement

19. In 2016, the Eastern Province was affected by a severe drought that brought an additional burden to the systemic challenges faced by Rwandan farmers in terms of land pressure, loss of soil fertility due to unsustainable environment management practices and inadequate farmer participation in rural development planning. More than 47,000 households in the districts of Kayonza, Nyagatare, Gatsibo Ngoma and Kirehe became food insecure and the GoR had to provide food relief and water for livestock to support the affected districts.
20. Along with its strategy to mitigate the drought-induced calamities through improved use of untapped water resources, the GoR has thus requested IFAD to formulate a new integrated irrigation and watershed development project, revolving around the most seriously affected district of Kayonza, and building on the experience of the recently completed KWAMP, the successful Community-based Watershed Management Project implemented in the neighbouring Kirehe District.
21. KWAMP is one of the most highly ranked supported projects in the IFAD East and Southern Africa (ESA) division. The supported

activities of crop and livestock intensification, irrigation development and improvement in feeder road network contributed to improved agricultural productivity and enhanced food security in Kirehe District. The 2016 Impact Assessment reported that the number of poor people in the district reduced from 54.4 per cent in 2008 to 37.1 per cent in 2016. Furthermore, land ownership and security were improved resulting in 94.2 per cent of farmers owning land and 92.2 per cent of households having their land registered.

22. IFAD can also build on the strengths and lesson learned from the ongoing Project for Rural Income through Exports (PRICE), Post-harvest and Agribusiness Support Project (PASP) and Rwanda Dairy Development Project (RDDP). RDDP has a significant emphasis on engaging with policy makers and other relevant stakeholders as well as assisting the government with the design and implementation of specific regulatory policies related to the dairy value chain. In line with government requests, IFAD will ensure that KIIWP incorporates relevant good practices promoted in the country programme portfolio.

An innovative phasing approach

23. **KIIWP will be implemented along two phases that are meant to facilitate an early project start up and respond to the urgent demand of the GoR to tackle drought-related issues in the Eastern Province within the shortest possible time.** KIIWP 1 will thus be devoted to the necessary preparatory works, ahead of the large irrigation infrastructure activities and farm business development support that will take place during KIIWP 2, once the Feasibility Studies (FS) and Environmental and Social Impact Assessments (ESIAs) are completed and the irrigation schemes validated. This phasing approach will facilitate: a) early project start up; and b) flexibility in project design and agility in implementation. It is anticipated that with completed FS and disclosed and approved ESIAs, other development partners and the private sector will be more willing to co-finance with communities, the GoR and IFAD.
24. **KIIWP 1** will comprise two components:
- **Strengthening resilience to droughts**: this component will invest in catchment rehabilitation, livestock and domestic water infrastructure development, and the establishment of efficient infrastructure management institutions. Specific Environmental and Social Management Plans (ESMPs) for these activities will be prepared during implementation, as the location of the sites are identified, prepared and implemented. Feasibility studies and ESIAs will be undertaken for four potential irrigation schemes in the District. In addition, 5,000 hectares of area will be studied to prepare a pipeline of investment-ready irrigation schemes in case the pre-identified schemes fall short of the target area for development.
 - **Institutional development and project coordination**: this component will provide the institutional, managerial and administrative support services needed to implement the above technical component. Key interventions include: (i) the capacity building of KIIWP implementation staff under the SPIU at the local and national level; and (ii) gender and youth mainstreaming. Opportunities to support development and implementation of relevant national policies, strategies and/or regulations will be prioritized.
25. KIIWP 1 will revolve around (i) the catchment rehabilitation and protection of areas where rainfed agriculture is practised; (ii) the provision of water for livestock and domestic purposes in the most drought-prone sectors of Kayonza; (iii) the preparation of the FS and ESIAs for large irrigation schemes; and (iv) the formation and capacity building of sub-catchment committees, Water for Livestock User Organisations (WLUSOs), district and scheme committees. All of these activities will efficiently pave the way for smooth and fast rolling out of the main investments foreseen in KIIWP 2.
26. The two phases will be subject to distinct IFAD Executive Board approval and financing processes, and the activities expected to take place in KIIWP 2 will be fine-tuned based on the results of the FS and ESIAs to be produced and disclosed in accordance with the national environmental regulations and SECAP guidelines. Feasibility studies and ESIAs are expected to be ready by December 2020. This will allow to further shape and finalize the design of KIIWP 2. Out of a total project duration of six years, KIIWP 1 is expected to last 2.5 years and KIIWP 2 will cover the remaining 3.5 years. Some activities initiated in KIIWP 1, like the capacity building of district & scheme committees, sub-catchment committees and WLUSOs might be continued based on their status and strength assessed towards the end of KIIWP 1.
27. The anticipated components and activities in KIIWP 2 comprise:
- **Strengthening resilience to droughts**: climate smart agriculture for irrigated and rain-fed lands will be promoted through Farmer Field Schools. It will include investment on water harvesting and storage, irrigation infrastructure development and marshland development. This component will also include the promotion of good nutritional practices and the Gender Action Learning System (GALS).
 - **Support to farm business development**: farmers will be assisted to take advantage of the investments made under the component on strengthening resilience to droughts by enhancing their organizational and entrepreneurial skills and improving their linkages to access input, service and output markets.
 - **Institutional development and project coordination**: this component will continue supporting the project as described under KIIWP 1.
28. The main expected outcomes at the end of KIIWP 1 and KIIWP 2 combined include: (i) improved access to land, forests, water and water bodies for production purposes; (ii) increased acreage of farmland under water-related infrastructure; (iii) increased acreage of farmland under climate resilient management and practices; (iv) increased capacity of smallholder farmers and local government to sustainably manage natural resources and climate-related risks; (v) enhanced use by farmers, including youth, of technologies, equipment and infrastructure adapted to smallholder agriculture and (vi) increased economic benefits by farmers from market participation and increased sales.

B. Lessons learned

29. The country loan portfolio provides various lessons learned for the design of KIIWP 1:

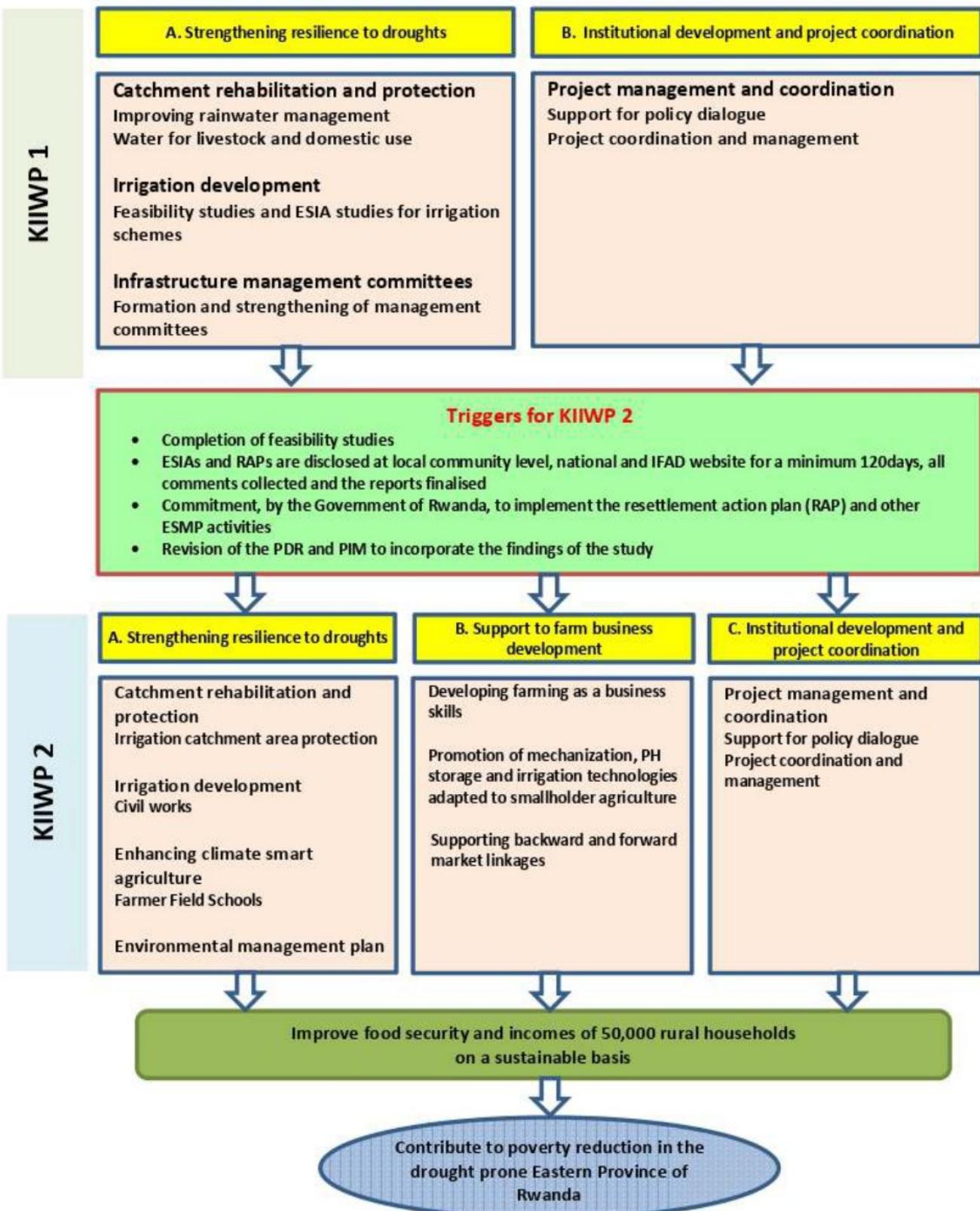
1. The focus on a single district enabled the active role of local government staff at different administrative levels (Cell, Sector, District) who were seconded to all project components and activities. KIIWP will follow this example right from KIIWP 1 by supporting local government capacity and institutional strengthening to further ensure the sustainability of the interventions foreseen in Kayonza District.
 2. KWAMP showed that a critical element to ensure the sustainability of watershed management is the integrated and participative approach used to prepare, implement and monitor catchment management plans. With the strengthening of irrigation water user organizations (WUOs) and other decentralised structures, this participative approach ensured community ownership and the transfer of infrastructure management to irrigation water user organizations (IWUOs).
 3. Early formation, capacity building and empowerment of WUOs paved the way for them to take-over responsibility for Operation and Maintenance (O&M) of irrigation schemes. This process needs to be a scheme-based coaching approach and start early, ideally at the time of planning and construction of a scheme. The same principle will apply to KIIWP 1 for the formation and strengthening of WLUOs.
 4. There is a need to engage technically competent service providers (SPs) in the elaboration of technical designs of the irrigation infrastructures. KWAMP experienced cost variations for hillside irrigation infrastructure mainly due to underestimated foundation depth during design, and inadequate water for one dam as a result of poor runoff estimates at design. KIIWP 1 will thus devote the necessary time and budgets to undertake highly professional FS that will guide the design of quality irrigation infrastructure.
 5. In order to promote gender equality and youth engagement in agriculture, strategic partnerships and innovative approaches are key. The Rwanda Youth Agribusiness Forum (RYAF) is a relevant partner to engage youth in agriculture, as service providers as well as beneficiaries of capacity building, business and financial services. The GALS has been widely used in IFAD projects in Rwanda to increase equal access to economic opportunities, decision-making processes and share of workload.
 6. The competitively-staffed Single Project Implementation Unit (SPIU), in charge of the implementation of all IFAD funded projects, provides a solid foundation for quick implementation start-up and timely disbursements. KIIWP will use the same implementation arrangements in its two phases.
30. Additional lessons learned relevant to KIIWP 2 are included in annex 12.

2. Project Description

C. Project objectives, geographic area of intervention and target groups

31. The overall KIIWP's Development Goal is to "Contribute to poverty reduction in the drought prone Eastern Province of Rwanda". The Development Objective is to "Improve food security and incomes of 50,000 rural households on a sustainable basis and build their climate resilience". KIIWP will improve the resilience of smallholder farmers to droughts and effects of climate change through increased levels of production and productivity of selected food and cash crops, livestock and improved market access and business development. Through KIIWP, it is expected that smallholder farmers will see an improvement in household food and nutrition security, income, and asset ownership, particularly amongst vulnerable groups including women-headed households and youth. KIIWP's goal will be achieved through the development of sustainable, profitable and intensive small-scale agricultural activities supported through Public Private Producers Partnerships (4Ps) whenever opportunities exist in the selected project sites and areas.
32. KIIWP will support commodities central to the main livelihoods of the farmers in Kayonza District and for both provision of staple food and income generation. Paddy, maize, potatoes, soya, as well as horticulture are anticipated to be KIIWP major crops.
33. The main expected outcomes of the project include: (i) improved access to land, forests, water and water bodies for production purposes; (ii) increased acreage of farmland under water-related infrastructure; (iii) increased acreage of farmland under climate resilient management and practices; (iv) increased capacity of smallholder farmers and local government to sustainably manage natural resources and climate-related risks; (v) enhanced use by farmers, including youth, of technologies, equipment and infrastructure adapted to smallholder agriculture and (vi) increased farmers' economic benefits from market participation and increased sales. Figure 1 below summarises the two phases foreseen for the project.

Figure 1: KIIWP 1 and KIIWP 2 by component



34. The project will contribute to strategic objectives (SO) 1 and 2 of the draft new Rwanda COSOP 2019-2024. Specifically, across its two phases it will sustainably increase agricultural productivity in food crop value chains (SO1) and strengthen market linkages between farmers and other value chain actors (SO2). In this regard, KIIWP 1 and KIIWP 2 will also contribute to the SOs in IFAD's Strategic Framework (2016-2025) to increase rural people's productive capacities, increase their benefits from market participation and strengthen the environmental sustainability and climate resilience of their livelihoods. Annex 11 shows the linkages in more detail between the core indicators in KIIWP 1 and KIIWP 2, the IFAD Strategic Framework (2016-2025) and the SDG targets.

35. **Project area.** The targeted project area comprises the eight drought-prone sectors of the District of Kayonza in the Eastern Province of Rwanda (see table 1 below). These areas are relatively hot, with limited rainfall compared to the rest of the country, averaging 900 mm per year, but they have good potential for irrigation. Kayonza District in particular has a high potential for irrigation development estimated at 30,000 hectares. The possible sources of water in the district are lakes (45.3 per cent), marshlands (26.6 per cent), groundwater (21 per cent) and small rivers (7.1 per cent).
36. According to District population data (2016 census), Kayonza District has a population of 392,676 with 26.4 per cent of the population living below the poverty line, and 9.5 per cent living in extreme poverty. About 80 per cent of the total active population is engaged in agriculture as their main economic activity and source of income. The landholding per capita of 0.5 hectare per household (HH) is moderately large compared with the rest of the country. In addition to crop production, livestock is intensified in the district. The main potential economic opportunities of Kayonza District were identified as agri-business development opportunities, land availability, productivity enhancement, mechanization and use of modern farming methodologies.
37. **Target sectors.** Out of a total of 12 sectors in Kayonza, KIIWP 1 and KIIWP 2 will target the eight drought-prone sectors of Gahini, Kabare, Kabarondo, Murama, Murundi, Mwiri, Ndego and Rwindikavu representing a total of 262,967 people, of which 51.5 per cent are women. In these eight sectors, 58 per cent of all households raise some type of livestock, including 24 per cent with cows. They face a serious challenge of water scarcity during nearly all dry months of the year.

Table 2: Target sectors in Kayonza District

8 drought prone SECTORS	# of HHs (2016)	POPULATION (2016)	% of FHHs	HHs with domestic animals	% of HHs with cows	Number of cows
GAHINI	8319	38940	31%	3849	17%	2303
KABARE	9135	39784	25%	5094	36%	8507
KABARONDO	7450	33243	32%	5052	19%	3653
MURAMA	5155	22105	48%	2951	15%	2969
MURUNDI	9057	43386	31%	4064	33%	7225
MWIRI	6289	29569	33%	2675	23%	3283
NDEGO	5422	23526	30%	6883	20%	4830
RWNKAVU	7399	32414	25%	2956	26%	4282
TOTAL	58226	262967		33524		37052
Percentage			31%		24%	

Source: National Institute of Statistics of Rwanda (2016)

38. **Target group.** Based on the national wealth ranking system (*Ubudehe*), and consistent with the targeting strategy laid out in the COSOP, KIIWP's direct target groups will comprise about 50,000 poor and food insecure rural households^[9], equivalent to 225,000 people who are in the following *Ubudehe* categories: Category 1: Families who do not own a house or cannot pay a rent, have a poor diet and can hardly afford basic household tools and clothes; Category 2: Those who have a dwelling of their own or are able to rent one, mostly get food and wages^[10] from working for others but rarely get full time jobs; and Category 3: Those who have a job and farmers who go beyond subsistence farming to produce a surplus which can be sold.^[11] Out of the 50,000 households targeted by KIIWP 1 and KIIWP 2, 7,167 households equivalent to about 32,250 persons are expected to benefit from KIIWP 1.
39. **Profile of target groups.** It is worth noting that in the eight KIIWP target sectors, almost all households (58,209 HH = 99.97 per cent) are categorised as Category 1, 2 or 3. Almost half of them (49 per cent) are actually categorised as Category 1 and 2, which is higher than in the whole of Kayonza District (47 per cent) and also higher than the national average (43.9 per cent). Female-headed households are 31 per cent. Most of the target households will be men, women and youth farmers and livestock keepers, and those in wage labour and off-farm activities along the target value chains.
40. **Targeting strategy.** The targeting strategy for KIIWP 1 and KIIWP 2 will be based on the following targeting mechanisms:
1. Geographical targeting. As mentioned above, the project will focus on the eight drought-prone sectors of Kayonza District. The selection of specific sites will be based on the level of degradation, topography and water availability and viability of the site for development.
 2. Self-targeting. The goods and services provided by the project will respond to the priorities, financial/labour capacities and livelihood strategies of the target groups
 3. Direct targeting. The poorest households, young farm workers and women (from Category 1) will be targeted directly by the project, involving the *Umudugudu* committee at village level to ensure transparent and participative methods of household selection, for example for labour for construction activities. The Social Management Plan in the ESIAS will specifically assess the need and how to reach out to Category 1 households in irrigation development. The approach used in KWAMP of redistributing 20 per cent of the land that was owned by the District to the landless will be explored. Category 1 households are also expected to benefit from the seasonal and permanent job opportunities created through market-orientated irrigation development. Women and youth will be specifically targeted to account for at least 50 per cent and 30 per cent of beneficiaries, respectively. Youth will be targeted as both beneficiaries and service providers. Women-headed households are also expected to represent 30 per cent of households reached. Youth will be targeted as both beneficiaries and service providers. It is also expected that the management committees will comprise 40 per cent women and 25 per cent youth.

41. Empowering measures. The training of management committees will increase awareness of gender issues in infrastructure management, as well as the role of youth. The GALS will be used to improve equal access of men and women to economic opportunities, decision-making processes and share of workload. Young professional organisations, such as the Rwanda Youth in Agribusiness Forum (RYAF) and the Horticulture in Reality Cooperative (HoReCo) are mainly composed of young graduates in Agriculture, Animal Production, Irrigation, Food Dairy technologies and Agricultural Mechanisation. RYAF and HoReCo have recently signed MoUs with MINAGRI to encourage the involvement of young professionals in implementing programs/projects that support agricultural transformation. These youth will be particularly targeted as service providers to provide technical and managerial assistance to management committees.
42. Procedural measures. Attention will be given to costs/beneficiary contributions, timing and administrative procedures required for effective participation of the various target groups. To ensure the participation of women, attention to the location and timing of various project activities may increase their opportunity to participate.
43. Operational measures and monitoring. A Gender, Targeting and Community Mobilisation Officer has been appointed in the MINAGRI SPIU to coordinate the implementation of the gender and targeting strategies. In addition, KIIWP project staff will include an M&E Officer that is also in charge of gender and youth.
44. Further details on gender and youth mainstreaming and the targeting and gender strategies are available in the description of components and in the Project Implementation Manual.
45. **This PDR mainly focuses on the proposed activities and implementation arrangements for KIIWP 1, while also presenting the overall project rationale and strategy (KIIWP 1 and KIIWP 2).**

D. Components/outcomes and activities

Components/outcomes and activities^[12]

46. **KIIWP 1 will consist of two components: A) strengthening resilience to droughts and B) institutional development and project coordination.** The main expected outcomes and outputs can be summarized as follows: i) 11,250 people reporting improved access to land and water for production purposes; (ii) 1,690 hectares of land brought under climate resilient management benefitting 21,000 people; (iii) 35 infrastructure (valley tanks and boreholes) constructed in rain-fed areas; (iv) Investment-ready schemes for the irrigation of 2,275 hectares combined with an investment-ready pipeline of about 5,000 hectares; (v) 49 groups supported to sustainably manage natural resources and climate-related risks and (vi) Contribution to the development and/or operationalization of relevant national policies.

Component A: Strengthening resilience to droughts

47. For KIIWP 1, this component will cover the much needed catchment rehabilitation and protection in rainfed areas; the urgently required infrastructure for livestock and domestic purposes; and all preparatory activities for the irrigation development to be done under KIIWP 2.

Sub-component A.1: Catchment Rehabilitation and Protection

48. This sub-component will support investments in catchment rehabilitation through the following investments: a) sub-catchment planning; b) land husbandry in rainfed areas; and c) construction of boreholes and valley tanks to supply water for livestock and domestic use. Specific ESIA and ESMPs will be developed for each interventions under this subcomponent.
49. **Improving rain water management:** Farmland protection and rehabilitation techniques will be selected with a view to reducing runoff so that rainwater can infiltrate into the soil. This will be combined with land husbandry practices geared towards increasing vegetative cover in the farms which will increase the soil fertility. The protection activities such as construction of check dams, side drains, terraces and contour buns will be complimented with agro-forestry activities including planting of selected agro-forestry trees, shrubs and grasses as well as pastures rehabilitation. A target of 1,400 hectares will be protected and rehabilitated in Murundi, Murama, Mwiri, Kabarondo and Gahini Sectors.
50. The farmlands will be selected through participatory assessments in the sub-catchments. An output of the assessments will be the catchment management plans that will guide the implementation of the activities. The plans will identify the zones in most need of protection and the action to be taken to rehabilitate and protect them.
51. When the catchment management plans are developed, the SPIU will engage a service provider(s) to manage the implementation of the plans at sub-catchment level. The SPIU will have a field officer responsible for supervising the implementation jointly with the district and the sub-catchment committees (SCCs) and with the active participation of WUOs and WLMOs. The activities are expected to result in the rehabilitation and protection of 5,950 hectares of farmlands.
52. **Water supply for livestock and domestic use:** The supply of water for livestock and domestic purposes will be improved through the development of valley tanks and boreholes. The selection of where to invest in livestock watering facilities will be informed by the need to evenly spread the grazing areas across the sectors to minimize overgrazing. The project will develop 20 boreholes and 15 valley tanks to supply water to 2,500 households and 7,200 livestock.

Sub-component A.2: Irrigation Development

53. **Feasibility Studies (FS) and ESIA for Irrigation Schemes** will be undertaken for four potential irrigation schemes in Kayonza District, namely:
 - Ndego Sector Irrigation Scheme (Kibare (400 hectares), Humure (600 hectares) and Byimana (400 hectares) with a potential

net area of 1,400 hectares to be irrigated. The scheme will benefit about 4,667 households. The potential water source will be Lake Nasho, Kibare and Ihema on the Akagera River, near Akagera National Park. Note: The Government of Rwanda has initiated the FS and ESIA for irrigation schemes in the Ndego Sector.

- Kabare Sector Irrigation Scheme, with a potential net area of 600 hectares to be irrigated at Gakoma. The scheme will benefit about 2,000 households. The water source for the irrigation is the Lake Nasho on the Akagera River.
- Kanyeganyenge Dam and Irrigation Scheme with a potential command area of 150 hectares at Kabarondo. The irrigation scheme will benefit about 500 households. A dam will be built on the Kanyeganyenge river to supply water to the irrigation scheme.
- *Gishanda Dam and Irrigation Scheme with a potential command area of 125 hectares at Kabare, to benefit over 400 households. A dam will be built on the Rwinkwawu River. Note: The sizes of the reservoirs will be determined during feasibility studies, but it is expected to be above one million m³ for each dam.*

54. The results of the FS and ESAs will determine the exact locations of the interventions which may include areas outside the above identified sectors and District boundaries.
55. In addition, another area of 5,000 hectares will be studied to prepare a pipeline of investment-ready irrigation schemes. The pipeline will also act as a reserve list of irrigation schemes for development under KIIWP 2, in case the pre-identified schemes fall short of the target area for development. Priority for the sites to be studied will be given to sites in Kayonza District identified in the Irrigation Master Plan (IMP).
56. Irrigation schemes that are identified to be environmentally, socially, technically and financially viable will be developed under KIIWP. The studies will be done by international consulting companies. The SPIU will engage consultancy firms with the different required expertise to carry out these studies and assessments with active participation of the community institutions. Specific ESMPs for activities under KIIWP 1 will be prepared during implementation as part of the FS and ESAs, as the location of the sites are identified and prepared.

Sub-component A.3: Infrastructure management institutions

57. **Formation and strengthening management committees:** In order to ensure long-term sustainability, KIIWP 1 will support the institutional development of management committees that will be responsible for coordinating the planning and implementation of activities in the catchment plans. In addition, the committees will play an active role in the planning, design, construction and operation and maintenance of infrastructure developed in the catchment. The committees will also be central in ensuring inclusive and equitable access to water for all members, including farmers and livestock keepers. The committees will develop drought contingency plans for the catchment and sub-catchment areas. Committees to manage specific infrastructure will be capacitated and strengthened to benefit all users of the infrastructure.
58. An estimated 10 SCCs, 35 WLUSOs and four scheme steering committees will be formed and/or strengthened during KIIWP 1, totalling 49 management committees. KIIWP 1 will support the formation and strengthening of these institutions in the eight drought-prone sectors of the District, based on one consistent approach. District, Sector and cell level staff, with the support of WUO Specialist from the SPIU and RAB, will support the formation and strengthening of these institutions. The District could simultaneously replicate the approach in the remaining four Kayonza sectors, using their own resources.
59. Capacity building will take place, covering three key areas: (i) governance; (ii) technical water management (O&M); and (iii) monitoring and exchange of experiences. The capacity building will be based on a participatory Farmer Field School approach. Some key features of the institutions are presented below.
60. **Scheme and District Steering Committees.** As per Ministerial Instructions (2017, Draft^[13]), the project will support the establishment and strengthening of Scheme and District-level Steering Committees to support and oversee the functioning of the WUOs and ensure optimal use of developed land at irrigation scheme and District level. Overall six irrigation schemes are expected to be constructed in Kayonza, and four schemes Steering Committees will need to be established. These will be chaired by the Executive Secretary of the Sector in which the scheme is located.
61. **Sub-Catchment management committees.** In line with the national policy, KIIWP 1 will support the setting-up and strengthening of sub-catchment^[14] management committees in each watershed. These committees will put in place regulations on use, conservation, protection and management of water resources. They are expected to be effective institutional bodies for managing and improving sub-catchment areas, and to perform a central role in the planning and implementation of activities identified in the sub-catchment plans, together with the Scheme and District Steering Committees.
62. KIIWP 1 will start with establishing the exact boundaries of the different catchments and sub-catchments in Kayonza District through Geographic Information System (GIS) mapping. This will be done by a local service provider. KIIWP 1 will support the preparation of sub-catchment management plans, involving the sub-catchment committees in order to ensure water resources protection and conservation by all in an integrated approach. These sub-catchment committees will also be responsible for safeguarding communal areas with soil and water conservation measures such as terraces and agro-forestry and monitor the implementation of reforestation and safeguard the newly reforested areas.
63. **Water for Livestock Users Organisations** will be established, and existing ones strengthened, to ensure the management and sustainability of boreholes and valley tanks. Currently there are 15 valley tanks for domestic and livestock use, with each one serving an average of 89 male and 15 female headed households and 480 livestock. A further 15 new valley tanks will be constructed. In addition, 20 boreholes will be installed. In total, 15 existing WLUSOs will be strengthened and 35 new WLUSOs will be established and strengthened. The WLUSOs will prepare guidelines for O&M of the boreholes and valley tanks, including connected domestic water supply systems. Women's participation in the management of water supply infrastructure will be mandatory. The participation of youth will also be encouraged, as they can be hired as water point managers, collect water fees and ensure hygienic conditions at the water points.

Sub-component A.4: Implementation of Environmental and Social Management Plans

64. Under this subcomponent, environmental and social management plans as identified by the ESAs will be implemented. Specific provisional budget has been provided for as indicated in the ESMF.

Component B: Institutional development and project coordination

65. This component is designed to strengthen government agencies to deliver project outputs and to support policy dialogue and institutional development that will sustain project interventions beyond project completion.

Sub-component B.1: Support to policy dialogue and enabling institutional environment

66. KIIWP 1 will strengthen institutions that can directly or indirectly support the implementation and provide policy supports that are needed for the effective implementation of the project. Key activities and interventions foreseen under this sub-component include the below activities.

67. **Capacity building interventions** will be identified for KIIWP staff under the SPIU, including RAB and district personnel engaged in KIIWP 1 implementation. These capacity building activities will be preceded by a needs assessment. The financing of these activities will be done by the concerned entities and co-financed by the project, provided that these capacity building activities are benefiting project implementation and build the sustainability prospects of the project. Collaboration with the Rwanda Capacity Development and Employment Services Board (CESB) will be explored.

68. **Gender and youth mainstreaming.** Poverty and gender and youth studies will be conducted at baseline and in the third year. Initial studies will be used by RAB in connection with the SPIU to strengthen the targeting strategy and prepare a brief gender and youth action plan for KIIWP 1. This will also pull on work already done by MINAGRI and other IFAD-supported projects. Specific training will be organised to familiarise government and project staff with gender and youth mainstreaming approaches, and special provisions will be made to ensure that gender equity concerns are adopted in the implementation of all project components. The M&E system will disaggregate data by sex and age to support gender and youth analysis.

69. **Support for policy dialogue** will be provided through an evaluation of implementation and impact of new or existing policies related to the project activities with relevant national, and district level stakeholders. Support for water management policies will be through the implementation of the recently enacted policies and legislation including Ministerial Instructions on Land Development, Conservation and Exploitation of Developed Land for the formation and registration of WLUs and district and steering committees. In addition, via multi-stakeholder platforms and fora of dialogue, KIIWP 1 will strive to raise specific policy discussion points meant to address identified bottlenecks in Rwanda's agricultural sector, such as:

- a. Support to national policy on contract farming, making use of the tools developed through the implementation of the Legal Guide on Contract Farming [15] developed by UNIDROIT, FAO and IFAD in 2015;
- b. Analyze the factors affecting rice value chain that makes Rwandan rice less competitive with regional products;
- c. Current issues of availability and quality of seeds, including multiplication.

Sub-component B.2: Project management and coordination

70. The objective of this sub-component is to provide the coordination arrangements, including the financial and human resources that are needed for the implementation of the project. Details on coordination arrangements are provided in Section 4 of this PDR.

71. Conditions to start KIIWP 2

In order to proceed from KIIWP 1 to KIIWP 2, specific, transparent and monitorable triggers are set as conditions. See annex 15 for more details.

1. FSs identify irrigation schemes that are financially, economically, environmentally and socially viable and sustainable.
2. Third party satisfactory review of FSs, ESAs and Resettlement Action Plans (RAPs).
3. ESAs and RAPs are disclosed at local community level, national and IFAD website for a minimum 120 days.
4. Provision of a budget and commitment by the Government of Rwanda to implement the RAP and other ESMP activities identified by the ESAs.
5. Revision of the PDR and PIM to incorporate the findings of KIIWP 1.

72. Before submitting KIIWP 2 for EB approval, IFAD Senior Management will assess if conditions have been fully met.

Summary of activities under KIIWP 2

73. Building up on KIIWP 1, KIIWP 2 will continue to focus on strengthening resilience to droughts as the first component (Component A). Potential irrigation development will comprise the Ndego Irrigation Scheme (net 1,400 hectares), Kibare Irrigation Scheme (net 600 hectares), Kanyeganyege Irrigation Scheme (net 150 hectares + dam), and Gishynda Irrigation Scheme (net 125 hectares + dam). Depending on the findings from KIIWP 1 FS, other irrigation schemes will be developed in place of the above, if they are found to be unviable. KIIWP 2 will have two additional components: (B) Support to farm business development and (C) Institutional development and project coordination. Activities in Component B will include assisting farmers engaged in commercial production, promoting mechanization, post-harvest storage and irrigation technologies, and supporting backward and forward market linkages. Component C will focus on supporting national policy related to project activities, mainstreaming gender and youth, and capacity building, in addition to project management and coordination. More information on the anticipated activities in KIIWP 2 are provided in Annex 12.

E. Theory of Change

Theory of Change [\[16\]](#)

74. KIIWP 1 Theory of Change (TOC) is based on the situation faced by crop and livestock farmers currently living in the target area. Given the identified problems of:
1. climate change (droughts);
 2. population pressure;
 3. limited water storage and availability;
 4. crop failures in subsistence agriculture;
 5. limited number of investment-ready irrigation projects;
 6. inadequate farmer participation in rural development planning; and
 7. weak technical and organizational capacity of district staff.
75. These factors inevitably lead to catchment degradation, conflicts between water users, death of livestock, need for emergency food, reduced investment in irrigation, weak sense of responsibility/ownership of natural resources and no harmonized approach to support project implementation.
76. KIIWP 1 TOC entails that smallholder farmers will sustainably increase their food security and income through focused interventions made at district/sector level. These interventions will revolve around four main pillars: (i) catchment rehabilitation through land husbandry in rainfed areas; (ii) construction of valley tanks, boreholes and rainwater harvesting ponds; (iii) preparation of pipeline of investment-ready projects from 7,275 hectares and (iv) formation and strengthening of sub-catchment committees, WLLOs, scheme and district steering committees.
77. The ownership of direct and indirect beneficiaries will be sought through their development as strong local organisations able to sustainably manage the infrastructure supported by the project. This, combined with the integrated watershed management approach adopted by the project, will ensure appropriate management of natural resources and increased control of climate-related risks in the target areas. The direct result of KIIWP 1 interventions can be summarized as follows:
- a. 1,200 hectares catchment area protected and rehabilitated in four sectors (Kabarondo, Murundi, Gahini and Murama);
 - b. 200 hectares (667 households) benefitting from rainwater harvesting ponds;
 - c. 20 boreholes and 15 valley tanks supplying water to 2,500 households and 7,200 livestock;
 - d. Six schemes ready to be built for the irrigation of 2,275 hectares + investment-ready pipeline;
 - e. 49 committees formed and capacitated to manage efficiently the catchment areas and water rights for livestock and domestic purposes

F. Alignment, ownership and partnerships

Alignment with national priorities

78. KIIWP's Development Goal is fully aligned with GoR's *second Economic Development and Poverty Reduction Strategy (EDPRS 2)* whose overarching goal is growth acceleration and poverty reduction [\[17\]](#). More specifically, KIIWP is well aligned with Rwanda's *Strategic Plan for the Transformation of Agriculture (PSTA 4)*, the Government's flagship investment programme for the agriculture sector:
- a) The enhanced CSA and LH practices promoted under Component A respond well to the first two Priority Areas (PAs):
- PA 1: Innovation and extension provide the knowledge base for PAs 2-3. The focus is on improving agronomic knowledge and technology in terms of basic research and innovation, development of efficient extension services, as well as promoting knowledge and skills of value chain actors.
 - PA 2: Productivity and resilience focus on promoting sustainable and resilient production systems for crops and animal resources.
- b) While the support to farm business development foreseen in Component B is well aligned with the third PA:
- PA 3: Inclusive markets and value addition seek to improve markets and linkages between production and processing. This includes key input markets such as fertilisers, insurance and finance as well as upstream activities such as aggregation, promotion of value addition, market infrastructure and export readiness.
- c) And the support for policy dialogue under Component C aligns with the fourth PA:
- PA 4: Enabling environment and responsive institutions provide the regulatory framework and define and coordinate public sector involvement.
79. As for KIIWP's specific interventions on irrigation infrastructure, they are well aligned with the *National Strategy on Climate Change and Low-Carbon Development (NCLLCD)* for Green Growth and Climate Resilience that underlines the need to manage the implications of climate variability for the social, environmental and economic development of the country.
80. Last but not least, KIIWP meets the objectives of the *Nationally Determined Contributions (NDCs)* that are built upon the NCLLCD and advocate for a climate resilient economy. The NDC's framework states clearly that the development of irrigation infrastructure and other water efficient technologies will contribute to both sustainable intensification of agriculture and integrated water resources management and planning, which are the pillar for enhancing food security and biodiversity and ecosystem conservation and preservation.

Alignment with SDGs and IFAD corporate priorities

81. Overall, KIIWP will directly contribute to the attainment of several Sustainable Development Goals, notably SDG 1 (No Poverty, Targets 4 and 5); SDG 2 (Zero Hunger, Targets 3 and 4); SDG 5 (Gender Equality, Target 5); SDG 8 (Decent Work and Economic Growth, Target 3); SDG 9 (Industry, Innovation and Infrastructure, Targets 1 and 3); SDG 13 (Climate Action, Target 1) and SDG 15 (Life on Land, Target 3). See Annex 11 for more details.
82. KIIWP is also well aligned with IFAD mainstreaming priorities and policies on youth, gender, climate/environment, private sector, rural finance and nutrition.

Table 3: Alignment with IFAD Policies, Strategies and Action Plans

Policy/Strategy/Action Plan	Alignment
Country level policy engagement	The project will strive to create and provide spaces for policy strengthening, formulation and implementation, led by the government and including multiple actors in the various value chains involved, particularly paddy, maize and horticulture. Particular emphasis in KIIWP 1 will be put on the formalization of the participatory approach used to foster irrigation development through integrated catchment management plans, and setting up a legal framework for contract farming expected to be encouraged in some of the new irrigation schemes.
Targeting policy	The KIIWP targeting strategy is based on inclusiveness and will include very poor, poor and resourceful poor households as direct beneficiaries. The project will adopt several targeting mechanisms: geographic, direct and self-targeting, enabling environment, as well as ensuring procedural and operational measures. The strategy will be assessed at various stages of the project life to readjust or reinforce whenever it is needed.
Gender equality and women's empowerment policy	KIIWP will mainstream gender concerns through project activities. KIIWP 2 will integrate the GALS in the FFSs approach. This will promote equitable: (i) participation and share of benefits for women and men involved in crop production (ii) decision-making capacities at household and group levels and (iii) share of workloads between men and women in agricultural and domestic activities. In addition, KIIWP will foster economic empowerment of women in the off-farm economy.
Mainstreaming nutrition action plan	KIIWP will promote good nutrition practices in rural households, particularly among the most vulnerable. Nutrition education, including on local foods and dietary diversification, will be integrated into FFS training. Efforts to increase horticultural production will also support access to a diversified diet and nutrient rich food. Operational measures to implement these activities will involve a short-term TA to develop a training module and liaising with the Nutrition Specialist in RDDP. In addition, the project log frame will facilitate the monitoring of nutrition related outputs (number of persons provided with targeted support to improve their nutrition) and impact (number of children 0-5 years suffering from malnutrition).
Rural Youth Action Plan	KIIWP mainstreams youth in operations to enable the social and economic empowerment of young rural women and men. Youth-sensitive programming includes: the 25 per cent quota on youth outreach; age-disaggregated data in the M&E system to support youth assessments and analyses; and, the targeting of youths throughout project activities. Youths will be specifically targeted as service providers through the young graduate programme initiated by MINAGRI to provide technical and managerial assistance to farmers' cooperatives, WUOs and WLUOs. Youths who cannot access much land and are interested in quick wins are also likely to be attracted to horticultural development activities.
Rural finance policy	KIIWP foresees that bankable business plans developed by cooperatives, off-takers and processors will receive technical support in order to facilitate access to financial products. Particular emphasis will be given to strengthening the linkages between smallholder farmers and the cooperatives or companies that have already received co-financing support from PASP to develop storage, processing or transport facilities in Kayonza. For new investments that may occur after PASP completion, or for other VCs that are not supported by PASP in Kayonza District (esp. rice), KIIWP will provide grant support using modalities similar to PASP project, e.g. (i) Grants for business-driven cooperative development plans, to establish new drying grounds and/or simple, affordable post-harvest storage facilities using renewable energy; (ii) Performance-based grants (tied to a loan) under 4Ps joint-venture for the new warehouses that would be requested as the result of new irrigation schemes (esp. in Ndego sector). The project will not work directly on policies related to rural finance.

Policy/Strategy/Action Plan	Alignment
Access to land and land security	KIIWP will mainly work on production intensification and access to natural resources (especially water). As the project will also work on land tenure security, the guiding principles of IFAD's land policy suggest that IFAD should be aligned to national policy priorities, do no harm, focus on gender dimensions of land usage and empower rural people and their organizations on land tenure.
IFAD environment and natural resource management policy and climate change strategy ^[18]	Aligned with the ENRM policy (2011), particularly with principle 3-promote climate-smart approaches to rural development and principle 4-greater attention to risk and resilience to manage shocks. The climate change strategy (2010) suggests that climate change should be factored into the project design, explore new ways to work on emerging problems and mobilize resources to address these problems. The Integrated catchment Management Plans and impending results of the ESIAAs prepared under KIIWP 1 will help to ensure that irrigation investments are socially and environmentally sustainable.
Knowledge management	The project will use new guidance on best practice for logical frameworks and results hierarchies, and will have a dedicated M&E system as well as significant budget for knowledge management related to policy experience.
Scaling up	The project is consistent with IFAD's vision of scaling up, defined as "expanding, adapting and supporting successful policies, programmes and knowledge, so that they can leverage resources and partners to deliver larger results for a greater number of rural poor in a sustainable way". KIIWP 1 intends to utilize the extensive set of lessons learned from past and ongoing IFAD-funded programmes to ensure that the project interventions provide continuity while growing in scale.

Harmonization and partnerships

83. IFAD experience with FAO^[19] and the International Water Management Institute (IWMI), in supporting investments in Agricultural Water Management (AWM) has informed the design of KIIWP and will be instrumental to further shape KIIWP 2.
84. The implementation of KIIWP will build on existing programs and activities of other implementing partners or agencies working in the same sector or geographical location. Partners that can collaborate with KIIWP 1 are identified as follows^[20].
- a) **MINAGRI** will maintain an oversight role and lead the policy interventions and dialogue for the sector in general and for KIIWP implementation in particular. The Permanent Secretary in MINAGRI will maintain the role of Chair within the steering committee of KIIWP.
- b) **IFAD-funded "Climate Resilient Post-Harvest and Agribusiness Support Project" (PASP)** is implemented in Kayonza for the maize and beans value chains. KIIWP will ensure that the nine cooperatives currently supported by PASP will be reached for catchment rehabilitation activities whenever relevant.
- c) **IFAD-funded Rwanda Dairy Development Program (RDDP)** is also operational in Kayonza, focusing on developing the dairy value chain through improving cattle productivity, milk quality and processing capacity of the dairy industry. RDDP is also strengthening the policy and institutional framework for the sector. Synergies will be created to supply water for livestock.
- d) **IFAD-funded Project for Rural Income through Exports (PRICE)** is a country-wide project focusing on the establishment of pro-poor cash crop value chains involving smallholder production and early transformation in partnership with private operators. Under KIIWP, synergies will be established to support horticulture producers established in rain-fed areas.
- e) **Rwanda Capacity Development and Employment Services Board (CESB)** established under the Law N°43/2016 of 18/10/2016 is strategically positioned under the Ministry of Public Service and Labour (MIFOTRA). CESB will support the capacity building interventions foreseen under Component C of KIIWP.

G. Costs, benefits and financing

a. Project costs

85. KIIWP 1 total project investment and recurrent costs, including physical and price contingencies, are estimated at US\$24.73 million (RWF 22.2 billion), of which US\$23.62 million are baseline costs and US\$1.11 million are allowances for physical and price contingencies. The costs broken down by project component are as follows: (i) Strengthening resilience to droughts: US\$21.32 million (86.2 per cent); (ii) Institutional development and project coordination: US\$3.41 million (13.8 per cent).
86. In KIIWP 1, Component A, Strengthening resilience to droughts, is partially counted as climate finance. The total amount of IFAD climate finance for this project is preliminarily calculated as US\$8,263,396^[21], which represents 46.4 per cent of the total project amount.
87. The estimated costs for KIIWP 2, including physical and price contingencies, are estimated at US\$59.23 million (RWF 53.16 billion). The foreign exchange component is estimated at US\$26.96 million (46 per cent of project cost), while taxes have been calculated at approximately US\$8.7 million or 14.7 per cent of total project costs. Total baseline costs are US\$55.47 million, while

price contingencies account for US\$1.9 million (or 3 per cent of the base costs) and physical contingencies amount to US\$1.8 million (or 3 per cent of the base costs).

Table 4: KIIWP 1 project costs by component

	(RWF Million)			(US\$ '000)			Foreign Exchange	% Total Costs
	Local	Foreign	Total	Local	Foreign	Total		
A. Strengthening resilience to droughts								
1. Catchment rehabilitation and protection structures	3 720.4	4 748.4	8 468.7	4 351.3	5 551.3	9 902.6	56	42
2. Irrigation Development	4 077.9	4 077.9	8 155.8	4 789.5	4 789.5	9 538.9	50	40
3. Infrastructure Management Institutions	183.7	89.8	273.5	214.9	105.1	319.9	33	1
4. Environmental and Social Management Plan	315.3	158.5	473.8	368.8	185.3	554.1	33	2
Subtotal Strengthening resilience to droughts	8 297.2	9 072.5	17 369.8	9 704.4	10 611.2	20 315.5	52	38
B. Institutional Development and Project Coordination								
1. Institutional Support	181.6	45.4	227.0	212.4	53.1	265.4	20	1
2. Programme Management and Coordination	1 611.3	983.2	2 594.5	1 884.5	1 150.0	3 034.5	38	13
Subtotal Institutional Development and Project Coordination	1 792.8	1 028.6	2 821.4	2 096.9	1 203.0	3 299.9	36	14
Total BASELINE COSTS	10 090.1	10 101.1	20 191.2	11 801.3	11 814.2	23 615.5	50	100
Physical Contingencies	147.0	147.0	294.1	172.0	172.0	344.0	50	1
Price Contingencies	889.8	814.3	1 684.1	399.8	374.9	774.7	48	3
Total PROJECT COSTS	11 108.9	11 062.4	22 169.4	12 373.1	12 381.0	24 734.1	50	105

Table 5: KIIWP 1 project component by year (USD'000)

	Base Cost				
	2019	2020	2021	2022	Total
A. Strengthening resilience to droughts					
1. Catchment rehabilitation and protection structures	3 140.0	5 043.6	1 719.0	-	9 902.6
2. Irrigation Development	1 120.0	4 210.9	4 208.0	-	9 538.9
3. Infrastructure Management Institutions	144.1	94.6	77.3	4.0	319.9
4. Environmental and Social Management Plan	-	350.7	203.4	-	554.1
Subtotal Strengthening resilience to droughts	4 404.1	9 699.8	6 207.7	4.0	20 315.5
B. Institutional Development and Project Coordination					
1. Institutional Support	48.7	64.7	81.0	71.0	265.4
2. Programme Management and Coordination	1 166.0	641.1	893.7	333.6	3 034.5
Subtotal Institutional Development and Project Coordination	1 214.8	705.9	974.7	404.6	3 299.9
Total BASELINE COSTS	5 618.8	10 405.6	7 182.4	408.6	23 615.5
Physical Contingencies	107.0	151.0	86.0	-	344.0
Price Contingencies					
Inflation					
Local	56.8	334.1	449.3	54.9	895.0
Foreign	30.4	164.5	172.1	7.8	374.9
Subtotal Inflation	87.2	498.6	621.4	62.7	1 269.9
Devaluation	-29.9	-179.8	-252.1	-33.4	-495.2
Subtotal Price Contingencies	57.3	318.8	369.3	29.3	774.7
Total PROJECT COSTS	5 783.1	10 875.4	7 637.6	437.9	24 734.1
Taxes	1 044.3	1 906.1	1 250.3	34.2	4 234.9
Foreign Exchange	3 072.9	5 611.7	3 559.5	117.0	12 361.0

Table 6: Expenditure Accounts by Components (USD'000) - totals including contingencies

	Strengthening resilience to droughts						Institutional Development and Project Coordination			Physical Contingencies				
	Catchment rehabilitation and protection structures		Infrastructure Management Institutions		Environmental and Social Management Plan		Programme Management and Institutional Support		Coordination		Total	%	Amount	
	EQUIPMENT & MATERIALS	3 000.0	WORKS	6 879.0	VEHICLES	-	CONSULTANCIES AND NON-CONSULTING SERVICES	23.6	TRAINING & WORKSHOPS	9 538.9	GRANTS & SUBSIDIES	-		
I. Investment Costs														
EQUIPMENT & MATERIALS		3 000.0									56.0	3 056.0	-	-
WORKS		6 879.0									-	6 879.0	5.0	344.0
VEHICLES		-									236.4	236.4	-	-
CONSULTANCIES AND NON-CONSULTING SERVICES		23.6	9 538.9		136.9	248.4					737.5	10 685.3	-	-
TRAINING & WORKSHOPS		-	-		183.0	305.7		265.4			248.5	1 002.7	-	-
GRANTS & SUBSIDIES		-	-		-	-		-			-	-	-	-
Total Investment Costs		9 902.6	9 538.9		319.9	554.1		265.4			1 278.4	21 859.4	1.6	344.0
II. Recurrent Costs														
SALARIES & ALLOWANCES		-	-		-	-		-			1 514.2	1 514.2	-	-
OPERATING COSTS		-	-		-	-		-			241.9	241.9	-	-
Total Recurrent Costs		-	-		-	-		-			1 756.1	1 756.1	-	-
Total BA SELINE COSTS		9 902.6	9 538.9		319.9	554.1		265.4			3 034.5	23 615.5	1.5	344.0
Physical Contingencies		344.0	-		-	-		-			-	344.0	-	-
Price Contingencies														
Inflation														
Local		266.2	388.5		14.8	33.1		23.1			169.3	895.0	-	-
Foreign		154.6	176.1		2.4	7.0		2.3			32.5	374.9	-	-
Subtotal Inflation		420.8	564.5		17.2	40.1		25.5			201.8	1 269.9	-	-
Devaluation		-139.8	-212.4		-5.6	-19.1		-13.8			-101.4	-495.2	-	-
Subtotal Price Contingencies		281.0	352.2		8.5	20.9		11.7			100.4	774.7	1.3	100.0
Total PROJECT COSTS		10 527.6	9 891.1		328.5	575.0		277.1			3 134.9	24 734.1	1.4	353.9
Taxes		1 956.4	1 780.4		59.1	103.5		49.9			285.7	4 234.9	1.5	63.7
Foreign Exchange		5 877.9	4 945.5		107.4	192.3		55.4			1 182.4	12 361.0	1.4	177.0

b. Project financing/co-financing strategy and plan

88. KIIWP 1 will be financed by: (i) IFAD up to US\$17.79 million (71.9 per cent), through a highly concessional loan; (ii) Government of Rwanda for a total of US\$5.42 million (21.9 per cent) in the form of tax exemptions and consultancies for Ndego irrigation system; and (iii) beneficiaries for a total of 1.53 million (6.2 per cent) in the form of works.

Table 7: KIIWP 1 project costs and financing by component (USD'000)

	Beneficiaries						IFAD			The Government		Total		Local (Excl. Taxes)			Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.				
A. Strengthening resilience to droughts																	
1. Catchment rehabilitation and protection structures	1 527.1	14.5	7 044.2	66.9	1 956.4	18.6	10 527.6	42.6	5 877.9	2 693.3	1 956.4						
2. Irrigation Development	-	-	6 929.6	70.1	2 961.4	29.9	9 891.1	40.0	4 945.5	3 165.1	1 780.4						
3. Infrastructure Management Institutions	-	-	269.3	82.0	59.1	18.0	328.5	1.3	107.4	161.9	59.1						
4. Environmental and Social Management Plan	-	-	47.15	82.0	103.5	18.0	575.0	2.3	192.3	279.2	103.5						
Subtotal Strengthening resilience to droughts	1 527.1	7.2	14 714.7	69.0	5 080.4	23.8	21 322.1	86.2	11 123.2	6 299.6	3 899.4						
B. Institutional Development and Project Coordination																	
1. Institutional Support	-	-	227.2	82.0	49.9	18.0	277.1	1.1	55.4	171.8	49.9						
2. Programme Management and Coordination	-	-	2 849.2	90.9	285.7	9.1	3 134.9	12.7	1 182.4	1 666.8	285.7						
Subtotal Institutional Development and Project Coordination	-	-	3 076.4	90.2	335.5	9.8	3 412.0	13.8	1 237.9	1 838.6	335.5						
Total PROJECT COSTS	1 527.1	6.2	17 791.1	71.9	5 416.0	21.9	24 734.1	100.0	12 361.0	8 138.1	4 234.9						

89. Project financing from IFAD broken down expenditure category is shown in Table 8 below.

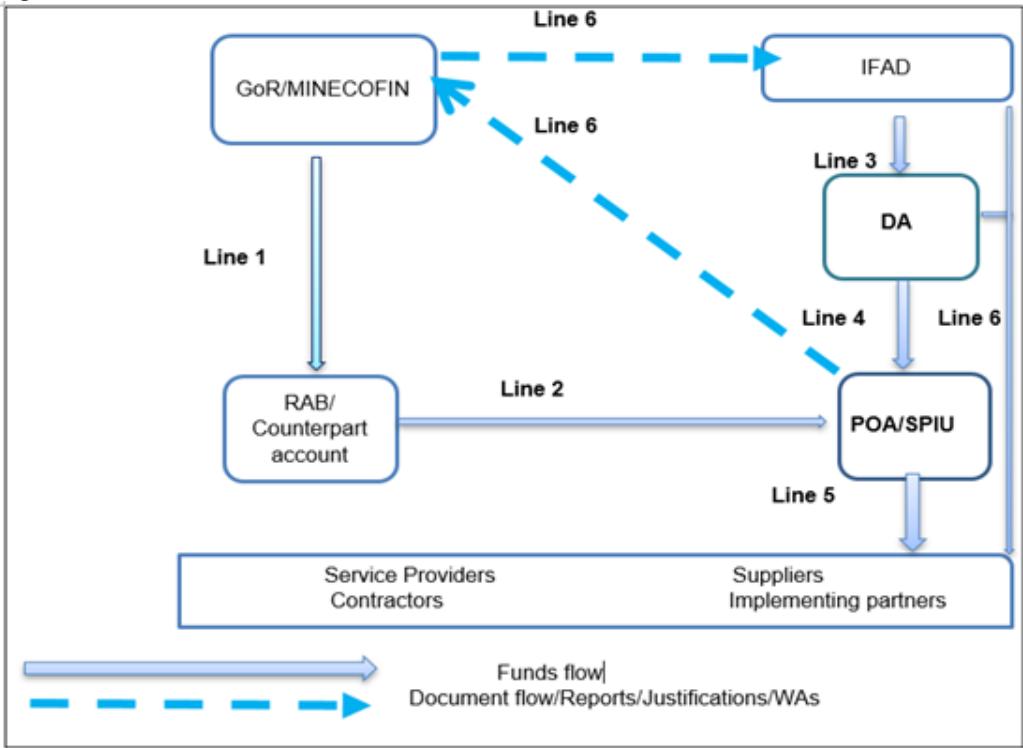
Table 8: Expenditure Accounts by Financier for KIIWP 1 (USD'000)

	Beneficiaries						IFAD			The Government		Total		Local (Excl. Taxes)			Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.				
I. Investment Costs																	
EQUIPMENT & MATERIALS	-	-	2 501.6	80.0	625.4	20.0	3 127.0	12.6	2 188.9	312.7	625.4						
WORKS	1 527.1	20.5	4 567.9	61.5	1 337.9	18.0	7 432.9	30.1	3 716.4	2 378.5	1 337.9						
VEHICLES	-	-	191.0	80.0	47.8	20.0	238.8	1.0	167.1	23.9	47.8						
CONSULTANCIES AND NON-CONSULTING SERVICES	-	-	7 888.8	71.3	3 172.0	28.7	11 060.8	44.7	5 530.4	3 539.4	1 990.9						
TRAINING & WORKSHOPS	-	-	854.6	82.0	187.6	18.0	1 042.2	4.2	208.4	648.1	187.6						
GRANTS & SUBSIDIES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Investment Costs	1 527.1	6.7	18 003.9	69.9	5 370.8	23.5	22 901.5	92.6	11 811.3	6 900.7	4 189.6						
II. Recurrent Costs																	
SALARIES & ALLOWANCES	-	-	1 580.6	100.0	0.0	-	1 580.6	6.4	474.2	1 106.4	-						
OPERATING COSTS	-	-	206.6	82.0	45.3	18.0	251.9	1.0	75.6	131.0	45.3						
Total Recurrent Costs	-	-	1 787.2	97.5	45.3	2.5	1 832.5	7.4	549.8	1 237.4	45.3						
Total PROJECT COSTS	1 527.1	6.2	17 791.1	71.9	5 416.0	21.9	24 734.1	100.0	12 361.0	8 138.1	4 234.9						

90. **Co-financing arrangements.** It is anticipated that the total IFAD loan for KIIWP 1 is US\$17.79 million (71.9 per cent). The GoR will contribute with US\$5.42 million (21.9 per cent) in the form of tax exemptions and consultancies for the Ndego irrigation scheme. Several development partners esp. the Korean International Cooperation Agency (KOICA), but also the African Development Bank (AfDB), the OPEC Fund for International Development (OFID), the Spanish Government and the European Union (EU) have expressed interest in co-financing KIIWP 2 once the results of the FS and ESAs will be disclosed. In case the level of co-financing for unexpected reasons will not be sufficient to fill the potential US\$22 million financing gap in KIIWP 2, resources under IFAD 12 financing cycle will be accessed.

91. **Organisation and staffing/Embedded SPIU.** KWAMP and the other IFAD financed project coordination structures were designed to be housed within the SPIU within MINAGRI, staff recruited competitively or transferred from other projects under the same portfolio. This arrangement has facilitated quick start up of projects thanks to the dedication of the SPIUs staff and the transfer of knowledge from previous projects. The RAB has been designated as the Lead Project Agency (LPA) for KIIWP 1. RAB will ensure that where filling of staff positions will be through secondment, the assigned staff have the requisite qualifications and experience and are fully dedicated to the SPIU to facilitate their full attention on project needs. The project accountant, under the supervision of the SPIU Chief Accountant and the SPIU Head of Finance will be responsible for all accounting functions of the project including funds flow, preparation of annual financial statements, periodic financial reporting and overseeing the arrangements for audits, in accordance with GoR procedures and IFAD's audit requirements for the entire project.
92. At district level, it is proposed that a Project Accountant be recruited. The incumbent will work with the District finance department in processing documents, verifying recipients/payees, checking and collating documents for submission to SPIU. The district project accountant shall initiate transactions in the Integrated Financial Management Information Systems (IFMIS) for approval and authorisation by SPIU Headquarters.
93. **Budgeting.** The GoR national budget calendar will be followed. Considering that the budget has to be input into IFMIS in accordance with the national budgetary rules and timetable the clearance process by IFAD should be well planned and executed to precede the GoR budgeting calendar.
94. The project will be implemented based on approved Annual Work Plans and Budgets (AWPBs). The budgeting process will be done jointly between SPIU and implementing partners using a bottom-up approach. The exercise will bring together Accountants, M&E Officers and Procurement Officers to ensure that the activities align to the log frame and the procurement plan is aligned to the AWPB. The SPIU will consolidate the AWPB, present it for approval by the PSC and submit it to IFAD with a request for a No Objection in accordance with the financing agreement and the PIM.
95. Disbursement arrangements and Flow of Funds – Project design has put into consideration financial management requirements that will ensure that the loan proceeds and other financing sources will be used for their intended purposes. This has been based on lessons learned under KWAMP and the RDDP that has been rolled into IFMIS.
96. **Designated/Operational Accounts.** Under KWAMP, there were three project accounts; the designated account, an operations account and a district account. The district account will not be necessary since accounting will be on the IFMIS platform. The funds flow arrangement (See Figure 2) however will require initiation of transactions at district level for district and lower level transactions since this will be the document processing, collation and verification point. One US dollar denominated account will be opened in the National Bank of Rwanda specifically to receive loan proceeds from IFAD. This account will be managed by SPIU under the supervision of RAB in accordance with GoR procedures. One project operating account in RWF will also be opened in the National Bank of Rwanda. These two accounts will be linked to IFMIS but will not be subjected to the daily zero balance requirements under the Single Treasury Account. The RWF operating account will be used for all local currency transactions while for transactions in respect of procurements undertaken/contracts entered in US dollars and foreign travel/foreign trainings authority will be sought from the Accountant General to draw US dollars from the designated account. No bank account will be opened at district level but transactions shall be initiated from the district on the IFMIS platform.
97. **Counterpart account.** GoR financing to meet expropriation costs, taxes and duties will be transferred into the RWF denominated Counterpart account held at the National Bank of Rwanda. This account will be managed by SPIU under the supervision of RAB in accordance with GoR procedures. The signing mandate will be defined when the SPIU structure has been defined. Payments will be transferred to the operating account from where payments will be made.
98. **Transfers to implementing partners.** Transfers to implementing partners will be done through a project operating account. These partners may be required to open bank accounts specific for KIIWP depending on the nature of activities and amount of advances to be received.

Figure 2: Funds flow chart



99. Line 1: GoR/MINECOFIN releases allocated funds to RAB Counterpart account for purposes of KIIWP in RWF. This will include funds for GoR expropriation, taxes and duties;
100. Line 2: Transfers from Counterpart account to the project operating account for payments;
101. Line 3: Transfers from IFAD to the designated account (DA) in USD following submission of the withdrawal applications;
102. Line 4: Transfers of funds from the DA to the Project Operating Account (POA) in RWF for payments of transactions denominated in RWF;
103. Line 5 and 6: Payments for goods supplied, works executed, services rendered, salaries and other expenses for Project implementation and management, both in local and foreign currencies. Foreign currency transactions are paid from the DA while there may be direct payments made from IFAD directly to the service provider/contractor/supplier or implementing partner; Quarterly financial reporting and Withdrawal Application submission to IFAD; and
104. Line 6: Necessary transactional documents are compiled/obtained from suppliers/contractors/service providers including evidence of completion of service/delivery of goods and justification from implementing partners and reported on to MINECOFIN and IFAD. Withdrawal applications also move along the same line.

c. Disbursement

105. Disbursement arrangements and Flow of Funds – Project design has put into consideration financial management requirements that will ensure that the loan proceeds and other financing sources will be used for their intended purposes. This has been based on lessons learned under KWAMP and the RDDP that has been rolled into IFMIS.
106. **Designated/Operational Accounts.** Under KWAMP, there were three project accounts; the designated account, an operations account and a district account. The district account will not be necessary since accounting will be on the IFMIS platform. The funds flow arrangement (See Figure 2) however will require initiation of transactions at district level for district and lower level transactions since this will be the document processing, collation and verification point. One US dollar denominated account will be opened in the National Bank of Rwanda specifically to receive loan proceeds from IFAD. This account will be managed by SPIU under the supervision of RAB in accordance with GoR procedures. One project operating account in RWF will also be opened in the National Bank of Rwanda. These two accounts will be linked to IFMIS but will not be subjected to the daily zero balance requirements under the Single Treasury Account. The RWF operating account will be used for all local currency transactions while for transactions in respect of procurements undertaken/contracts entered in US dollars and foreign travel/foreign trainings authority will be sought from the Accountant General to draw US dollars from the designated account. No bank account will be opened at district level but transactions shall be initiated from the district on the IFMIS platform.
107. **Counterpart account.** GoR financing to meet expropriation costs, taxes and duties will be transferred into the RWF denominated Counterpart account held at the National Bank of Rwanda. This account will be managed by SPIU under the supervision of RAB in accordance with GoR procedures. The signing mandate will be defined when the SPIU structure has been defined. Payments will be transferred to the operating account from where payments will be made.

108. **Transfers to implementing partners.** Transfers to implementing partners will be done through a project operating account. These partners may be required to open bank accounts specific for KIIWP depending on the nature of activities and amount of advances to be received.
109. The implementation arrangements that pose a risk of low disbursements may arise from delays in start-up due to delays in re-defining the SPIU, delays in carrying out the Environmental and Social Impact Assessments (ESIAs) that are a condition for approval of major irrigation infrastructure and delays in reconfiguring the project chart of accounts that may cause delays in submission of withdrawal applications; delays in financial reporting, among others.

d. Summary of benefits and economic analysis

110. **Project benefits.** KIIWP's development objective is to improve food security and incomes of rural households on a sustainable basis. Project interventions are expected to result in an extensive range of tangible and intangible benefits. Key quantifiable benefits include: i) increased value of agricultural production in marshlands; ii) crop diversification and increased value of production in hillside areas; iii) reduced post-harvest losses and increased sales in output markets; iv) increased value of livestock production; v) improved access to water for domestic uses. These benefits will be achieved through project interventions such as: i) water infrastructure development; ii) promotion of climate smart agriculture and animal husbandry practices; iii) capacity building for farmers to access markets for agricultural inputs, finance and outputs; iv) promotion of sustainable land and water management practices.
111. **Economic and financial analysis.** The EFA shows satisfactory results, with an Economic Internal Rate of Return (EIRR) of 15.74 per cent and a Net Present Value (NPV) of US\$1.7 million at a 12 per cent economic discount rate. Sensitivity analysis carried out shows that the economic profitability of KIIWP 1 would remain satisfactory even if the project costs increase by 26 per cent, the project benefits decrease by 21 per cent or if the benefits lag behind by two years. Economic benefits derive from increased value of agricultural production and the value of improved access to water for domestic and livestock uses. Benefits also include the improvement of living conditions and nutrition, the positive spill-over effects of capacity building on the local community, and reduced land lost due to soil erosion control.
112. The overall EFA shows that KIIWP 1 and KIIWP 2 are financially profitable for rural households engaged in agricultural production with financial internal rate of return for farmers ranging from 20 to 27 per cent depending on the production system. The sensitivity analysis shows that the economic profitability would remain satisfactory even if the project costs increase by 46 per cent, the project benefits decrease by 31 per cent or if the benefits lag behind by two year. More details of the Project economic and financial analysis are included in Annex 4.

e. Exit Strategy and Sustainability

113. **Exit strategy.** The project will be implemented by RAB and through district teams and the private sector will be engaged from the earliest possible opportunity. The government entities are permanent structures that will be able to absorb support activities after the end of the project.
114. Interventions supported by the project will be owned by community organisations that will be trained to operate and manage them. Users of the infrastructure will be involved from the studies, construction and operation and maintenance. Operation and maintenance manuals will be prepared in the language best understood by the users and the users trained. At the beginning of the construction, RAB will sign an implementation agreement with the potential users of the infrastructure that will clarify the roles and responsibilities of the parties.
115. Each irrigation scheme, borehole and valley bottom tank will be handed over to the users on partial completion of the works and a handover certificate will be issued at full handover. The handover certificate will also indicate the responsibilities of the government and the users during the operational phase. The project will gradually withdraw from each intervention after the handover is done, but government agencies in extension, water resources management and natural resources among others, and the private sector will take over.
116. **Institutional sustainability.** Infrastructure management institutions like Sector- and District-level Steering Committees and Sub-Catchment Committees will play an active role in the design, construction and operation and maintenance of infrastructure supported by KIIWP 1. The sustainability of the water resource and irrigation schemes will be further enhanced by the six WUOs and 35 WLUSOs to be strengthened and/or developed by the project.
117. **Social sustainability (Empowerment).** Using Farmer Field Schools as a basis for smallholder farmers to become accustomed to working together and sharing knowledge and information will build trust over time and become a sustainable basis for them to establish more formal associations like WUOs and WLUSOs, and cooperate in activities related to the production and marketing of their products. As for cooperatives, using long term coaching and mentoring support instead of one off training will increase their chances of success and long term sustainability.
118. **Participation of the private sector.** KIIWP 2 will involve private-sector entrepreneurs such as large-scale farmers, wholesalers, processors and exporters, as well as financial institutions operating at both local and national level. The delivery of water services, provision of agricultural advisory services, backward linkages to input suppliers and financial service providers, forward linkages to markets, and direct co-investments in post-harvest infrastructure are some of the key tools that will promote the development of mutually beneficial business relationships between KIIWP target groups and private stakeholders, and thus enhance the long term sustainability of the project's investments.
119. **Economic and financial sustainability.** The **economic and financial analysis (EFA)** of KIIWP 1 shows that the project would be profitable with an Economic Internal Rate of Return (EIRR) of 15.74 per cent and a Net Present Value (NPV) of US\$1.7 million

at a 12 per cent economic discount rate. Sensitivity analysis carried out shows that the economic profitability of KIIWP 1 would remain satisfactory even if the project costs increase by 26 per cent, the project benefits decrease by 21 per cent or if the benefits lag behind by two years. Economic benefits derive from increased value of agricultural production and the value of improved access to water for domestic and livestock uses. Benefits also include the improvement of living conditions and nutrition, the positive spill-over effects of capacity building on the local community, and reduced land lost due to soil erosion control.

120. The overall EFA shows that KIIWP 1 and KIIWP 2 are financially profitable for rural households engaged in agricultural production with financial internal rate of return for farmers ranging from 20 to 27 per cent depending on the production system. The sensitivity analysis shows that the economic profitability would remain satisfactory even if the project costs increase by 46 per cent, the project benefits decrease by 31 per cent or if the benefits lag behind by two years.
121. **Environmental sustainability.** The integrated watershed management practices will consist of good integration between crop and livestock production, combined with the promotion of a wide range of cost-effective erosion control and water retention measures^[22]. KIIWP 1 and KIIWP 2 environmental sustainability will be further enhanced by the adoption of adaptation and mitigation measures through water harvesting^[23] and climate-smart storage^[24] technologies, that will be determined according to specific site locations, size of irrigation schemes, and production systems. In small irrigation schemes, solar energy to pump water will be considered to avoid the use of expensive and GHG emitting fossil fuels.
122. **Enabling policy environment.** The project will benefit from a highly enabling policy and institutional environment, with a series of new laws and policies coming into force that are fully supportive of the development of water infrastructure and cooperative development. Identified policy gaps^[25] will be addressed with project support both in KIIWP 1 and KIIWP 2.

3. Risks

H. Project risks and mitigation measures

123. The following are the main risks and the proposed mitigation measures for KIIWP^[26].

Main risks	Mitigation measures
Technical design of project: FS/ESIAs find that some of the six proposed irrigation sites are not viable/feasible/appropriate	The project will be implemented in two phases to initially undertake the necessary preparatory activities for irrigation development and address the urgent need for catchment rehabilitation and protection in rainfed farming areas and improved water supply for livestock. The detailed design of KIIWP 2 will be informed by extensive analytical work beforehand. KIIWP 1 will not only conduct FS/ESIAs for six potential irrigation schemes, it will also prepare a pipeline of about 5,000 hectares of investment-ready irrigation schemes, in case the pre-identified areas fall short of the target area for development.
Eastern Province's vulnerability to cyclical and persistent drought events	KIIWP is designed in direct response to the climate-related risks. KIIWP will adopt an integrated watershed management approach and a wide range of cost-effective erosion control measures will be promoted. Resilience will also be strengthened through the promotion of climate smart agriculture.
Competition between water users in times of scarcity (especially irrigators and cattle owners).	KIIWP 1 provides for increasing water storage (small valley dams) or (solar powered) boreholes for livestock. Catchment water management committees will be strengthened, in order to support joint management of limited water resources.
Land tenure issues and conflict with landless rural population who may be livestock owners	With regard to land tenure, the project will promote cadastral surveys to identify who the right owner is and the land parcel size. Social Management Plans will be facilitated by the project and prepared in consultation with project affected people and disclosed locally, to allow all stakeholders, including livestock keepers, to participate and raise any concerns. ESIAs will identify existing/potential risks and specific mitigation measures which will inform the project strategy.

Main risks	Mitigation measures
Weak technical and institutional capacities can lead to slow disbursement, lower project benefits as well as delays in implementation.	Raising awareness and capacity building are key elements, especially of FOs and District, Sector and Cell level staff. The SPIU is already in place with core staff. Involvement of experienced technical KWAMP staff will also speed up project implementation. Supervision and implementation support missions, especially in the first two years will support focused project implementation.

124. **Financial Management Risk Assessment.** Overall assessment indicates that Rwanda is a medium risk country, characterized by strong financial management systems and internal controls. The last PEFA assessment of Rwanda was in 2016. Compared to the previous one carried out in 2010, seven of 11 indicators improved while four indicators remained the same. With regard to government accountability, transparency and corruption factors, the most recent Transparency International perception index shows that Rwanda scored 55 on the 1 – 100 scale with a global rank of 48 out of 180 countries assessed and being the third least corrupt Country assessed in Sub-Saharan Africa. The IFAD overall fiduciary risk based on the ongoing projects and the recently closed KWAMP has been assessed as low.

I. Environment and Social category

125. **The preliminary environmental and social category of KIIWP is A. However, KIIWP 1 is category B, as it focuses on preparatory studies for irrigation schemes, integrated watershed management and planning activities.** KIIWP 2 will include investments on water harvesting and storage, irrigation infrastructure development (area >100 hectares) and marshland development, that may be categorised as A.

126. The ESIA will be aligned with the national General Guidelines for Environmental Impact Assessment (2006) and the Environmental and Social Management Guidelines for agriculture projects (2016). ESIA certificates are site-specific and valid for the entire project implementation phase. All FS for irrigation schemes, hydro-geological surveys for boreholes drilling and valley ponds, water permit requests and ESIA procedures will be financed and initiated during KIIWP 1 of project implementation.

127. The whole project will be coordinated through an Environmental and Social Management Framework (ESMF) to examine the risks and impacts of the proposed activities, including potential environmental and social vulnerabilities. The ESMF specifies the environmental and social management requirements (including labour and working conditions, grievance redress system, health and safety) that will be the responsibility of contractors and primary suppliers hired to construct the irrigation infrastructure. Environmental and climate change management plans will be developed for each site.

J. Climate Risk classification

128. As a result of recent drought events and the vulnerability of the Eastern Province to extreme events, the preliminary climate risk classification is High.

129. Climate change impacts in Rwanda vary depending on agro-ecological zones; while the North and Western provinces are more affected by flood events, Eastern and Southern provinces are more vulnerable to drought events. The impact of floods and droughts associated with El Nino and La Nina events of recent years are thought to have been exacerbated by climate change and the environmental degradation observed throughout the country (NAPA, 2006; IPCC, 2014). Over the last decade, droughts tend to be cyclical and can be persistent.

130. The mean annual temperature is expected to increase up to 3.25°C for the East Africa region by the end of the century resulting in proliferation of diseases, crop decline and reduced land availability, which in return, affects food security and livestock production. Rainfall variability is more uncertain, though most of the models predict more extreme events with higher rainfall intensities leading to landslides, crop and livestock products losses, health risks and damages to infrastructure. The FS to be undertaken will include climate risk analyses for the irrigation schemes to inform the site specific environmental and climate change management plans. In addition, PASP activities also include detailed climate vulnerability analyses for the selected value chains, which will also inform the management plans.

131. An in-depth climate vulnerability analysis will also be undertaken by the University of Cape Town with ASAP 2 financing. The results will be ready by September 2019 and will inform the climate change adaptation activities in KIIWP.

4. Implementation

K. Organizational Framework

a. Project management and coordination

132. The institutional arrangements for KIIWP are fully aligned with the current implementation framework of IFAD-funded projects in Rwanda. This framework rests upon the below principles and operational modalities.

133. Single Project Implementation Units (SPIU) were created as an effective institutional framework that will guide the process of designing and implementing projects that are earmarked to fast track the realization of Rwanda development targets. For KIIWP implementation, IFAD SPIU is strategically positioned to manage the ongoing and future projects. Benefits to be derived from the established SPIUs include among others (i) realization of economies of scale and reduction of transaction costs; (ii) improved coordination and creation of synergy; (iii) efficiency and effectiveness in project implementation oversight through improved M&E; (iv) improved staff retention leading to reduction in staff turnover and increase in institutional memory, and (v) increased knowledge and expertise as well as best practices in project management.
134. The Lead Project Agency will be the RAB, under the auspices of MINAGRI. RAB Director General (DG) will consequently become the Chief Budget Manager of the project, together with RDDP and PASP that were transferred under it.
135. The SPIU coordinator in place will also oversee and coordinate KIIWP activities that will be implemented at both the central and district level. In addition to the existing SPIU staff performing cross-cutting functions of finance/accounting, M&E, procurement and administration, KIIWP staff will be recruited to support its implementation. The proposed KIIWP staff positions include: a Programme Manager, an accountant, an M&E officer in charge also of gender and youth, an irrigation specialist, an electromechanical engineer, a civil engineer, an environmental and climate specialist, a safeguards compliance specialist, and a procurement officer.
136. Specific for the accountant and the procurement officer, in order to benefit from their experience in IFAD procedures, KIIWP should retain staff that have been performing similar tasks in PASP since the project is coming to an end. Involvement of experienced technical former KWAMP staff too, would be an added advantage since it would enable the full integration of lessons learned in Kirehe District and would speed-up project implementation as they will be able to "hit the ground running". This especially relates to the following experienced former KWAMP staff: Irrigation Engineers, WUO Specialist, Land Husbandry (SWC) Engineer, Cooperative Development Officer, and Irrigation Technicians.
137. At the district level, implementation will follow the devolution principle and day to day management of KIIWP 1 will be delegated by RAB to a District-level Project Coordination Unit (PCU) within the District of Kayonza. The PCU will be the main executing agency of KIIWP 1 at the district level. While Kayonza District already has some personnel that will support KIIWP implementation in addition to their normal district duties, the following additional staff are proposed to supplement district capacity to provide public services. These positions were identified as "missing expertise" during the stakeholders' workshop held in Kayonza on 30 April 2018: an accountant for initiating KIIWP transactions at district, a WUO/WLUO specialist, a land husbandry (SWC) engineer, a cooperative development officer, a horticulture specialist and an irrigation technician. The modalities and scope of District level activities will be discussed and agreed at Project start-up and will be reflected in the AWPB and the PIM.
138. The above personnel will be recruited and paid by the SPIU since these positions are not part of the mandated national structure for all districts. However, in order to promote local government involvement and ownership, the contracting and performance management of the said staff will be delegated to the district officials. These arrangements are in line with current implementation arrangements of IFAD-supported projects (namely PASP and RDDP) under the SPIU that pays for district field staff salaries.
139. **Project oversight.** In line with the practice for other IFAD-funded projects in Rwanda, a Project Steering Committee (PSC) would be established. The roles of the Permanent Secretary (PS) of MINAGRI as the Chair and RAB DG as the Co-chair of the PSC have been confirmed by MINAGRI. Its membership will be determined by MINAGRI and shared with IFAD.
140. **Other implementation arrangements.** The components will mainly be implemented through service providers and implementing partners, including RAB. For service providers and implementing partners, contracting and partnership will be based on renewable performance-based contracts or Memorandum of Understanding (MoUs).

b. Financial Management, Procurement and Governance

141. **Implementation arrangements, and governance.** RAB will be the LPA - implementing the project on behalf of the Ministry of Finance, the borrower. The SPIU will be responsible for overall project implementation in consultation with other relevant national agencies and ministries to ensure consistency with national policies. The SPIU established at national level will be composed of project staff either seconded or recruited, and will be headed by the SPIU Coordinator. The SPIU will be accountable to the RAB Director General who will be the executive level head responsible for the strategic direction of the project. The SPIU will be responsible for project coordination and management of fiduciary issues in conformity with the standards and requirements agreed upon between GoR and IFAD.
142. A PSC will be established, chaired by the PS, MINAGRI, or his/her nominee, and co-chaired by RAB DG, RAB Head of Corporate Services and representatives from ministries and institutions with direct relevancy to the achievement of KIIWP's goal and development objective including MINECOFIN. The PSC will provide strategic guidance towards the achievement of project objectives and contribute to the higher level sector policy and strategic goals. The PSC will also be responsible for review and approval of AWPBs and annual reports.
143. **Disbursement arrangements and Flow of Funds.** One US\$ denominated account will be opened in the National Bank of Rwanda specifically to receive loan proceeds from IFAD. This account will be managed by SPIU under the supervision of RAB in accordance with GoR procedures. One project operating account in RWF will also be opened in the National Bank of Rwanda. These two accounts will be linked to IFMIS but will not be subjected to the daily zero balance requirements under the Single Treasury Account. The RWF operating account will be used for all local currency transactions while for transactions in respect of procurements undertaken/contracts entered in US\$ and foreign travel/foreign trainings authority will be sought from the Accountant General to draw US\$ from the designated account. No bank account will be opened at district level but transactions shall be initiated from the district on the IFMIS platform.

- 144. Accounting Systems.** The accounting systems, policies, and procedures to be used by the SPIU will follow GoR systems. To ease application, these will be documented in the Financial Procedures Manual. The manual will describe the accounting system, internal control procedures, basis of accounting, standards to be followed, and authorization procedures, segregation of duties, financial reporting process, budgeting procedures, financial forecasting procedures, and contract management. In addition, the manual should document processes to be undertaken for the disbursement of expenditure and auditing arrangements.
- 145. External Audit.** The recently closed KWAMP and the ongoing projects are audited by the Auditor-General as part of its mandate. Previous audits done by the Auditor General have been rated highly satisfactory by IFAD noting the level of detail and the use of INTOSAI, acceptable standards to IFAD. It is proposed that in line with IFAD's commitment to support continued development of government systems, KIIWP external audits will be carried out by the Auditor General. KIIWP financial statements will be prepared in accordance with the International Public Sector Accounting Standards. IFAD audit guidelines will be used in preparation of audit terms of reference and key disclosures as required by IFAD will be included in the audited financial statements. In addition to the opinion of financial statements, opinions on the Statements of Expenditure and the operation of the Designated Account shall be provided. Any other requirement will have to be adhered to as shall be provided for in the IFAD audit guidelines. A Separate Management Letter highlighting observations on the internal controls, recommendations and management responses will also be a requirement.

Procurement

- 146. Procurement risk assessment.** Based on the most recent 2017 PEFA report that covered the period 2013-2014, there is overall compliance with the procurement law and its regulations and an increasing degree of transparency in Rwanda, indicating that the procurement system is strong and demonstrating increasing value for money in the purchases of goods and services. The only challenge that was noted in procurement was the failure by procuring entities to comply with the act requiring entities to do the publication of the competition results as soon as the contract is signed by both parties.
- 147.** The procurement of goods, works and services will be carried out in accordance with government regulations, with the addition that it should comply with IFAD requirements to be specified in the Letter to the Borrower and the Financing Agreement. The IFAD SPIU already in place under RAB will be responsible for the procurement of goods, services and works at the national level. The recruitment of a Procurement specialist will be budgeted to ensure that KIIWP-related procurements are well executed and monitored.
- 148.** Districts will be actively involved in contract tendering and management wherever possible. Procurement at the district-level will be delegated to the District's Corporate Division that includes the two procurement officers currently available at the district. Their unit will be responsible for all procurement actions at the district, within the limits specified and to be agreed below. IFAD considers the procurement capacity of the district to be satisfactory, and this arrangement builds on the experience of KWAMP whereby the Kirehe district was also responsible for certain procurement actions at the district level. Procurement personnel at the district will be paid by KIIWP. The District Tender Committee will be responsible for the advertisement of tenders and the approval of the evaluation recommendations.

L. Planning, M&E, Learning, KM and Communication

a. Planning, M&E, Learning, Knowledge Management and Communication

- 149. Planning** will be guided by the project's strategy, logframe and broader results framework which will inform the development of annual work. A draft annual work plan and budget (AWPB) will be drawn up in consultation with implementing partners, including beneficiaries (e.g. cooperatives) where relevant. The SPIU will be responsible for the process and for the inclusion of and collaboration with key stakeholders in the planning process. AWPBs will be cleared by the project steering committee and sent to IFAD for no objection 60 days prior to the end of each programme year.
- 150. Monitoring and evaluation** will be embedded in project management, coordinated by the SPIU and supported by additional professional staff who will work closely with subject-matter specialists to strengthen learning and knowledge management. The M&E system will be aligned with MINAGRI's new management information system and IFAD's new Operational Results Management System (ORMS).
- 151.** The M&E system will be participatory, gender sensitive and results-oriented while enabling the integration of physical and financial progress reporting. In addition, the system will enable the analysis of climate change vulnerability among the beneficiaries. The system will incorporate in-depth baseline and completion surveys, a mid-term review and other thematic studies as relevant, including qualitative studies. The baseline surveys will include context-specific needs assessments of the concrete barriers to smallholder-driven agricultural sector development in the eight drought-prone sectors and address pressing information needs for implementation planning.
- 152.** Relevant indicators have been specified in KIIWP logframe and, to the extent possible, quantified. The indicators relate to the different levels (output, outcome and impact), and include IFAD Core Indicators (CIs) as well as project specific indicators. This is based on the theory of change, and demonstrates the logical links between the results at their different levels and thereby enables the meaningful analysis of whether the project is on-track towards its planned results even in the first few years of implementation when higher-level results are not yet expected.
- 153.** The following will be the key elements of the M&E system for KIIWP 1: (i) an M&E manual detailing scope, organisation and contents of the M&E system; roles and responsibilities; how data (sex- and age-disaggregated where appropriate) will be

collected, analysed, reported, used and otherwise managed; timeline for M&E-related activities; staffing and capacity building plan; budget; etc.; (ii) annual M&E plans; (iii) project results chain, results framework and log frame; (iv) Management information system; (v) baseline and completion surveys; (vi) mid-term review; (vii) annual outcome surveys; (viii) continuous progress monitoring of activities and outputs; (ix) risk assessment; (x) thematic studies, e.g. on targeting, gender, youth, formation of WLUOs, etc.; (xi) IFAD ORMS reporting; and (xii) field visits and joint implementation reviews.

154. **Learning and knowledge management (KM).** The core relevance of the M&E system is in the use of the information it elicits for planning and decision-making as well as accountability. The FS and ESIAs in KIIWP 1 will provide critical elements to further shape interventions in KIIWP 2. The FS will provide specific indications on adequate cost-effective irrigation technologies, availability of water, key crops, capacity level of farming organizations, available/potential markets, inputs on correct mitigations strategies, appropriate institutional arrangements and thorough risk assessment of the proposed investments. All these will inform the shaping and detailed design of KIIWP 2.
155. A KM strategy for the drought-prone agricultural sectors (in alignment with the broad KM and communication strategy of MINAGRI) will be developed built on three core pillars of KM: people, processes and technology. Quarterly review meetings with implementing partners will be organised by project management to discuss progress towards results in relation to each quarterly progress report, the format of which will explicitly include a focus on lessons learnt in terms of challenges, good practices, etc. Study tours, exchange visits and learning routes will be organised for lateral knowledge transfer.
156. Concurrently, a downward and upward flow of information about project progress to beneficiaries and implementing partners in the field is of utmost relevance in fostering ownership and participation. Systems for these information exchanges will be developed and used on a regular basis, including stakeholder review meetings, planning workshops, and a newsletter to be shared with all WLUOs, FOs and cooperatives involved in project implementation. The project will collaborate with the Agricultural Information and Communication Centre within MINAGRI to produce relevant knowledge products and communication materials, such as press releases, extension materials, and radio spots.

b. Innovation and scaling up

157. KIIWP will innovate in the management models for irrigation systems by arranging for private sector participation as service providers. The project will facilitate management agreements between the farmers, government and private sector partners for the management of irrigation infrastructure and water service provision to farmers. The farmers will be responsible to pay for a water service fee. This arrangement will be implemented at each of the large pumped irrigation schemes to be developed. This approach is an innovation in Rwanda, but has been successfully tried in Zambia.
158. Another innovation that the project will introduce is the use of standalone solar powered pumping stations. The current model that has been tried in Rwanda is solar feed-into-grid systems. The FS will investigate the potential for standalone solar power stations for irrigation in the project area. If the potential of this technology is viable, this can be scaled up to other areas in Rwanda. For such scaling up to take place, innovative models for the ownership, management and financing of the solar power stations and electricity tariffs (if any) for the irrigation farmers will be analyzed. In addition, small-scale solar pumps will be used for valley bottom tanks for the watering of livestock. The project will scale up the successful models that are already in place in Rwanda.

M. Implementation plans

a. Implementation readiness and start-up plans.

159. The actions needed to mitigate financial management risks are summarised below.

Table 9: FM Actions Summary

	Action	Responsible Party / Person	Target Date / Covenants
1	Finalisation of the project's AWPB and PP, approved by relevant authorities and IFAD	SPIU/RAB	Prior to disbursement
2	Constitute an SPIU headed by a Coordinator with dedicated staff recruited on fixed term performance-based contracts	Director General/RAB	Within first six months of entry into force
3	Update the PIM that should include a comprehensive financial management manual with a comprehensive project chart of accounts	SPIU/RAB	Within first six months of entry into force
4	Establish a PSC headed by the Permanent Secretary – MINAGRI	PS/MINAGRI	Within six months of entry into force

5	Map the accounts codes and configure the chart field to meet the accounting and reporting requirements of project.	SPIU/RAB/IFMIS Team-MINECOFIN	Part of start-up activities and continuous
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160. **Supervision and Implementation Support Plan for Financial Management.** One supervision mission and one follow up mission are proposed per year in accordance with the current IFAD supervision and implementation support arrangements. Once FS and ESAs will be finalized during implementation, a thorough review of project results will be conducted to assess whether conditions have been met to move to the next phase and update the design of KIIWP 2. During the early set up of IFMIS, additional financial management implementation support should be provided to ensure that the key challenge of IFMIS chart field coding is correctly done and addressed at start up to satisfy all reporting requirements. Financial management supervision will among others review existence and adequacy of financial management and accounting systems including internal controls, funds flow and liquidity management. It will also comprehensively review the Statements of Expenditure (SOEs) to establish eligibility of expenditure claimed, timeliness of the claims and adequacy and completeness of supporting documentation.

b. Supervision, Mid-term Review and Completion plans.

161. **Project supervision.** KIIWP 1 activities will be directly supervised by IFAD. IFAD will undertake twice yearly supervision and implementation support missions to assess project implementation status, in collaboration with Government and partners. In addition, IFAD will be responsible for (i) Reviewing withdrawal applications for IFAD proceeds; (ii) Reviewing and approving on a no-objection basis all procurement under the project financed by IFAD funds; (iii) Monitoring compliance with the Financing Agreement, recommending remedies for any substantial non-compliance; and (iv) Carrying out all other functions needed to administer the financing and supervise the project.

162. **Reporting arrangements.** The SPIU will submit bi-annual progress reports according to a format acceptable to IFAD. These reports will include physical and financial progress updates. Physical reporting will be done against a set of indicators based on the logframe. Financial reporting will be done against the approved budget.

163. KIIWP's impact evaluation will follow the same methodology as the baseline study to allow meaningful comparison, although the scope of the impact evaluation may be broadened to cover other aspects of project relevance, effectiveness, efficiency, impact and sustainability to adequately inform the project's completion report.

Footnotes

[1] 2018 Estimate, <http://worldpopulationreview.com/countries/rwanda-population/>.

[2] 72% as end June 2017.

[3] Cat. 1: Families who do not own a house or cannot pay a rent, have a poor diet and can hardly afford basic household tools and clothes; Cat. 2: Those who have a dwelling of their own or are able to rent one, mostly get food and wages from working for others but rarely get full time jobs; and Cat. 3: Those who have a job and farmers who go beyond subsistence farming to produce a surplus which can be sold. The fourth category (not targeted by KIIWP) includes people who earn high incomes; people who own houses; people who can afford a luxurious lifestyle.

[4] As per the MDB Methodologies for Tracking Climate Adaptation and Mitigation Finance, and subject to the costing tables included in this report.

[5] Out of 188 countries and based on composite statistic on life expectancy, adult literacy rate, annual GDP, etc.

[6] Poverty in Rwanda has incidence of 43% in rural areas compared to 22% in urban areas.

[7] The water requirement satisfaction index using maize as a proxy indicator for drought prone areas shows that Eastern Province of Rwanda is the most vulnerable to drought events. The Eastern belt of Rwanda covers the districts of Bugesera, Gatsibo, Kayonza, Kirehe, Ngoma, Nyagatare and Rwanamagana.

[8] Malnutrition is costing Rwanda a lot. The Cost of Hunger Study conducted by key ministries in 2013 concluded that undernutrition in children costs the country around USD 90 million every year in related illnesses and health care needs. It also estimates that 13.5% of all students who repeated grades at school in 2012 did it because of stunting.

[9] Comprising 28,000 households that benefit directly and 22,000 households that benefit indirectly.

[10] Rwanda's average daily wages range from RWF 750-1200 (USD 0.87-1.40) in the agricultural sector to RWF 1,500-5,000 (USD1.75-5.85) in the construction sector.

[11] The fourth category (not targeted by KIIWP) includes people who earn high incomes; people who own houses; people who can afford a luxurious lifestyle.

[12] Additional details on KIIWP 1 activities are provided in Annex 8 (Project Implementation Manual PIM).

[13] Draft Ministerial Instructions on Land Development, Conservation and Exploitation of Developed Land

[14] A catchment is defined as an area from which rainwater flows into a watercourse or infiltrates into a groundwater body.

[15] Source: <https://www.unidroit.org/english/guides/2015contractfarming/cf-guide-2015-e.pdf>.

[16] See diagram in annex 2.

[17] The EDPRS 2 aims to raise GDP per capita to USD 1,000; reduce the percentage of the population living below the poverty line to less than 30%; and reduce the percentage of the population living in extreme poverty to less than 9%.

[18] IFAD recently revised the environmental and climate change strategy, which KWIIP is also aligned to as it builds on the earlier NRM policy and Climate change strategy.

[19] IFAD grant implemented by FAO and IWMI: Opportunities to enhance smallholder agriculture in sub-Saharan Africa Through Sustainable Water, Land and Ecosystem Management

[20] Other partners likely to be involved in the second phase of KIIWP are provided in Annex 13 of this PDR.

[21] As per the MDB Methodologies for Tracking Climate Adaptation and Mitigation Finance, and subject to the costing tables included in this report.

[22] e.g. tree belts, contour belts, grass strips, contour bunds, planting of fodder grasses on bunds/ridges, use of permanent, perennial vegetation on contours, etc.

[23] e.g. rainwater and floodwater harvesting, water storage units, etc.

[24] e.g. zero energy cooling chambers, metal silos or hermetic bags for storing grains/cereals, drying grounds and improved warehouses, etc.

[25] e.g. (i) support to national policy on contract farming; (ii) support to law on financial lease for agricultural equipment; (iii) discussion on VAT in rice processing that makes Rwandan rice less competitive with regional products; (iv) current issues of availability and quality of seeds, including multiplication.

[26] See Annex 13 for other risks and mitigation measures foreseen in KIIWP 2

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 1: Logframe

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Kayonza Irrigation and Integrated Watershed Management Project - Phase I

Logical Framework

Results Hierarchy	Indicators							Means of Verification			Assumptions				
	Name	Baseline	Mid-Term	End Target	Annual Result	Cumulative Result	Cumulative Result %	Source	Frequency	Responsibility					
Outreach	1.b Estimated corresponding total number of households members														
	Household members														
	1.a Corresponding number of households reached														
	Women-headed households														
	Non-women-headed households														
	Households			8 143											
	1 Persons receiving services promoted or supported by the project														
	Females			18 322											
	Males			18 322											
	Total number of persons receiving services	0		36 644											
	Young			30											

Results Hierarchy	Indicators							Source	Means of Verification	Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result	Cumulative Result	Cumulative Result %			
Project Goal Contribute to poverty reduction in the drought prone Eastern province of Rwanda	Number of female- and male-headed households that experience an increase in household assets							National statistics, household surveys incl. poverty & gender studies	Baseline and completion	SPIU
	Households	0		6 217						
	Number of children 0-5 years suffering from malnutrition							National statistics	Baseline, mid-term, completion	SPIU
	Stunting (children 0-5 years) - Percentage (%)	42.4								
Development Objective Improve food security and incomes of 50,000 households on a sustainable basis	Households with improved food security and income							National statistics, household surveys incl. poverty & gender studies	Baseline and completion	SPIU
	Households	0								

Results Hierarchy	Indicators							Source	Means of Verification	Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result	Cumulative Result	Cumulative Result %			
Outcome Farmers drought resilience strengthened	Number of persons reporting increase in production (CI 1.2.4)							Impact assessment report, Project reports	Baseline, mid-term, completion	SPIU/RAB
	Total Number	0								
	Number of persons reporting improved access to land, forests, water or water bodies for production purposes (CI 1.2.1)							Service provider report	Quarterly MTR Completion Report	SPIU/RAB
	Total			11 250						
	Males			5 625						
	Females			5 625						
	Youth	0		30						
Output Catchment rehabilitation and protection	3.1.4 Land brought under climate-resilient practices							Service provider report	Quarterly MTR Completion Report	SPIU/RAB
	Hectares of land	0		1 693						
	Number of valley tanks and boreholes constructed							Service provider report	MTR & Completion Report	SPIU/RAB
	Infrastructure - Number			35						
Output Irrigation development	Gross area of land covered by feasibility studies and ESIAs							Feasibility studies and ESIAs	MTR	SPIU/RAB
	Hecaters (ha)	0		7 275						
	1.1.2 Farmland under water-related infrastructure constructed/rehabilitated							Service provider report	Quarterly MTR Completion Report	SPIU/RAB
	Hectares of land	0		0						

Results Hierarchy	Indicators							Source	Means of Verification	Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result	Cumulative Result	Cumulative Result %			
Output Infrastructure management institutions	3.1.1 Groups supported to sustainably manage natural resources and climate-related risks							SPIU	Quarterly	Local leadership is supportive, and all needs from different water users can be reconciled (A).
	Groups supported	0		49						
	Males									
	Females									
	Young									
Output Enhanced CSA and AH practices and technologies	Number of rural producers trained in production practices and/or technologies (CI 1.1.4)							Service provider report	Quarterly	FFS training is provided to 800 groups under close supervision by RAB and District/Sector Agronomists (A). Increased production combined with targeted capacity building will lead to improved domestic diets and consequently nutrition.
	Total Number	0								
	Number of persons provided with targeted support to improve their nutrition (CI 1.1.8)							Service provider report	Quarterly	SPIU/RAB
	Total Number	0								

Results Hierarchy	Indicators							Source	Means of Verification	Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result	Cumulative Result	Cumulative Result %			
Outcome Farm business development; Increased, sales and linkage of producers to services and markets	2.2.5 Rural producers' organizations reporting an increase in sales							Service provider report	Quarterly	SPIU/RAB
	Number of Rural POs									
	2.2.3 Rural producers' organizations engaged in formal partnerships/agreements or contracts with public or private entities							Service provider report	Quarterly	SPIU/RAB
	Number of POs									
Output Development Farming as a Business Skills	Number of persons trained in Farming as a Business skills							Service provider report	Quarterly	SPIU/RAB
	Total Number	0								
Output Promotion of mechanization, PH storage and irrigation technologies adapted to smallholder agriculture	3.1.2 Persons provided with climate information services							Service provider report	Quarterly	SPIU/RAB
	Persons provided with climate information services	0								

Results Hierarchy	Indicators							Means of Verification	Assumptions	
	Name	Baseline	Mid-Term	End Target	Annual Result	Cumulative Result	Cumulative Result %			
Outcome Supporting backward and forward market linkages	Number of target households reporting using rural financial services							Service provider report	Quarterly	SPIU/RAB
	Total Number	0								
	Number of financial service providers supported in delivering outreach strategies, financial products and services to rural areas (CI 1.1.6)							Service provider report	Quarterly	SPIU/RAB
	Total Number									
Outcome Policy dialogue and institutional environment	Number of formal supply contracts signed between cooperatives and traders/processors							Service provider report	Quarterly	SPIU/RAB
	Total Number	0								
	Number of national policies operationalized at local level							Rwanda Standards Board records	Bi-annually	SPIU
	Total Number	0		2						

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 2: Theory of change

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

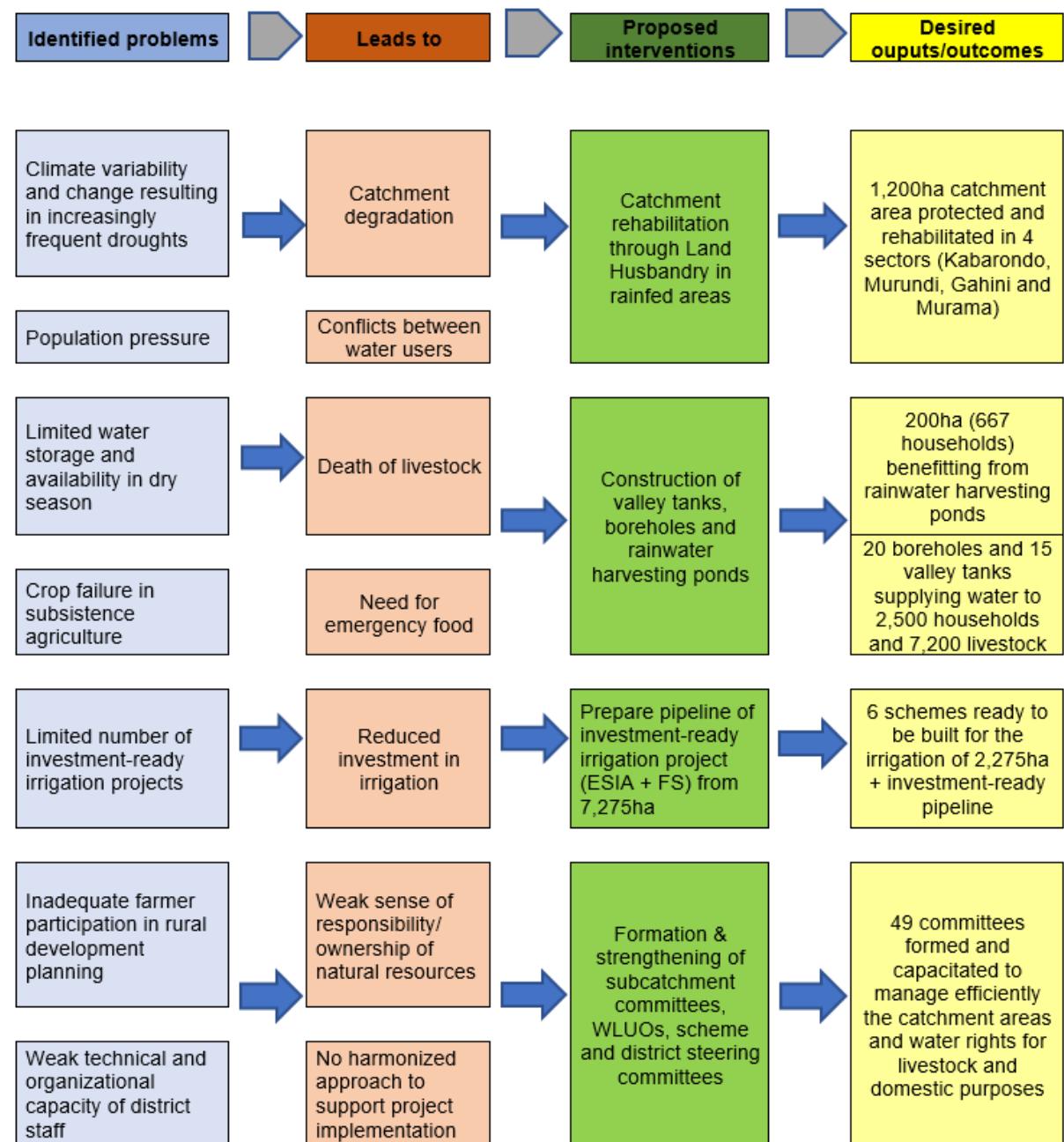
Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 2: Theory of Change

The Theory of Change of KIIWP 1 will need to be reviewed periodically. The ToC presented during project design (see below) is based on the situation as faced by crop and livestock farmers currently living in the area.



Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 3: Project cost and financing: Detailed costs tables

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 3: Project cost and financing: Detailed costs tables

I. Introduction

The Annex describes the assumptions underlying the derivation of the project costs and presents summary and detailed cost tables and financing plan. The costing exercise has been carried out using Costab software and is based on costs as of May 2018, during the 1st design mission, and updated after the 2nd design mission in November 2018. Project costs are presented in both Rwandan franc (RWF) and US dollars (US\$). The Project input cost are set in US dollars.

II. Main Assumptions for cost estimation

Summary divisions. The project costs taken into account include investment costs and incremental recurrent costs within the three components: i) Strengthening resilience to droughts; ii) Support to farm business development; and iii) Institutional development and project coordination.

Project Period. The Project is expected to have a duration of six years, starting in the 3rd quarter of 2019 and finishing in the 3rd quarter of 2025.

Unit costs. Unit costs are broadly derived from the experience of the on-going IFAD projects in Rwanda, namely the Kirehe Community-based Watershed Management Project (KWAMP), the Project for Rural Income through Exports (PRICE), the Climate Resilient Post-Harvest and Agribusiness Support Project (PASP), and the Rwanda Dairy Development Project (RDDP). The project is to some extent flexible, as based on the participatory approach and the principle of intervention at request, in particular as regards the producer public private partnerships (4Ps). The estimated costs should thus be considered as indicative and mostly presented in terms of financial allocations by component, subcomponent or activity. Even when quantities and unit costs are indicated in the detailed tables, it is above all the overall allocation that should be considered. The detailed planning of activities and their implementation will be in response to requests from target groups and/or after needs assessment

Prices. Prices are inclusive of all taxes, i.e. including custom duties, Value Added Tax (VAT) and other sales taxes. The tax rates retained are similar to those used for the on-going projects mentioned above, as shown in the table 1 below. Base costs for goods and services purchased locally are derived from local sales prices (market prices), including all taxes as they are real costs for the project. Prices of goods and services are mostly expressed in foreign currency, albeit payable in RWF. Base costs for imported goods include CIF prices, duties, sales taxes and domestic value added, i.e. the costs of local handling, transportation, financial intermediation, margins of various actors in the supply chain, up to the delivery location.

Inflation. In line with estimates from the International Monetary Fund (IMF)¹, the annual local inflation rate has been set at about 5% per year for the whole project period. Foreign inflation was set at 2% per year. The international inflation applied to foreign exchange costs (FE) is based on the forecasted evolution of the Manufactures Unit Value Index during the project implementation period (2% during 2017-2022).

Exchange Rate. The initial exchange rate for the cost estimate has been set at US\$1.00: RWF855, the rate prevailing in May 2018. In light of the past exchange rate movement in Rwanda, it is likely that this rate varies during the life of the project to reflect the significant difference between national and international inflation rates. Therefore, the option of Constant purchasing parity has been used in the absence of reliable exchange rate forecast.

Taxes and Duties. Taxes apply to all expenditure categories except for Salaries and Allowances, Consultancies, Operating costs, Grants, and Training and Workshops, as

¹World Economic Outlook 2018, inflation projections until 2022.

specified in table 1 below. All taxes and duties will be waived by the government and accounted for as Government of Rwanda counterpart contribution in COSTAB.

Physical and Price Contingencies. Physical contingencies are intended for facing up to changes in quantities and/or methods of implementation of the project. They are expressed as a percentage of base costs and are applied on civil works. Based on PRICE experience, the physical contingencies are set to five percent for civil works. Price contingencies are intended for facing up to the effects of inflation and devaluation of the exchange rate between the Rwanda Franc (RWF) and the US dollar (US\$). They are computed by Costab based on the rates set forth for the inflation at national and international levels

Expenditure and Disbursement Accounts. The expenditure categories considered are in accordance with IFAD standardization of expenditures categories based on circular IC/FOD/02/2013. The same categories have been generated for the disbursement accounts.

Foreign exchange. Foreign exchange represents the direct and indirect imported inputs embodied in the cost. Table 1 below lays out the expenditure's categories and the percentages of physical contingencies, taxes and foreign exchange used, which are mainly derived from on-going IFAD projects in Rwanda.

Table 1: Expenditure Accounts

Description	Foreign Exchange (percent)	Taxes & Duties (percent)	Physical Contingencies (percent)
I. INVESTMENT COSTS			
A. Civil works	50	18	5
B. Consultancies	50	18	0
C. Equipment and Materials	70	20	0
D. Vehicles	70	20	0
E. Training and Workshop	20	18	0
II. RECURRENT COSTS			
A. Salaries & Allowances	30	0	0
B. Operating Cost	30	18	0

III. Project Costs

Total Project Costs for KIIWP 1. Total project investment and recurrent costs, including physical and price contingencies, are estimated at US\$24.73 million (RWF22.2 billion). The foreign exchange component is estimated at US\$12.26 million (50% of project cost), while taxes have been calculated at approximately US\$4.2 million or 17% of total project costs. Total baseline costs are US\$23.62 million, while price contingencies account for US\$0.77 million (or 3 % of the base costs) and physical contingencies amount to US\$0.34 (or 1 % of the base costs).

Costs by components for KIIWP 1. The costs broken down by project component is as follows: (i) Strengthening resilience to droughts: US\$21.32 million (86.2%); (ii) Institutional development and project coordination: US\$3.41 million (13.8%). Table 2 to 4 below present a breakdown of the costs by component and sub-component, year and expenditure type. Detailed cost tables and additional summary tables are presented in the excel file.

Anticipated total Project Costs for KIIWP 2. Total project investment and recurrent costs, including physical and price contingencies, are estimated at US\$59.23 million (RWF53.16 billion). The foreign exchange component is estimated at US\$26.96 million (46% of project cost), while taxes have been calculated at approximately US\$8.7 million or 14.7% of total project costs. Total baseline costs are US\$55.47 million, while price contingencies account for US\$1.9 million (or 3% of the base costs) and physical contingencies amount to US\$1.8 million (or 3% of the base costs).

Costs by components for KIIWP 2. The costs broken down by project component are as follows: (i) Strengthening resilience to droughts: US\$43.9 million (79%); (ii) Support to farm business development: US\$7.9 million (14%); (iii) Institutional development and project coordination: US\$3.6 million (6%). Table 5 to 7 below present a breakdown of the costs by component and sub-component, year and expenditure type. Detailed cost tables and additional summary tables are presented in the excel file.

Table 2: Project Cost by Component for KIIWP 1

	(RWF Million)			(US\$ '000)			Foreign Exchange	% Base Costs	% Total
	Local	Foreign	Total	Local	Foreign	Total			
A. Strengthening resilience to droughts									
1. Catchment rehabilitation and protection structures	3 720.4	4 746.4	8 466.7	4 351.3	5 551.3	9 902.6	56	42	
2. Irrigation Development	4 077.9	4 077.9	8 155.8	4 769.5	4 769.5	9 538.9	50	40	
3. Infrastructure Management Institutions	183.7	89.8	273.5	214.9	105.1	319.9	33	1	
4. Environmental and Social Management Plan	315.3	158.5	473.8	368.8	185.3	554.1	33	2	
Subtotal Strengthening resilience to droughts	8 297.2	9 072.5	17 369.8	9 704.4	10 611.2	20 315.5	52	86	
B. Institutional Development and Project Coordination									
1. Institutional Support	181.6	45.4	227.0	212.4	53.1	265.4	20	1	
2. Programme Management and Coordination	1 611.3	983.2	2 594.5	1 884.5	1 150.0	3 034.5	38	13	
Subtotal Institutional Development and Project Coordination	1 792.8	1 028.6	2 821.4	2 096.9	1 203.0	3 299.9	36	14	
Total BASELINE COSTS	10 090.1	10 101.1	20 191.2	11 801.3	11 814.2	23 615.5	50	100	
Physical Contingencies	147.0	147.0	294.1	172.0	172.0	344.0	50	1	
Price Contingencies	869.8	814.3	1 684.1	399.8	374.9	774.7	48	3	
Total PROJECT COSTS	11 106.9	11 062.4	22 169.4	12 373.1	12 361.0	24 734.1	50	105	

Table 3 Project Component by year for KIIWP 1 (US\$ 000)

	Base Cost				
	2019	2020	2021	2022	Total
A. Strengthening resilience to droughts					
1. Catchment rehabilitation and protection structures	3 140.0	5 043.6	1 719.0	-	9 902.6
2. Irrigation Development	1 120.0	4 210.9	4 208.0	-	9 538.9
3. Infrastructure Management Institutions	144.1	94.6	77.3	4.0	319.9
4. Environmental and Social Management Plan	-	350.7	203.4	-	554.1
Subtotal Strengthening resilience to droughts	4 404.1	9 699.8	6 207.7	4.0	20 315.5
B. Institutional Development and Project Coordination					
1. Institutional Support	48.7	64.7	81.0	71.0	265.4
2. Programme Management and Coordination	1 166.0	641.1	893.7	333.6	3 034.5
Subtotal Institutional Development and Project Coordination	1 214.8	705.9	974.7	404.6	3 299.9
Total BASELINE COSTS	5 618.8	10 405.6	7 182.4	408.6	23 615.5
Physical Contingencies	107.0	151.0	86.0	-	344.0
Price Contingencies					
Inflation					
Local	56.8	334.1	449.3	54.9	895.0
Foreign	30.4	164.5	172.1	7.8	374.9
Subtotal Inflation	87.2	498.6	621.4	62.7	1 269.9
Devaluation	-29.9	-179.8	-252.1	-33.4	-495.2
Subtotal Price Contingencies	57.3	318.8	369.3	29.3	774.7
Total PROJECT COSTS	5 783.1	10 875.4	7 637.6	437.9	24 734.1
Taxes	1 044.3	1 906.1	1 250.3	34.2	4 234.9
Foreign Exchange	3 072.9	5 611.7	3 559.5	117.0	12 361.0

Table 4: Expenditure Accounts by Components for KIIWP 1 (US\$) - totals including contingencies

	Strengthening resilience to droughts						Institutional Development and Project Coordination			Physical Contingencies		
	Catchment rehabilitation and protection structures		Infrastructure Management Institutions		Enviromental and Social Management Plan		Programme Management and Institutional Support		Total	%	Amount	
	Irrigation Development	Catchment rehabilitation	Infrastructure Institutions	Enviromental Management Plan	Institutional Support	Programme Management and Coordination	Total	%	Amount			
I. Investment Costs												
EQUIPMENT & MATERIALS	3 000.0	-	-	-	-	-	56.0	3 056.0	-	-	-	-
WORKS	6 879.0	-	-	-	-	-	-	6 879.0	5.0	344.0		
VEHICLES	-	-	-	-	-	-	236.4	236.4	-	-		
CONSULTANCIES AND NON-CONSULTING SERVICES	23.6	9 538.9	136.9	248.4	-	-	737.5	10 685.3	-	-		
TRAINING & WORKSHOPS	-	-	183.0	305.7	265.4	248.5	1 002.7	-	-			
GRANTS & SUBSIDIES	-	-	-	-	-	-	-	-	-	-		
Total Investment Costs	9 902.6	9 538.9	319.9	554.1	265.4	1 278.4	21 859.4	1.6	344.0			
II. Recurrent Costs												
SALARIES & ALLOWANCES	-	-	-	-	-	-	1 514.2	1 514.2	-	-		
OPERATING COSTS	-	-	-	-	-	-	241.9	241.9	-	-		
Total Recurrent Costs	-	-	-	-	-	-	1 756.1	1 756.1	-	-		
Total BASELINE COSTS	9 902.6	9 538.9	319.9	554.1	265.4	3 034.5	23 615.5	1.5	344.0			
Physical Contingencies	344.0	-	-	-	-	-	-	344.0	-	-		
Price Contingencies												
Inflation												
Local	266.2	388.5	14.8	33.1	23.1	169.3	895.0	-	-			
Foreign	154.6	176.1	2.4	7.0	2.3	32.5	374.9	-	-			
Subtotal Inflation	420.8	564.5	17.2	40.1	25.5	201.8	1 269.9	-	-			
Devaluation	-139.8	-212.4	-8.6	-19.1	-13.8	-101.4	-495.2	-	-			
Subtotal Price Contingencies	281.0	352.2	8.5	20.9	11.7	100.4	774.7	1.3	10.0			
Total PROJECT COSTS	10 527.6	9 891.1	328.5	575.0	277.1	3 134.9	24 734.1	1.4	353.9			
Taxes	1 956.4	1 780.4	59.1	103.5	49.9	285.7	4 234.9	1.5	63.7			
Foreign Exchange	5 877.9	4 945.5	107.4	192.3	55.4	1 182.4	12 361.0	1.4	177.0			

Table 5: Project Cost by Component for KIIWP 2

	(RWF Million)						(US\$ '000)					
				% Total						% Total		
	Local	Foreign	Total	Foreign Exchange	Costs	Base	Local	Foreign	Total	Foreign Exchange	Base Costs	
A. Strengthening resilience to droughts												
1. Catchment rehabilitation and protection structures	5,835.4	5,835.4	11,670.8	50	25	6,825.0 11,813.	6,825.0	13,650.0	50	25		
2. Irrigation Development	10,100.2	10,020.5	20,120.7	50	42	1	11,719.9	23,533.0	50	42		
3. Infrastructure Management Institutions	47.3	24.9	72.2	34	-	55.3	29.1	84.4	34	-		
4. Enhancing climate smart agriculture practices and technologies	2,830.7	1,278.7	4,109.3	31	9	3,310.7	1,495.5	4,806.2	31	9		
5. Environmental and Social Management Plan	1,122.8	466.6	1,589.4	29	3	1,313.3	545.8	1,859.0	29	3		
						23,317.						
Subtotal Strengthening resilience to droughts	19,936.4	17,626.0	37,562.4	47	79	4	20,615.2	43,932.6	47	79		
B. Support to farm business development												
1. Developing Farming as a Business skills	519.9	163.3	683.2	24	1	608.0	191.0	799.0	24	1		
2. Promotion of mechanization, post-harvest storage and irrigation technologies	1,249.1	2,428.4	3,677.4	66	8	1,460.9	2,840.2	4,301.1	66	8		
3. Supporting backward and forward linkages	2,050.8	376.7	2,427.5	16	5	2,398.6	440.6	2,839.2	16	5		
Subtotal Support to farm business development	3,819.7	2,968.4	6,788.1	44	14	4,467.5	3,471.8	7,939.3	44	14		
C. Institutional Development and Project Coordination												
1. Institutional Support	50.6	12.6	63.2	20	-	59.2	14.8	74.0	20	-		
2. Program Management and Coordination	2,091.1	926.3	3,017.4	31	6	2,445.7	1,083.3	3,529.1	31	6		
Subtotal Institutional Development and Project Coordination	2,141.7	938.9	3,080.6	30	6	2,504.9	1,098.1	3,603.0	30	6		
						30,289.						
Total BASELINE COSTS	25,897.8	21,533.3	47,431.1	45	100	8	25,185.2	55,475.0	45	100		
Physical Contingencies	789.8	789.8	1,579.6	50	3	923.8	923.8	1,847.5	50	3		
Price Contingencies	2,298.4	1,854.2	4,152.6	45	9	1,055.1	852.5	1,907.5	45	3		
						32,268.						
Total PROJECT COSTS	28,986.0	24,177.4	53,163.3	45	112	6	26,961.4	59,230.0	46	107		

Table 6: Project Component by year for KIIWP 2 (US\$ 000)

	2022	2023	2024	2025	Total
A. Strengthening resilience to droughts					
1. Catchment rehabilitation and protection structures	4,050.0	4,650.0	4,950.0	-	13,650.0
2. Irrigation Development	4,660.0	13,980.0	4,660.0	233.0	23,533.0
3. Infrastructure Management Institutions	31.8	34.8	12.4	5.4	84.4
4. Enhancing climate smart agriculture practices and technologies	978.1	1,294.6	1,478.6	1,055.1	4,806.2
5. Environmental and Social Management Plan	609.0	864.0	371.0	15.0	1,859.0
Subtotal Strengthening resilience to droughts	10,328.9	20,823.4	11,472.0	1,308.5	43,932.6
B. Support to farm business development					
1. Developing Farming as a Business skills	213.8	215.8	208.8	160.8	799.0
2. Promotion of mechanisation, post-harvest storage and irrigation technologies	783.1	1,563.5	1,547.1	407.5	4,301.1
3. Supporting backward and forward linkages	724.6	892.6	636.0	586.0	2,839.2
Subtotal Support to farm business development	1,721.4	2,671.8	2,391.9	1,154.3	7,939.3
C. Institutional Development and Project Coordination					
1. Institutional Support	58.2	15.8	-	-	74.0
2. Program Management and Coordination	853.3	1,029.0	931.3	715.5	3,529.1
Subtotal Institutional Development and Project Coordination	911.4	1,044.8	931.3	715.5	3,603.0
Total BASELINE COSTS	12,961.7	24,540.0	14,795.1	3,178.2	55,475.0
Physical Contingencies	435.5	931.5	480.5	-	1,847.5
Price Contingencies	134.0	769.2	776.1	228.3	1,907.5
Total PROJECT COSTS	13,531.2	26,240.7	16,051.7	3,406.5	59,230.0

Table 7: Expenditure Accounts by Components for KIIWP 2 (US\$) - totals including contingencies

	Strengthening resilience to droughts					Support to farm business development			Institutional Development and Project Coordination			Total
	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	3.1	3.2		
I. Investment Costs												
EQUIPMENT & MATERIALS	-	-	-	360.0	-	-	3,940.0	-	-	-	-	4,300.0
GOODS & SERVICES & INPUTS	-	-	12.7	1,741.0	911.0	386.0	120.0	1,058.0	-	-	-	4,228.7
WORKS	13,650.0	23,300.0	-	-	-	-	-	-	-	-	-	36,950.0
VEHICLES	-	-	-	-	-	-	-	-	-	-	-	-
CONSULTANCIES	-	-	38.5	850.0	428.0	-	10.0	-	-	-	175.0	1,501.5
TRAINING & WORKSHOPS	-	-	33.2	1,733.0	520.0	294.0	49.0	582.2	74.0	103.8	103.8	3,389.2
GRANTS & SUBSIDIES	-	-	-	-	-	-	57.5	1,000.0	-	-	-	1,057.5
Total Investment Costs	13,650.0	23,300.0	84.4	4,684.0	1,859.0	680.0	4,176.5	2,640.2	74.0	278.8	278.8	51,426.9
II. Recurrent Costs												
SALARIES & ALLOWANCES	-	-	-	95.0	-	103.7	-	199.0	-	3,020.0	3,020.0	3,417.7
OPERATING COSTS	-	233.0	-	27.2	-	15.4	124.6	-	-	-	230.3	630.5
Total Recurrent Costs	-	233.0	-	122.2	-	119.0	124.6	199.0	-	3,250.3	3,250.3	4,048.1
Physical Contingencies	13,650.0	23,533.0	84.4	4,806.2	1,859.0	799.0	4,301.1	2,839.2	74.0	3,529.1	3,529.1	55,475.0
Price Contingencies	682.5	1,165.0	-	-	-	-	-	-	-	-	-	1,847.5
TOTAL PROJECT COSTS	454.0	757.6	2.4	199.8	52.1	30.8	162.9	108.6	1.1	138.3	138.3	1,907.5
	14,786.5	25,455.6	86.8	5,006.0	1,911.1	829.8	4,464.0	2,947.8	75.0	3,667.4	3,667.4	59,230.0

Financing Plan

Financing Plan for KIIWP I. KIIWP I will be financed by: (i) IFAD up to US\$17.79 million (71.9%), through a highly concessional loan; (ii) Government of Rwanda for a total of US\$5.42 million (21.9%) in the form of tax exemptions and consultancies for Ndego irrigation system; and (iii) beneficiaries for a total of 1.53 million (6.2 per cent) in the form of works. Details of financing arrangements by components are shown in table 8 and by expenditure category in table 9.

Anticipated Financing Plan for KIIWP 2. The project will be financed by: (i) IFAD up to US\$25.7 million (43.4%), through a highly concessional loan; (ii) Private sector for US\$322 thousand (0.5%); (iii) ICCO for US\$246 thousand (0.3%), (iv) Government of Rwanda for a total of US\$8.8 million (15%) in the form of tax exemptions; (v) Co-financiers for a total of US\$22 million (37.3%); and (vi) Beneficiaries for US\$2 million (3.4%). Please see annex 12 for more details.

Table 8: Financing Plan by Components for KIIWP 1 (US\$ 000)

	Beneficiaries		IFAD		The Government		Total		Local (Excl. Taxes)		Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.		
A. Strengthening resilience to droughts											
1. Catchment rehabilitation and protection structures	1 527.1	14.5	7 044.2	66.9	1 956.4	18.6	10 527.6	42.6	5 877.9	2 693.3	1 956.4
2. Irrigation Development	-	-	6 929.6	70.1	2 961.4	29.9	9 891.1	40.0	4 945.5	3 165.1	1 780.4
3. Infrastructure Management Institutions	-	-	269.3	82.0	59.1	18.0	328.5	1.3	107.4	161.9	59.1
4. Environmental and Social Management Plan	-	-	471.5	82.0	103.5	18.0	575.0	2.3	192.3	279.2	103.5
Subtotal Strengthening resilience to droughts	1 527.1	7.2	14 714.7	69.0	5 080.4	23.8	21 322.1	86.2	11 123.2	6 299.6	3 899.4
B. Institutional Development and Project Coordination											
1. Institutional Support	-	-	227.2	82.0	49.9	18.0	277.1	1.1	55.4	171.8	49.9
2. Programme Management and Coordination	-	-	2 849.2	90.9	285.7	9.1	3 134.9	12.7	1 182.4	1 666.8	285.7
Subtotal Institutional Development and Project Coordination	-	-	3 076.4	90.2	335.5	9.8	3 412.0	13.8	1 237.9	1 838.6	335.5
Total PROJECT COSTS	1 527.1	6.2	17 791.1	71.9	5 416.0	21.9	24 734.1	100.0	12 361.0	8 138.1	4 234.9

Table 9: Expenditure Accounts by Financier for KIIWP 1 (US\$ 000)

	Beneficiaries		IFAD		The Government		Total		Local (Excl. Taxes)		Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.		
I. Investment Costs											
EQUIPMENT & MATERIALS	-	-	2 501.6	80.0	625.4	20.0	3 127.0	12.6	2 188.9	312.7	625.4
WORKS	1 527.1	20.5	4 567.9	61.5	1 337.9	18.0	7 432.9	30.1	3 716.4	2 378.5	1 337.9
VEHICLES	-	-	191.0	80.0	47.8	20.0	238.8	1.0	167.1	23.9	47.8
CONSULTANCIES AND NON-CONSULTING SERVICES	-	-	7 888.8	71.3	3 172.0	28.7	11 060.8	44.7	5 530.4	3 539.4	1 990.9
TRAINING & WORKSHOPS	-	-	854.6	82.0	187.6	18.0	1 042.2	4.2	208.4	646.1	187.6
GRANTS & SUBSIDIES	-	-	-	-	-	-	-	-	-	-	-
Total Investment Costs	1 527.1	6.7	16 003.9	69.9	5 370.6	23.5	22 901.5	92.6	11 811.3	6 900.7	4 189.6
II. Recurrent Costs											
SALARIES & ALLOWANCES	-	-	1 580.6	100.0	0.0	-	1 580.6	6.4	474.2	1 106.4	-
OPERATING COSTS	-	-	206.6	82.0	45.3	18.0	251.9	1.0	75.6	131.0	45.3
Total Recurrent Costs	-	-	1 787.2	97.5	45.3	2.5	1 832.5	7.4	549.8	1 237.4	45.3
Total PROJECT COSTS	1 527.1	6.2	17 791.1	71.9	5 416.0	21.9	24 734.1	100.0	12 361.0	8 138.1	4 234.9

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 4: Economic and Financial Analysis

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Annex 4: Economic and Financial Analysis

Introduction

This Annex lays out the methodology, assumptions and results of the economic and financial analysis carried out to assess the impact and viability of the Kayonza Irrigation and Integrated Watershed Management Project Phase I (KIIWP 1). The aim is to identify, calculate and compare project costs and benefits and thereby assess its viability, first from the point of view of individual participants in the project (financial analysis) and then from the standpoint of the national economy as a whole (economic analysis).

Project benefits and beneficiaries

Benefits. KIIWP 1's development objective is to improve food security and incomes of rural households on a sustainable basis. Project interventions are expected to result in an extensive range of tangible and intangible benefits. Key quantifiable benefits include: i) crop diversification and increased value of production in hillside areas; ii) increased value of livestock production; iii) improved access to water for domestic uses. These benefits will be achieved through project interventions such as: i) water infrastructure development; ii) promotion of climate smart agriculture and land husbandry practices; iii) promotion of sustainable land and water management practices.

Beneficiaries. The project will be implemented in eight drought prone sectors of the Kayonza district. It is anticipated that the total number of households benefiting directly from KIIWP 1 during will be 8,143 of which 50% of beneficiaries will be women. Farmers and rural households in the project area will also benefit indirectly from project activities through increased demand for farm labour, clustering and value chain linkages and nutrition-related outcomes. Table 1 below provides an overview of direct project beneficiaries form different interventions in the project lifespan.

Adoption rates. This analysis uses the total number of direct beneficiaries and estimates that 76% of farm-enterprises and 77% of non-farm enterprises will adopt the project interventions and activities. These adoption rates are reflected in Table 1.

Table 1: Number of households benefiting directly from KIIWP 1 activities

Number of direct beneficiaries		target HH	Phasing per Calendar Year				Total
			Y 1	Y 2	Y 3	Y4	
Target groups		target HH					
Farm- enterprises	target	5643					
adoption rate		76%	0%	30%	40%	30%	
no. of HH	100%	4289					
Hillside farms	100%	4289	0	1287	1715	1287	4289
cumulative no. of HH		4289	0	1287	3002	4289	4289
Non-Farm- enterprises	target	2500					
adoption rate		77%	0%	43%	57%	0%	
no. of HH	100%	1928					
Livestock and domestic	100%	1928	-	829	1,099	-	1928
cumulative no. of HH		1928	-	829	1,928	1,928	1928
Total Project Target HHs	target	8143	-	2,115	4,930	4,930	
Total beneficiaries in project supported HH		36,644	-	9,519	22,183		
persons per HH	4.5						

Financial Analysis

Methodology

The methodology follows recent IFAD guidelines on Economic and Financial Analysis (EFA)¹ that recommend the use of cost-benefit analysis which is based in the valuation in monetary terms of project cost and benefits. The financial analysis is only applied to the project activities that lend themselves to it and where sufficient data are available. The analysis builds on primary and secondary data collected by the design team during the first design mission in April/May 2018. Information was obtained through field visits, interviews with government officials, farmers groups and stakeholders as well as from other on-going IFAD projects (e.g. KWAMP, PASP, PRICE, RDDP) and World Bank Projects (LWH, RSSP) in the country. Conservative assumptions were made both for inputs and outputs. The financial analysis has been undertaken from the point of view of a rural household engaged in agricultural production and livestock (dairy) management activities. The analysis aims first at assessing the financial profitability of representative production models. It should be noted that the financial models have been developed solely for the purpose of the EFA analysis, as in practice farm's characteristics usually change from one place to another.

Financial models

A total of eight crop budgets have been prepared to assess farm productivity, gross margins and returns to labour for rice, maize, beans, eggplant, green pepper, onion and tomato. Furthermore, livestock models for cows were also prepared. The incremental benefits have been estimated as the difference between a "without project (WoP)" and a "with project (WP)" scenario.

Crop budgets. The "WoP" is characterized by traditional subsistence farming with low yields, low technology adoption and high post-harvest loss rates. Besides, farmers face particular difficulties in marketing like production planning, bulking, transport, steady flow of marketable produce and buyer identification and negotiations.

In the "WP", farmers are expected to increase productivity (including more production cycles) and decrease post-harvest losses, due to trainings in GAP, producer coaching, introduction of irrigation, connection to markets. Furthermore, the farmers are assisted in gradually transforming their crops from traditional staple crops to higher value cash crops. The adoption of good agricultural practices involves also the sustainable management of land and water.

Revenues are formed of agro-products sales and operational costs are mainly seeds, fertilizers, chemicals and labour. Investments are mainly in small scale irrigation technologies². Several aspects have been included in the crop budget analysis:

¹ IFAD's Internal Guidelines for Economic and Financial Analysis of Rural Investment Projects

² The investment cost in SSIT is subsidized at 50%.

- a. Labour is a combination between family and hired. The hired labor has been valued at RwF 1000 per day. For unpaid family labor a daily rate of RwF 750 is used as the financial cost³.
- b. Home consumption for maize, beans and rice is estimated in the models to assess the impact on food security and marketable surplus to the beneficiaries. Agriculture production used for self-consumption is not valued in monetary terms.
- c. Prices reflect those actually paid at farmgate. It is also assumed that market demand is healthy for all analysed crops and that all marketable surplus from local producers can be readily absorbed in the main markets without adverse effects on the market price.
- d. It is assumed that productivity increases related to yield improvement and reduced post-harvest losses will happen gradually, reaching its full value at the end of the project.

Maize, beans, and rice budgets have been developed to represent the current situation in the field. Table 2 shows post-harvest yields, self-consumption, total revenues, total operating costs, net income and the return to labour for the crops considered. The data presented are for 1-hectare representative cultivation area. The with-project information presents data for the project once it has reached its full development in year 5. The negative values of net income under the WOP scenarios for maize and beans stem from the valuation of the financial costs of family labor⁴. Existing average yields are also quite low given the rainfed and poor management conditions under which these two crops are grown.

Table 3 presents similar information for the remaining crops budgets (vegetables), which are part of the focus commodities short-listed for this project. Most of these crops are grown in very limited amounts due to the existing farmer's orientation to staple crops.

³ The calculation of family labor wage rate is based on World Bank (2014) Transformation of Agriculture Sector Program Phase 3.

⁴ Furthermore, self-consumption has not been valued in monetary terms.

Table 2 Main indicators from crop budgets: maize and beans.

Crops budgets- per ha	Unit	Maize			Beans		
		WoP	Wp*	Incremental	WoP	Wp*	Incremental
Post-harvest yield	kg	1,275	4,140	225%	600	2,250	275%
Self-consumption	kg	250	500	100%	250	400	60%
Total Revenues	'000 RWF	255	828	225%	112	592	429%
Total Operating Costs	'000 RWF	399	607	52%	402	584	45%
Net Income	'000 RWF	(144)	220	253%	(290)	7,2	102%
Return to Labour	RWF/p-d	-	802	n/a	-	25	n/a

* Values at full development

Table 3 Main indicators from crop budgets: vegetables.

Crops budgets- per ha	Unit	Tomato			Onion			Green Pepper			Eggplant		
		WoP	Wp*	Increm.	WoP	Wp*	Increm.	WoP	Wp*	Increm.	WoP	Wp*	Increm.
Post-harvest yield	ton/ha	11.25	13.5	20%	11.25	13.5	20%	9.0	10.8	20%	11.25	13.5	20%
Self-consumption	kg	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
Total Revenues	'000 RWF	3,375	4,050	20%	4,500	5,400	20%	4,500	5,400	20%	2,813	3,375	20%
Total Operating Costs	'000 RWF	1,689	1,689	0%	1,606	1,606	0%	1,246	1,246	0%	1,236	1,236	0%
Net Income	'000 RWF	1,686	2,361	40%	2,894	3,794	31%	3,254	4,154	28%	1,576	2,139	36%
Return to Labour	RWF/p-d	3088	4325	40%	4729	6200	31%	8301	10597	28%	4021	5456	36%

* Values at full development

Farm Models. On the basis of the above listed crop budgets, the existing growing conditions and production arrangements in the country, a farm enterprise model, with an average land of 0.3 hectares, has been developed for hillside farms:

In the WOP situation, farmers grow mainly traditional maize, beans and a very small area of vegetables. This farming is highly dependent on rain and subject to soil erosion, resulting in low crop yields. Interventions promoted such as the terracing, water storage and the promotion of best agricultural practices will have an impact both on crop yields and the cropping patterns. The with project situation establishes a decreasing allocation of land for maize and beans and an increased cultivation of vegetables. It is expected that about 4,289 households cultivating in hillsides will benefit from the project, based on a 76% adoption rate.

A summary of the crop pattern for each farm model is presented in Table 4, below.

Table 4 Assumed Representative Farm Cropping Pattern Without- and With Program

Share of farm area	Hillside- Representative Farm			
	WOP		WP	
	%	ha	%	ha
Maize	65%	0.195	43%	0.129
Beans	31%	0.093	10%	0.030
Eggplant	1%	0.003	10%	0.030
Green pepper	1%	0.003	15%	0.045
Onion	1%	0.003	12%	0.036
Tomato	1%	0.003	10%	0.030
Total	100%	0.30	100%	0.30

Financial model results. A financial discount rate of 17% was used based on the actual lending rates of commercial banks⁵. The model shows negative net present value (NPV) and a financial internal rate of return (FIRR) of 9.2%. Table 5 presents the expected financial benefits. Indicators selected include net income at full development after labour, FIRR and NPV. It is understood that such net incomes may not be achieved in one year; thus a gradual and conservative achievement of the expected benefits has been used in the analysis. Hillside farms have a small negative net income in the WOP situation which stems from the inclusion of family labour costs of producing low return crops such as maize and beans. Results suggest a move to producing less traditional crops, especially maize and beans with a low net income to more profitable and higher value vegetable crops, which can have a significant positive impact on Farm HHs.

Table 5: Farm Models financial results.

⁵ National Bank of Rwanda (2018). Commercial Bank lending rates in 2017.

Farm enterprise type	Net income (RWF) after labour			NPV (RwF) @17%	NPV (USD) ⁶ @17%	FIRR
	WOP	WP ¹	Increm.			
Hillside Farm	(19,429.8)	378,216	2047%	(\$480,003)	(\$561)	9.22%

Livestock model. The project does not invest directly in livestock production activities. The major constraint hampering the development of this activity in the Kayonza district is the lack of water, which affects also the availability of enough quantity and quality of pastures. However, the project does involve the construction of boreholes, which will improve access to water for livestock. Greater water availability is expected to increase the existing low productivity of cows. The financial analysis considers the benefits associated with milk productivity increases for cows. In the WOP situation, cows exhibit low milk production. Households are also assumed to make limited use of inputs given the existing low returns. The with project situation represents a gradual increase in milk productivity accompanied with greater input uses. It is expected that about 1,928 households will benefit from the project, based on a 77% adoption rate. Table 6 shows milk production yields, self-consumption, total revenues, total operating costs, net income and the return to labour for the crops considered. The data presented are for 1-hectare representative area. The with-project information presents data for the project once it has reached its full development in year 5. From the estimation of the livestock model, the additional value of milk production associated with the project amounts to 230,550 Rwf per year and a net present value of US\$898, assuming a 10 year period of benefit stream and a 17 percent discount rate⁷.

Table 6: Financial results for livestock enterprise models

Livestock budgets-per ha		Livestock		
Livestock budgets-per ha	Unit	WoP	Wp*	Incremental
Milk production	liters	1,450	2,900	100%
Self-consumption	liters	435	870	100%
Total Revenues	RWF	230,550	461,100	100%
Total Operating and Labor Costs	RWF	133,500	231,500	73%
Net Income	RWF	97,050	229,600	137%
Return to Labour	RWF/p-d	1078.3	2551.1	137%
NPV @ 17%	RWF	-	767,384	
NPV @ 17%	USD	-	898	

⁶ Exchange rate used is 1USD-855Rwf, based on National Bank of Rwanda, May 2018.

⁷ No FIRR has been calculated since households will not bear the costs of borehole construction.

Improved access to water. The construction of boreholes by the project will save rural households from fetching water at a distance, even during the dry season. This time saved can now be used for other activities. On average, households use 8 jerricans of water (20 liter-jerricans) each day for domestic purposes. They normally fetch from streams or other distant boreholes. The time spent while going to fetch the water was estimated at 60 minutes. One person would only carry one jerrican at a time. Thus, each household on average requires 480 minutes to fetch water daily, i.e., 8 hours. This can be valued according to the wage rate of RWF 1,000. An additional RWF80 must be added to incorporate the price of borehole water (sold at RWF10 per jerrican). Overall, this translates to RWF 394,200 of benefits per year per household and a net present value of US\$2,148, assuming a 10-year period of benefit stream and a 17 percent discount rate⁸. It is expected that about 1,928 households will benefit from the project, based on a 77% adoption rate.

Economic Analysis

The economic analysis aims to assess the viability of the proposed project from the standpoint of the society as a whole. It is based on the aggregation of individual incremental net benefits calculated through the models developed in the financial analysis, subject to adjustments highlighted hereafter and in accordance with the targets set in the logical framework.

Methodology and assumptions

The economic analysis is predicated on the comparison of the with-project situation to the without-project situation to measure the incremental benefits arising from the project. The methodology used is the cost-benefit analysis at shadow prices that better reflect the economic value to society of goods and services, often referred to as "economic opportunity costs" or "social opportunity costs". The analysis has been carried out for a 30-year period, corresponding to the likely life period of the benefits expected from the major infrastructure investments of the project. The scenario presented in the economic analysis is conservative, the analysis presented below is indicative and demonstrates the scope of profitability originated from the conditions prevailing at the time of the preparation.

Discount rate. In keeping with IFAD guidelines, a 12% discount rate has been used to reflect the social opportunity cost of capital in Rwanda. This rate corresponds to the yield on the five-year government bonds in 2017 (National Bank of Rwanda)⁹.

Standard conversion factor. The analysis has been done in domestic currency at domestic price level. A shadow exchange rate of 788 RwF for 1 USD has been used to reflect the opportunity cost of foreign exchange to the country. It has been calculated on the basis of data from the World Bank (WITS)¹⁰ according to the following formula:

$$SER = OER \times \{[(M+TM)+(X-TX)]M+X\} = OER \times SCF$$

⁸ No FIRR has been calculated since households will not bear the costs of borehole construction.

⁹ National Bank of Rwanda (2018) Interest rate structure year 2017. Kigali.

¹⁰ <https://wits.worldbank.org/CountryProfile/en/Country/RWA/Year/LTST/Summary>

SCF= SER/OER

where SER: Shadow Exchange rate

OER: Official Exchange rate

M: Total imports (an average of five years would be advisable)

X: Total Exports (an average of five years would be advisable)

TM: Duties on Imports

TX: Export Taxes

SCF: Standard Conversion Factor

The financial prices and the streams of costs and benefits have been converted into economic values, by removing taxes, subsidies and other transfers. A standard conversion factor of 0.92 has been calculated according to the formula above, to all traded goods and services; for the non-tradable goods the conversion factor applied is equal to 1. The economic prices of hired labour costs were adjusted based on conversion factor of 0.8 to account for the unemployment rate in rural areas¹¹. For equipment, a conversion factor of 0.8 has also been retained to take into account taxes embodied in the financial prices. All models are expressed in 2018 constant prices. The analysis builds on primary data collected by the design team during the first design mission in April/May 2018, provided by the Government of Rwanda and derived from other on-going IFAD projects (e.g. KWAMP, PASP, PRICE, RDDP) and World Bank Projects (LWH, RSSP) in the country. Conservative assumptions and parameters have been applied, in order to avoid over-estimation of benefits and provide realistic results.

Economic costs and benefits

The project economic costs have been generated with Costab software which deducts the amounts pertaining to taxes and provisions for price contingencies from the financial costs and applies the shadow exchange rate to convert the cost portion in foreign exchange into local currency. Project costs related to the benefits identified were accounted for¹². However, in order to avoid double counting, the amounts regarding the investments already taken into account in the financial models have been deducted from the total project cost. The deduction was made directly in the Costab before computing the economic costs

The economic benefits accounted for in the calculation of economic profitability indicators are those that are readily quantifiable, deriving from increased value of agricultural production, increased production of milk, and the value of improved access to water for domestic uses.

The models developed in the financial analysis have been transformed into economic values using economic prices instead of financial prices as stated above. The total incremental economic benefits for each model have then been computed by

11 Source: Labour Force Survey 2016 Report, National Institute of Statistics of Rwanda.

12 Costs related to the financing of feasibility studies and environmental and social management plans for future irrigation investments were not considered in the analysis.

multiplying the individual incremental economic benefits to the number of beneficiaries that are expected to adopt the improved practices proposed by the project. To take into account the fact that adoption of new practices and infrastructure construction is likely to be gradual the following cumulative adoption rates have been assumed.

Table 7 Expected cumulative adoption rates.

	Phasing per Calendar Year			
	Y 1	Y 2	Y 3	Y 4
Farm- enterprises	0%	30%	70%	100%
Livestock and domestic	0%	43%	100%	100%

The total project incremental benefits have then been calculated by summing up the aggregate incremental economic benefit pertaining to each model. Finally, the stream of economic costs (computed using Costab) have been deducted from the stream of total incremental economic benefits to get the stream of net incremental benefits, so as to compute the economic IRR and NPV.

Economic results and sensitivity analysis

Net Present Value (NPV) and Economic Internal Rate of Return (EIRR). The net present value of the project over a thirty-year period is calculated to be 1,708 (US\$ 000) at an economic discount rate of 12% and the economic internal rate of return is estimated to be 15.74%. The summary of the economic analysis is presented in table 9 in this appendix. The Project is therefore profitable from an economic standpoint. This result is quite satisfactory, especially as some benefits have not even been taken into account in the calculations due to data shortages. These include the improvement of living conditions and nutrition, the positive spill-over effects of capacity building on the local economy (suppliers of inputs, equipment, services), especially for women and youth.

Sensitivity analysis: A sensitivity analysis was conducted to assess the changes in NPV and EIRR due to variations in the future stream of benefits and costs, and delay in project implementation. The Project remains profitable under a range of project scenarios. Switch values for the reduction in benefits and increase in costs are 21% and 26% respectively. Table 8 presents the sensitivity analysis results.

Table 8: Sensitivity analysis results

Base scenario	ERR		NPV
	15.7%	2,998	
Project benefits	-10%	13.9%	1,545
Project benefits	-20%	12.1%	93
Project benefits	-50%	6.2%	-4,264

Switch value	-21%		
Project costs	10%	14.1%	1,845
Project costs	20%	12.7%	693
Project costs	50%	9.6%	-2,765
Switch value	26%		
1 year lag in ben.		13.5%	1,374
2 years lag in ben.		11.9%	-76

Table 9: Economic analysis (USD)

Project Economic Analysis - Full Project Cost

(constant 2018 values)

(US\$ 000)	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10	...	PY30
Total Program Net Benefits	-	833	1,941	1,969	2,058	2,188	2,269	2,269	2,269	2,269	...	2,269
Program Costs										
Investment Costs	3,536	5,480	2,489	365	-	-	-	-	-	-	...	-
Recurrent Costs	160	520	670	977	68	68	68	68	68	68	...	68
Total Program Costs	3,695	5,999	3,159	1,343	68	68	68	68	68	68	...	68
Total Project Incremental Net Benefits	(3,695)	(5,166)	(1,218)	626	1,990	2,120	2,201	2,201	2,201	2,201	...	2,201
EIRR	15.74%											
NPV @12% (USD 000)	1,708											

Further details are provided in the excel file KIIWP_1_EFA_040419.

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 5: Social Environment and Climate Assessment (SECAP) Review Note

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 5: Social Environment and Climate Assessment (SECAP) Review Note

Major landscape characteristics and Issues (Social, natural resources, and climate)

Socio-cultural context

Post conflict recovery efforts included infrastructure repairs, community level reconciliation initiatives as well as resettlement of Rwandan refugees and displaced populations. Due to land shortages and population density, most returnees from Tanzania and Uganda settled in the Eastern province and were relocated in an area covering the entire Mutura Game Reserve and their resettlement eventually led to the de-gazetttement of two thirds of the Akagera National Park located in Nyagatare and Kayonza districts (UNEP, 2011)¹. Hence, the land was segmented into ranches and converted into pastureland, ranging from 0.45 ha to 80 ha (UNEP, 2011).

About 55% of the population of Kayonza District are aged 19 years or younger. People aged 65 years and above make up 3%. About 52% of the population is female and the majority of this population group is young, with about 83% still under 40 years of age.

Youth face several challenges which preclude them from being involved in agriculture including: they do not own land, and therefore do not have access to finance/investment, nor can they lease land; agriculture is practised by youth who did not go to school - educated youth do not want to work in the fields, and wait for other jobs; intellectual property is not valued as a contribution in agricultural projects, so youth do not feel there are opportunities in the sector in which they can excel.

The percentage distribution of employment by gender in Kayonza District, shows that the majority of females in Kayonza District are small-scale farmer workers (78%), followed by wage farmer and independent non-farmer workers (both at 6%). Five per cent of females are wage non-farmer workers. Males are also involved in small-scale farm work at a lower percentage than females (61%). Males are wage non-farm workers and independent non-farmers in greater proportions than females, however (18% and 13% respectively).

Though not particular to Kayonza District, key gender gaps that require to be addressed include: (i) granting women equal access to productive resources and income generating activities; (ii) including the interests of women in capacity building opportunities and knowledge management under the project; and (iii) giving women equal representation in decision making and institutions.

With an average of 179 inhabitants per kilometre square, the population density in Kayonza District is lower than the national average of 483 inhabitants/km² (WB, 2017). However, the district presents disparities across sectors with highest density found in Kabarondo (559 inhabitants/km²) and Kabare (311 inhabitants/km²) while the least populated areas are Mwiri (45 inhabitants/km²) and Murundi (73 inhabitants/km²). The last two sectors are located in the cattle corridor typified by livestock keeping as the main livelihood. After Nyagatare, Kayonza is the second district with the largest rangeland amounting to 46,806.1 ha out of 114,290.4 ha of arable land in the district (NISR, SAS 2017).

The Kayonza District Potentialities Report highlights (2013) that land uses comprise agricultural activities, livestock production, fishing and forestry. It also stated that 46.4% of households are cultivating areas under 0.3 ha land. Yet, the Food and Agriculture Organisation (FAO) estimates that, a Rwandan household, with an average of 4.3 members, ideally requires at least 0.9 ha to conduct sustainable agriculture and without having to take a job off-farm (NISR², 2012; WB, 2016).

¹ UNEP, 2011, Rwanda from post-conflict to environmentally sustainable development, Kenya.

² National Institute of Statistics of Rwanda (2012c) EICV3 Thematic Report: Environment and Natural Resources. Kigali: Republic of Rwanda.

According to the World Food Programme (WFP) 2015 Comprehensive Food Security and Vulnerability Analysis, in Kayonza District only 46% of the households are food secure, 43% are marginally food secure, 10% are moderately food insecure and 1% are severely food insecure. In addition, households which are most commonly affected by droughts (with more than 80% of livelihoods likely to be affected) are found in Kayonza and Nyagatare districts in the Eastern province.

In terms of poverty, the overall distribution of the KIIWP potential beneficiaries in eight drought prone sectors by wealth category shows a higher percentage of people in Category 1 and 2 (49%) than the four other sectors (44%), Kayonza District as a whole (47%) and the national distribution (43.9%). Three sectors show lower percentages for Category 1 and 2, these are Ndego, Rwinkwavu and Kabare. The poorest sectors are Murama, Gahini and Mwiri. In the eight sectors of Kayonza District there are 31% female -headed households, which is higher than the national average. Some sectors have a very high percentage of FHH, such as Murama (48%) and Kabarondo (32%).

In the Table below, several indicators show that malnutrition is evident in Kayonza District. The Comprehensive Food Security and Vulnerability Analysis (CFSVA³) report in Rwanda found that levels of stunting among children aged under five dropped to 36.7% in 2015, down from 43% at the time of the last analysis in 2012. Stunting at 42.4% is slightly more than 5% higher than the national average.

Table 1: Nutrition indicators

NO	INDICATOR	%
1	Stunting	42.4
2	Prevalence of underweight among children under 5 years (0-59 months)	9.1
3	Prevalence of wasting among children under 5 years (0-59 months)	2
4	Prevalence of anemia among children aged 6-59 months	Moderate: 19.9, Severe: 2
5	Prevalence of anemia among women of reproductive age (15-49 years)	Moderate: 2.6, Severe: 0.5

Natural resources and Natural Resource Management

Kayonza District hosts a considerable part of the biodiversity of the Eastern Province, including half of Akagera National Park, vast swamps and a dense hydrographical network composed of a multitude of small interior lakes and Lake Muhazi that Kayonza shares with neighbouring districts. All the lakes are interconnected with the Kagera River by means of creeks and barely accessible marshlands (RNRA, 2015)⁴.

The wildlife in the Akagera National Park comprises more than 90 species of mammals, 530 bird species and 35 fish species (REMA, 2009⁵). It is reported that the most threatened species are rhinoceros, large carnivores, particularly lions.

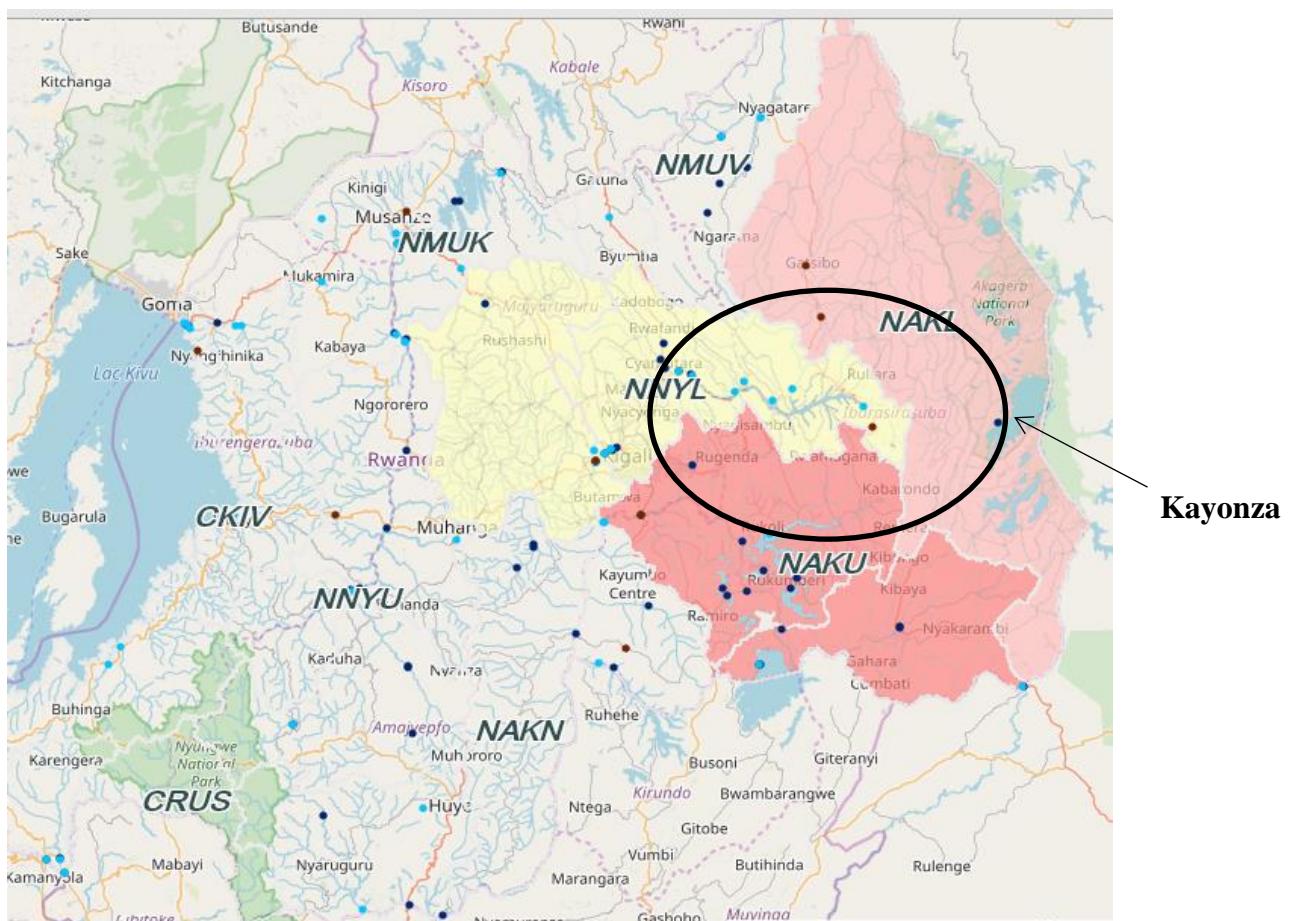
Rwanda is located in two major basins, Nile and Congo basins, and its hydrological network is composed of nine catchments. Kayonza District is embedded in three catchments: a surface area of 3,269 km² in the lower Nyabarongo (NNYL in the figure 1 below), a surface area of 2,939 km² the upper Akagera catchment (NAKU in the figure 1 below), and a surface area of 3,223 km² the lower Akagera catchment (NAKL in the figure 1 below).

³ MINAGRI and WFP, 2015

⁴ Ministry of Natural Resources (MINIRENA/RNRA), 2015, Rwanda National Water Resources Master Plan, Appendix 7: Upper Akagera Catchment.

⁵ REMA (2009): Rwanda State of Environment and Outlook Report".

Figure 1: Localisation of Kayonza District in the lower Nyabarongo (NNYL), lower Akagera (NAKL) and the upper Akagera (NAKU) catchments in Rwanda (RNRA, 2015)⁶



The Nyabarongo catchment has good and deeply weathered soils with high infiltration rates in narrow valleys with steep gradients. However, there is significant erosion which is related to land use in particular agriculture and mining. In the Akagera catchments, the eastern lowlands have relatively fertile soils. The land covers of the catchments are dominated by rainfed agriculture and with significant areas of natural open land and forest plantations in the eastern parts. The western part of the Akagera floodplain is used for irrigated / agricultural wetland and the central and eastern parts are preserved as natural wetland (RNRA, 2015).

Considering the high water-demand for irrigation in the drought-prone sectors of Kayonza District, increasing irrigation schemes may compromise the availability and quality of water resources and sustainability of vital ecosystems. According to the Rwanda National Water Resources Master Plan, the current level of water use in lower Nyabarongo catchment is very low. The upper Akagera catchment (Naku in the figure 1) has a negative seasonal water balance and it is estimated that the catchment will begin to suffer from limited water stress from 2020. The water balance for the lower Akagera catchment shows sufficient resources up till 2030, but will then undergo some limited stress during drier years from 2030 onwards (RNRA, 2015).

In addition, it is important to emphasize that the Kagera River also comprises significant territory in Burundi and Tanzania. These shared catchments require special consideration as part of the design of the KIIWP. Hence, the National Water Resources Master Plan recommends to closely monitor all irrigation developments, select the best suitable land

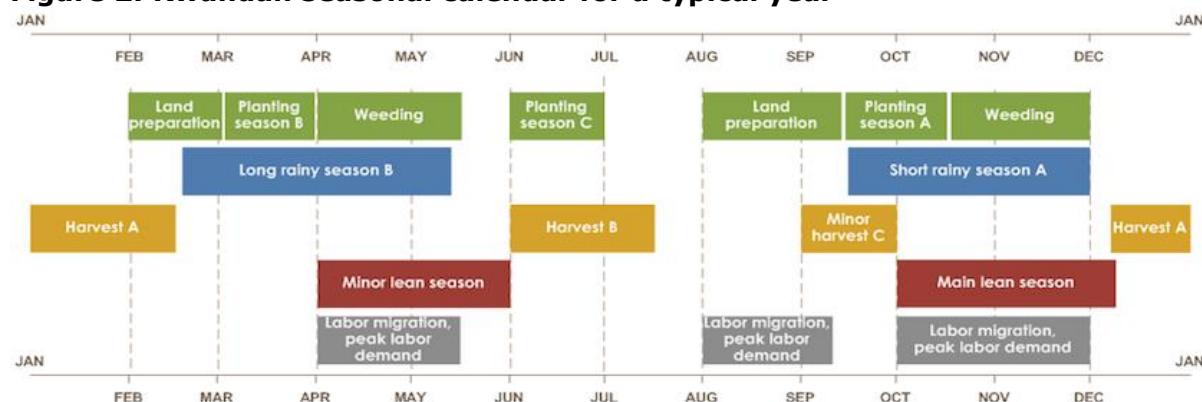
⁶ <https://esri-rw.maps.arcgis.com/apps/opsdashboard/index.html#/a0d68c954ec142cda3554681489b3bc2>.

and promote rational water use in respect of environmental flow, transboundary and international water resources management and downstream commitments.

Climate

Rwanda is ecologically diverse for its size ranging from highland mountain forests in the west to savannah grasslands and low altitude marshes in the east. The climate of Rwanda is dominated by the Inter Tropical Convergence Zone which passes over the country twice a year and is further modified by a widely varying altitude across the country (900 m in south-west, 1,500-2,000 m in the south and the centre of the country, 1,800-3,000 m in the highlands of the north and the west and 3,000-4,507 m in the regions of Congo-Nile Crest and the chain of volcanoes) and by the presence of large adjacent water bodies of the great lakes. Most of the country benefits from two agriculture rainy seasons (February - May; September – December) (see below figure 2 on typical seasonal calendar). The duration of the two rainy seasons is increasingly variable, ranging from seven to nine months, with an annual rainfall amount up to 1,500 mm. Rainfall in the eastern part of the country is below the national average of 1,250 mm per annum. For instance, Kayonza and Kirehe districts receive the lowest annual precipitation in the country, typically between 1,000 mm to 1,200mm (MIDIMAR, 2015).

Figure 2: Rwandan seasonal calendar for a typical year⁷



Environmental and ecosystem degradation in Rwanda is triggered by two main factors: climate disturbances and anthropogenic activities. The former is caused by several factors including the El Niño and La Niña phenomena associated with surface temperatures in the Indian and Atlantic Oceans. A study by the University of Reading⁸ shows that climate variability in Eastern Africa is due to the influence of ocean-atmosphere climate phenomena, namely El Niño Oscillations (ENSO) and the Indian Ocean Dipole (IOD). Warm ENSO events are thought to be responsible for a build-up of warm sea surface temperatures (SSTs) in the Eastern Pacific Ocean which lead to increasing rainfall. These events are specifically observed in the short rains seasons. Furthermore, the recently discovered Indian Ocean Dipole (IOD), in addition to ENSO effects, most probably causes anomalously high rainfall in East Africa (see Marchal et al., 2006; REMA, 2011). For some years (1963, 1972, 1982, 1997), El Niño events are thought to have coincided with positive IOD events leading to high rainfall in East Africa, whereas high rainfall anomalies in East Africa have been documented when positive IOD events occurred independently of ENSO events. However, as East Africa has varied topography (e.g. mountains and rift valleys) its features are not yet adequately represented in climate model projections and deserve further investigation, especially with the modifying influence of the Congo basin.

Because of the growing population and associated pressure on agricultural lands, the grazing areas in Eastern Province are shrinking due to the encroachment for crop

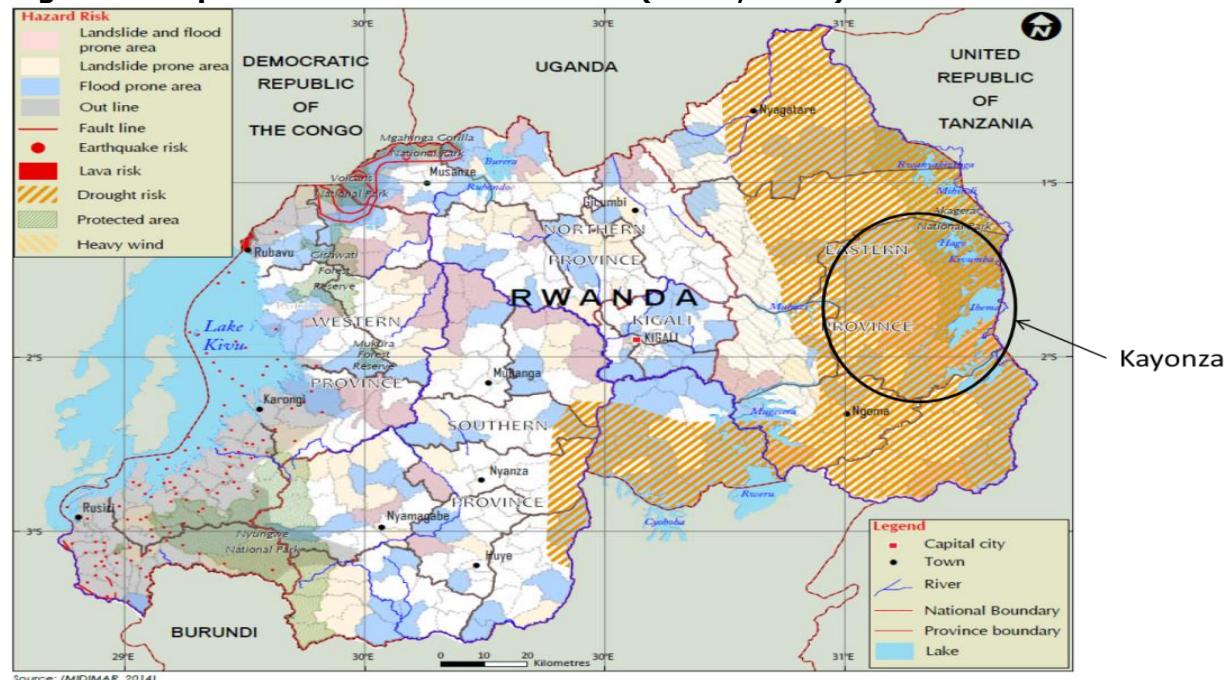
⁷ Source: FEWSNET, May 2018.

⁸ Black, 2005, "The relationship between Indian Ocean sea surface temperature and East African rainfall", Phil. Trans. Roy. Soc., A., N 363, 43-47.

cultivation⁹. Therefore, the livestock sector suffers from lack of feeds due to shortage in pasture land, insufficient and/or non-controlled commercial feeds.

In 2015, the Ministry of Disaster Management and Refugees Affairs (MIDIMAR) published the National Risk Atlas. This report encompasses a comprehensive assessment of existing risks at national and local levels (see figure 3 below). It highlights that over the last decade, the frequency and severity of natural disasters, such as floods and droughts, have significantly increased. The extreme weather events have recently destroyed crops, caused serious environmental degradation and led to food insecurity, malnutrition and famine in affected areas, with water shortages affecting livestock and pasture productions.

Figure 3: Map of hazards risks in Rwanda (REMA, 2015)



The 2015 State of Environment and Outlook reports that the districts of Bugesera, Nyagatare, Gatsibo, Kayonza, Ngoma and Kirehe in the Eastern Province are the most prone to drought. These districts are affected by high frequency of rainfall deficit, late rainfall onsets, early rainfall cessations, and a significant number of dry spells (MIDIMAR, 2015). In addition, given the flat topography with little or no wind breaks, these districts are the most exposed to heavy windstorms.

In 2016, the Eastern Province was affected by a severe drought which led to the death of 2,417 heads of cattle as well as poor crop yields during Season A¹⁰. As a result, more than 47,000 households in the districts of Kayonza, Nyagatare, Gatsibo Ngoma and Kirehe became food insecure. The Government of Rwanda had to provide household food relief and water for livestock to support the affected districts. Rwanda suffered from two consecutive years of droughts. In 2017, erratic and below-average rainfalls were recorded for the rainy season spreading from September to December (SOND).

Potential project's social, environmental, and climate change impacts and risks

Key potential impacts

Kayonza District has a total of agricultural land area of 114,290 ha, of which 56.4% is used for intensive croplands on the hillsides, 2.8% in the marshlands and 41% as

⁹ Eugene M, 2017, Characterization of cattle production systems in Nyagatare district of Eastern Province, Rwanda, *Rheol: open access* 1:107.

¹⁰ According to MINAGRI, 23,488 ha of crops were lost during Season A that stretches from October to December.

rangelands (NISR, 2017). In addition, the main sources of water for irrigation are groundwater (85%), stream water (10%), lake water (2.5%).

In view of the current district agricultural land uses; there is a potential for increasing irrigated land areas as well as productivity. Hence, the project intends to build communities resilience through: (i) better management of water resources; (ii) promotion of climate-smart agriculture (CSA) and animal husbandry (AH) practices and technologies; (iii) efficient use of fertilizer through appropriate fertilizer selection, timing and split application; (iv) promotion of sound land husbandry and soil and water conservation practices (including use of nitrogen fixing trees such as agroforestry, erosion control measures, etc.); (v) enhancing access to improved seeds varieties; (vi) improving crop rotations; and (vii) reforestation of hillsides.

KIIWP's main expected positive impacts are:

- Enhanced food security and incomes and reduced rural poverty in project areas
- Enhanced access to water for human consumption
- Farmers' drought resilience strengthened
- Increased acreage of farmland under water-related infrastructure
- Increased acreage of farmland under climate resilient management and practices

KIIWP's potential negative impacts are:

- Increasing irrigation schemes may compromise the availability and quality of water resources and sustainability of vital ecosystems;
- Increasing irrigation schemes may increase environmental pollution due to release of agro-chemicals into soil, ground water, rivers
- Competition between water users in times of scarcity (especially irrigators and cattle owners);
- Growing competition for land between crop farmers and livestock keepers

Climate change and adaptation

The smallholder agricultural sector of Rwandan is dominated by rainfed production systems that are vulnerable to the vagaries of annual weather patterns and climate change. Hence farming systems are affected by natural disasters loss of harvest or livestock, increased susceptibility to disease, and destruction of irrigation systems and other agricultural infrastructure. Climate variability will influence water availability during plant growth, water for livestock and increase incidence of diseases related to warm weather. In general, livestock is more resistant to climate change than crops because of its mobility and access to feed.

To ensure food security and conservation of the environment, the project will include improved farming methods such as climate-smart agriculture practices and technologies and selection of suitable crop and fodder species that are appropriate to the two agro-ecological zones that typifies Kayonza District, namely the Eastern Plateau and the Eastern Savanna. Project activities will consist of building local adaptive capacities to cope with prolonged dry spells and droughts, promotion of improved agricultural technologies from farm plot to market, crop diversification, soil conservation techniques, efficient use of fertilizers and improvements in soil quality through the promotion of integrated soil fertility management practices. These practices and technologies will be confirmed through participatory and interactive approach for the identification of needs and challenges. In addition, the project will contribute to carbon sequestration through adoption of agroforestry and afforestation initiatives (e.g. village nurseries); improved pasture management practices through the adoption of drought resistant forage and fodder

varieties within the FFS, storage and proper use of manure; improving nutrient management so as to increase productivity and thus volume of crop residues available for soil carbon sequestration, soil fertility and animal feeds.

Environmental and social category (A)

The preliminary environmental and social category is **A** because KIIWP investments focus on irrigation and integrated watershed management and planning, including closely integrated activities and investments on water harvesting and storage, irrigation infrastructure development (area >100 ha) and marshland development. According to IFAD guidelines, all watershed management schemes (both hillsides and marshlands) with a command area exceeding 100 ha will be subjected to an Environmental and Social Impact Assessment (ESIA) before funds are released for the specific investments. The ESIA will be aligned with the national General Guidelines for Environmental Impact Assessment (2006) and the Environmental and Social Management Guidelines for agriculture projects (2016). ESIA certificates are site-specific and valid for the entire project implementation phase. All feasibility studies for irrigation schemes, hydro-geological surveys for boreholes drilling and valley ponds, water permit requests and ESIA procedures will be financed and initiated during KIIWP 1 of project implementation, *which does not include any category A activities*.

The whole project will be coordinated through an Environmental and Social Management Framework (ESMF) to examine the risks and impacts of the proposed activities, including potential environmental and social vulnerabilities. In addition, the watershed management schemes with a command area below 100 ha will be further addressed through the ESMF. The ESMF will specify the environmental and social management requirements (including labour and working conditions, grievance redress system, health and safety) that will be the responsibility of contractors and primary suppliers hired to construct the irrigation infrastructure. Environmental and Climate change Plans will be developed for each site.

Climate risk category (High)

As a result of recent drought events and the vulnerability of the Eastern Province to extreme events, the preliminary climate risk classification is **High**.

Climate change impacts in Rwanda vary depending on agro-ecological zones; while the North and Western provinces are more affected by flood events, Eastern and Southern provinces are more vulnerable to drought events. The impact of floods and droughts associated with El Nino and La Nina events of recent years are thought to have been exacerbated by climate change and the environmental degradation observed throughout the country (NAPA, 2006; IPCC, 2014). Over the last decade, droughts tend to be cyclical and are becoming seasonal events of varying duration and intensity.

The mean annual temperature is expected to increase up to 3.25°C for the East Africa region by the end of the century resulting in proliferation of diseases (e.g. *Banana Xanthomonas*, *cassava brown streak disease*, *fungal and bacterial diseases in Irish potato*), crop decline (especially for maize and beans) and reduced land availability, which in return, affects food security and livestock production. Rainfall variability is more uncertain, though most of the models predict more extreme events with higher rainfall intensities leading to landslides, crop and livestock products losses, health risks and damages to infrastructure.

Recommended features of project design and implementation

Environment and social mitigation measures

The KIIWP project will adopt an integrated watershed management approach that will integrate appropriate crop and livestock production practices such as improved crop and fodder varieties; the promotion of a wide range of cost-effective erosion control measures (tree belts, contour belts, grass strips, contour bunds, planting of fodder grasses on bunds/ridges, use of permanent, perennial vegetation on contours, etc.); and agro-

forestry (intercropping, integration of trees on farm plots, tree belts, protective forests, nitrogen fixing, erosion control measures, etc.).

Particular targeting mechanisms will be employed to ensure effective participation of women, women-headed households and youth through specific capacity building interventions targeted at these groups. In all capacity building activities, Gender Action Learning System (GALS) will be used to improve equal access of men and women to economic opportunities, decision-making processes and share of workload. Women will be specifically targeted to account for at least 50% of the project beneficiaries, and women-headed households and women in male-headed households will be empowered to build small businesses or effectively engage in the economic activities stimulated by the project. Youth will be particularly targeted as service providers through the young graduate programme initiated by MINAGRI to provide technical and managerial assistance to farmers' cooperatives, Irrigation Water Users Organisations and Water for Livestock User Organisations.

The project design includes the promotion of good nutrition practices that will raise awareness among communities of how to improve access to local foods and diversify family diets. Emphasis will be put on children, pregnant and breastfeeding mothers and people with HIV and AIDS who are the most vulnerable to malnutrition.

Climate change mitigation measures

Mitigation measures in agriculture can be categorized in three types of interventions¹¹: (i) reducing the emissions intensity along the agriculture value chains, including avoided land use changes driven by agriculture and extensive use of agro-chemicals; (ii) sequestering additional carbon in agriculture systems; (iii) reducing overall agricultural production (e.g. by reducing food loss and waste) or shifting away from high-carbon intensity agricultural products.

The exact nature and extent of adaptation and mitigation measures to be adopted during design and implementation phases will be determined according to specific site locations and proposed size of irrigation scheme (*i.e. below or above a command area of 100 ha*), water harvesting and small storage technologies (e.g. rainwater and floodwater harvesting, water storage units, etc.). The Ministerial order no 006/03 of 30/01/2017 drawing up a list of swamp lands, their characteristics and boundaries and determining modalities of their use, development and management shall be used to confirm project sites and the scope of KIIWP irrigation scheme development. In this way, the project will also contribute to the national efforts for enhancing environmental protection and conservation.

The project will support mitigation measures in terms of enhancement of agricultural productivity through climate-smart agriculture practices; restoration and management of pasture land; afforestation, reforestation and forest conservation through collaboration with the Ministry of Environment; and promotion of appropriate innovative and climate smart technologies and production systems (e.g. zero energy cooling chambers, metal silos or hermetic bags for storing grains/cereals, drying grounds and improved warehouses, etc.). In small irrigation schemes, solar energy could be used to pump water to avoid the use of expensive and GHG emitting fossil fuels.

Climate information services are proven to be effective options to cope with climate variability and climate change effects. KIIWP will thus encourage the communication and dissemination of meteorological bulletins tailored to climate risks and vulnerabilities specific to selected cash and food crops suitable to Kayonza District. The SPIU agrometeorologist will continue the work initiated within PASP and collect data on quantity of rainfall; length of rainy season as well as dry season; sunrise and sunset times so as to better organize planting, harvest and drying stages of each value chain. The bulletins will

¹¹ Dickie, A., Streck, C., Roe, S., Zurek, M., Haupt, F., Dolginow, A., 2014, "Strategies for Mitigating Climate change in Agriculture: Abridged Report." Climate Focus and California Environmental Associates, prepared with the support of the Climate and land uses Alliances.

be distributed to all relevant project stakeholders at sector, district, cooperative and community levels.

Incentives for good practices

Water use efficiency and management. Water development is hence a challenge for livestock production. Inadequate access to clean water affects livestock productivity, especially during the dry season. Given its dependency on water, the agricultural sector needs to manage its water demand by using more resource efficient techniques such as water storage tanks/ponds at household level, drip irrigation and treadle pumps and cultivating more drought-tolerant and less water demanding crop varieties.

Institutional analysis

Institutional framework

The **National Strategy on Climate Change and Low-Carbon Development (NCCLCD)** for Green Growth and Climate Resilience underlines the need to manage the implications of climate variability for the social, environmental and economic development of the country. Given that Rwanda seasonal agriculture is vulnerable to climate change and population pressure, the strategy recognizes that slight changes in rainfall patterns would have significant impacts on crop and livestock production. Therefore, the Green Growth Plan fosters the development of irrigation infrastructure that give farmers more control of the water resource, facilitate diversification of crops, contribute to efficient land and water usage and ensure water availability in dry areas.

The **Intended Nationally Determined Contributions** are built upon the NCCLCD and advocate for a climate resilient economy. The framework aims at achieving Category 2 energy security and low carbon energy supply that supports the development of green industry and services, sustainable land-use and water resource management, appropriate urban development as well as biodiversity and ecosystem services. The development of irrigation infrastructure and other water efficient technologies will contribute to both sustainable intensification of agriculture and integrated water resources management and planning, which are the pillar for enhancing food security and biodiversity and ecosystem conservation and preservation.

The **National Forest Policy** intends to make the forestry sector one of the bedrocks of economy and national ecological balance for sustainable benefits to all segments of the society. The policy purposes at (i) contributing to sustainable land use through soil, water and biodiversity conservation, and tree planting through the sustainable management of forests and trees; (ii) strengthening the participation of communities and other stakeholders in forest management to conserve water catchment areas, forest biodiversity and ensure sustainability of the forest sector; (iii) promoting farm forestry to produce timber, wood fuel and to supply wood and non-wood forest products; (iv) promoting forest extension to enable farmers and other forest stakeholders to benefit from forest management approaches and technologies. These objectives will be reflected in the project activities.

Given its mandate that focuses solely on agricultural development, the Ministry of Agriculture and Animal Resources (MINAGRI) recommended to liaise with the Ministry of Environment and discuss further on the potential collaboration with regard to the planned reforestation/afforestation activities. Indeed, for the Ministry of Environment has launched a special planting programme in the Eastern province. The region was selected because it is the least afforested in the country and presents high rate of population growth, deforestation and associated land degradation. The programme aims at (i) increasing forest cover in the eastern province, (ii) increasing wood production to meet farmers demand, (iii) sustainable forest and land management and increasing trees on farm for improved soil productivity environment protection.

The programme will be implemented by the district authorities with the support of Rwanda Water and Forest Authority (RWAFA) and local communities. It is envisaged that the special planting programme will include KIIWP project areas and the implementation arrangements will be further confirmed during the project design phase.

In 2015, the Ministry of Disaster management and refugees affairs elaborated the **National Contingency Plan for Drought** that aims at minimizing drought impacts by improving agency coordination; enhancing monitoring and early warning capabilities, water shortage impact assessments and preparations, response, and recovery programs. The crucial objective of the drought response system is to promote early mitigation efforts that reduce the time that elapses between the drought early warning message and the active response at the country level.

The phase 4 of the **Strategic Plan for Agricultural Transformation (PSTA 4)** outlines the priority public investments in agriculture and estimates required public resources for the agricultural sector for the period 2018/2024. As changes in weather and climate patterns are becoming more acute, PSTA 4 seeks to build resilience through on-farm measures and enabling actions to increase productivity. Maintaining and promoting farmers' practice of mixing crop varieties mitigates certain risks, including the spread of pest and diseases as well as ensuring dietary diversity. PSTA 4 emphasises alternative land management to complement terracing with comprehensive climate smart soil and integrated watershed management. PSTA 4 also encourages better weather and climate information and early warning and seeks to ensure all investments are climate smart.

Capacity building

The KIIWP project will focus on building the capacity of the local population in the following realms:

- i. **Land husbandry and water conservation practices** which consist of a holistic and comprehensive approach tailored to local conditions in order to protect natural base resources and enhance the productive capacity of land and soil. The benefits are higher yields and improved vegetative cover, reduced raindrop impact and runoff, improved soil composition and fertility, and enhanced farm livelihoods.
- ii. **Animal husbandry and climate smart livestock practices** will encourage the potential of the livestock sector to mitigate its environmental impacts while increasing energy efficiency and enhancing rural livelihoods. This approach aims at conserving natural resources, raising productivity, increasing animal productivity and optimizing the use of resources.
- iii. **Climate information service** package will include multi-disciplinary workshops on seasonal forecasts in order to assist small scale farmers in understanding weather information, climate risk management along their respective value chains and related agro-advisory services. Consequently, the workshop participants will receive daily weather information considered as generally valuable in helping plan farming operations, particularly when to plant, when to harvest and good drying days.

Additional funding

Given the project focus on building resilience in the drought prone sectors of Kayonza District, MINAGRI has suggested to leverage additional climate financing to further support adaptation and mitigation measures, especially in terms of green growth of the agricultural sector, expansion of multi-purposes water infrastructures, the promotion of low carbon and energy saving solutions and climate-smart technologies (solar panels, climate resilience building, mechanized equipment, etc.).

Monitoring and Evaluation

A participatory M&E system will be developed and poverty and gender studies will monitor effectiveness and relevance of KIIWP targeting mechanism. Logframe and results framework include indicators that reflect the target groups. Data will be sex- and age-disaggregated where appropriate.

The monitoring and evaluation of environmental indicators will be further refined on the basis of the finding of the ESMF to be conducted during project design phase. The ESMF shall include feasible and cost-effective measures to maximise opportunities and prevent or reduce significant negative impacts in accordance with the mitigation hierarchy. The study will estimate the impacts and costs of those measures, and the institutional and training requirements to implement them. The below table provides preliminary guidance on key parameters to assess and monitor during project inception and implementation phases.

Table 2: Preliminary Environmental Management Plan

Parameter	Activity	Performance indicator	Baseline data	Responsibility during project implementation	Monitoring means d) = design (o) = operation	Recommended frequency of monitoring
Agro-chemicals released into soil, ground water, rivers and lakes	Monitor water quality at given sample sites along drainage network, at collection pond, and point of discharge to river	pH, salinity, EC, suspended solids, nitrates, phosphates, POPs, heavy metals concentrations in river water	Baseline sampling Hydro-geological survey done during ESMF	Project Implementation Unit	(d) baseline Sampling (d) hydro-geological survey at project inception (o) test results	d) once to set benchmark (o) 2 samples per year (dry/rainy season)
Herd mismanagement causes damages to vegetation cover and soil structure	Integrated crop/livestock systems; management and recycling of livestock manure as organic nutrients for restoring soil fertility; and (vii) range restoration and enhancement.	artificial barriers; livestock ownership patterns, land/population ratios; animal performances, feeding systems, forage production, quality of carcasses	baseline sampling	Project Implementation Unit	(d) baseline sampling (o)	(d) once to set benchmark (o) MTR and completion
Soil erosion	Monitor erosion	soil erosion control measures such as reforestation, reseeding of grasses, land preparation, terracing, etc.	Baseline sampling	Project Implementation Unit	(o) baseline sampling (o) hydro-geological survey at project inception (o) site visits by project staff	(o) for vulnerable sites, monthly in dry season, weekly during rainy season
	Monitor efficiency of erosion control measures	Monitor quality of soil for nutrient depletion and loss in structure	baseline sampling	Project Implementation Unit	(o) baseline sampling (o) hydro-geological survey at project inception and completion (o) site visits by project staff	(o) for vulnerable sites, monthly in dry season, weekly during rainy season

Further information required to complete screening, if any

As part of the KIIWP design process, IFAD and MINAGRI will hire an independent consultant to develop an Environmental and Social Management Framework (ESMF) to examine the risks and impacts of water abstraction from the lakes, rivers and streams, development of livestock valley dams and irrigation schemes (with a command area below or above 100 ha). The study will analyse any potential environmental and social vulnerabilities of the identified project area. The ESMF report will provide mitigation measures to reduce and/or offset adverse risks and impacts, and estimate the costs of such measures. In addition, in consideration of future potential water imbalance in the Akagera catchment area, it is recommended to carry out hydrogeological survey of the hydrological network in Kayonza District.

Stakeholder consultations

A stakeholder meeting was organised during the first design mission. The audience was composed of representatives of the civil society, farmer's organisations, local authorities, private sector and Rwanda Agricultural Board. Through group discussions, the participants reviewed project objectives, approach and activities. The participants emphasize the need to enhance soil erosion control measures, to increase water access at household level, promote reforestation initiatives, feeder road construction and rehabilitation.

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 6: First Annual Work Plan and Budget (AWPB)

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 6: First Annual Work Plan and Budget (AWPB)

Kayonza Irrigation and Integrated Watershed Management Project (KIIMP)														
18 Month (6-Quarters) Work Plan and Budget														
Component 1: Strengthening resilience to droughts with CSA														
1.2 Irrigation Development														
1.2.1: Feasibility Studies&ESIAs														
Activity No	Activity per component & sub-component	Sub-Activity	Implementing Agency	IFAD Cat	Unit	18 Months Plan Period: Oct 2019-March 2021						Total	Unit Price USD	Total USD
Q1	Q2	Q3	Q4	Q5	Q6									
1	Staff Recruitment		SPIU											
2	Prepare TORs for Feasibility Studies & ESIAs													
3	Procure Service Providers for the feasibility Studies and ESIAs													
4	Undertake feasibility study of Kabare Irrigation Scheme (600ha)		SPIU	S								800	600	480 000
5	Undertake Feasibility Study & Design Kanyeganyege Irrigation Scheme (150ha)		SPIU	S								800	150	120 000
6	Undertake Feasibility Study & Design Gishyanda Irrigation Scheme (125ha)		SPIU	S								800	125	100 000
7	Feasibility studies & Design: Pipeline projects for 5,000ha		SPIU	S								800	5 000	4 000 000
8	Full ESIA for Kabare Irrigation Scheme		SPIU	S								150 000	1	150 000
9	Full ESIA for Kanyeganyege Irrigation Scheme		SPIU	S								150 000	1	150 000
	Full ESIA for Gishyanda Irrigation Scheme		SPIU	S								150 000	1	150 000
	Full ESIAs: Pipeline projects		SPIU	S								1 500 000	1	1 500 000
sub-total 1.2.1 Phase 1													6 650 000	



Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 7: Procurement Plan for first 18 months

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 7: Procurement Plan for first 18 months

KIWP 18 MONTH (OCT 2019-MARCH 2021) PROCUREMENT PLAN																								
	Description	Component Ref	Plan vs Actual	Total Cost in US\$	Procurement Method	Receive approved TOR	REOI Issue	Receive EOIs	Evaluate EOIs	Approval	RFP Prep	Approval	RFP Issue	Receive Proposals	Eval start	Eval End	Submit TechEval Report	Approval	Open FinPros	Evaluate FinPros	Submit Combined Report	Approval	Negotiations	Contract Signature
1	Procure Service provider to take the lead in implementation of the land husbandry activities.	Planned	500 000	National Competitive Bidding/QCBS	02/10/2020	03/08/2020	04/09/2020	16/04/2020	19/4/2020	30/04/2020	30/04/2020	05/02/2020	30/5/2020	06/02/2020	06/11/2020	06/11/2020	25/6/2020	28/6/2020	28/6/2020	29/6/2020	15/7/2020	29/7/2020		
		Actual date																						
2	Procure service provider, for farm level rainwater harvesting technologies.	Planned	3 000	National Competitive Bidding/QCBS	02/10/2020	03/08/2020	04/09/2020	16/04/2020	19/4/2020	30/04/2020	30/04/2020	05/02/2020	30/5/2020	06/12/2020	21/6/2020	21/6/2020	07/05/2020	07/08/2020	07/08/2020	07/09/2020	25/7/2020	08/08/2020		
		Actual date				02/10/2020	03/08/2020	04/09/2020	16/04/2020	19/4/2020	30/04/2020	30/04/2020	05/02/2020	30/5/2020	06/02/2020	06/11/2020	06/11/2020	25/6/2020	28/6/2020	28/6/2020	29/6/2020	15/7/2020	29/7/2020	
3	Undertake Feasibility Study & Design Kaneganye Irrigation Scheme (150ha)	Planned	120 000	National Competitive Bidding/QCBS	20/6/2019	07/08/2019	08/09/2019	16/8/2019	19/8/2019	30/8/2019	30/8/2019	09/02/2019	30/9/2019	10/02/2019	10/11/2019	10/11/2019	10/11/2019	25/10/2019	28/10/2019	28/10/2019	29/10/2019	13/11/2019	22/11/2019	
		Actual date				02/10/2020	03/08/2020	04/09/2020	16/04/2020	19/4/2020	30/04/2020	30/04/2020	05/02/2020	30/5/2020	06/02/2020	06/11/2020	06/11/2020	25/6/2020	28/6/2020	28/6/2020	29/6/2020	15/7/2020	29/7/2020	
4	Undertake Feasibility Study & Design Gishyanda Irrigation Scheme (125ha)	Planned	100 000	National Competitive Bidding/QCBS	01/07/2020	20/01/2020	21/02/2020	28/02/2020	28/02/2020	03/10/2020	03/10/2020	03/10/2020	04/10/2020	13/04/2020	17/04/2020	17/04/2020	20/04/2020	05/01/2020	05/08/2020	05/08/2020	05/08/2020	18/05/2020	22/05/2020	
		Actual date																						
5	Supervision of 20 Bore holes works	Planned	10 000	National Competitive Bidding/QCBS	01/07/2020	20/01/2020	21/02/2020	28/02/2020	28/02/2020	03/10/2020	03/10/2020	03/10/2020	04/10/2020	13/04/2020	17/04/2020	17/04/2020	20/04/2020	05/01/2020	05/08/2020	05/08/2020	05/08/2020	18/05/2020	22/05/2020	
		Actual date																						
6	Supervision of Valley Tanks works	Planned	50 000	National Competitive Bidding/QCBS	17/1/2020	30/01/2020	30/02/2020	03/08/2020	03/08/2020	20/3/2020	20/3/2020	20/3/2020	20/4/2020	23/04/2020	27/04/2020	30/04/2020	30/04/2020	05/11/2020	18/5/2020	18/5/2020	18/5/2020	28/05/2020	06/02/2020	
		Actual date																						
7	Undertake feasibility study of Kabare Irrigation Scheme (600ha)	Planned	480 000	International Competitive Bidding/QCBS	20/1/2020	03/05/2020	30/02/2020	20/3/2020	23/3/2020	04/03/2020	04/03/2020	04/06/2020	04/08/2020	04/12/2020	22/04/2020	22/04/2020	29/04/2020	20/5/2020	27/5/2020	27/5/2020	06/01/2020	06/08/2020	28/6/2020	
		Actual date				20/1/2020	03/05/2020	30/02/2020	20/3/2020	23/3/2020	04/03/2020	04/03/2020	04/06/2020	04/08/2020	04/12/2020	22/04/2020	22/04/2020	29/04/2020	20/5/2020	27/5/2020	27/5/2020	06/01/2020	06/08/2020	28/6/2020
8	Full ESIA for Kabare Irrigation Scheme	Planned	150 000	National Competitive Bidding/QCBS	20/1/2020	02/05/2020	30/02/2020	20/3/2020	23/3/2020	04/03/2020	04/03/2020	04/06/2020	04/08/2020	04/12/2020	22/04/2020	22/04/2020	29/04/2020	20/5/2020	27/5/2020	27/5/2020	06/01/2020	06/08/2020	28/6/2020	
		Actual date																						
9	Feasibility Studies and Detailed design for pipeline project 5,000ha	Planned	4 000 000	International Competitive Bidding/QCBS	20/1/2020	03/05/2020	30/02/2020	20/3/2020	23/3/2020	04/03/2020	04/03/2020	04/06/2020	04/08/2020	04/12/2020	22/04/2020	22/04/2020	29/04/2020	20/5/2020	27/5/2020	27/5/2020	06/01/2020	06/08/2020	28/6/2020	
		Actual date																						
10	Environmental Social Impact Assessment (ESIA) for pipeline projects 5,000ha	Planned	1 500 000	International Competitive Bidding/QCBS	20/1/2020	03/05/2020	30/02/2020	20/3/2020	23/3/2020	04/03/2020	04/03/2020	04/06/2020	04/08/2020	04/12/2020	22/04/2020	22/04/2020	29/04/2020	20/5/2020	27/5/2020	27/5/2020	06/01/2020	06/08/2020	28/6/2020	
		Actual date																						
	Full ESIA for Kaneganye Irrigation Scheme	Planned	150 000	National Competitive Bidding/QCBS	20/1/2020	02/05/2020	30/02/2020	20/3/2020	23/3/2020	04/03/2020	04/03/2020	04/06/2020	04/08/2020	04/12/2020	22/04/2020	22/04/2020	29/04/2020	20/5/2020	27/5/2020	27/5/2020	06/01/2020	06/08/2020	28/6/2020	
		Actual date																						
	Full ESIA for Gishyanda Irrigation Scheme	Planned	150 000	National Competitive Bidding/QCBS	01/07/2020	20/01/2020	21/02/2020	28/02/2020	28/02/2020	03/10/2020	03/10/2020	03/10/2020	04/10/2020	13/04/2020	17/04/2020	17/04/2020	20/04/2020	05/01/2020	05/08/2020	05/08/2020	05/08/2020	18/05/2020	22/05/2020	
		Actual date																						
	Full ESIA: Pipeline projects	Planned	1 500 000	International Competitive Bidding/QCBS	20/1/2020	03/05/2020	30/02/2020	20/3/2020	23/3/2020	04/03/2020	04/03/2020	04/06/2020	04/08/2020	04/12/2020	22/04/2020	22/04/2020	29/04/2020	20/5/2020	27/5/2020	27/5/2020	06/01/2020	06/08/2020	28/6/2020	
		Actual date																						
	Recruitment of service provider for sub catchment mapping	Planned	50 000	National Competitive Bidding/QCBS	01/07/2020	20/01/2020	21/02/2020	28/02/2020	28/02/2020	03/10/2020	03/10/2020	03/10/2020	04/10/2020	13/04/2020	17/04/2020	17/04/2020	20/04/2020	05/01/2020	05/08/2020	05/08/2020	05/08/2020	18/05/2020	22/05/2020	
		Actual date																						
	TOTAL SERVICES		8 763 000																					

Legend:

N.A.: Not Applicable

QCBS: Quality Cost Based

Procurement Plan

Project: Kayonza Irrigation and Integrated Watershed Management Project (KIIIMP)

Version:

Column1	Planned	Actual
Goods	50 000	
Works	2 650 000	
Services	8 763 000	
Totals	11 463 000	

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 8: Project Implementation Manual (PIM)

Mission Dates: 23 April-04 May 2018
Document Date: 31/03/2020
Project No. 2000002229
Report No. 5007-RW
Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project 1 (KIIWP 1)
Project Implementation Manual (DRAFT)

**Kayonza Irrigation and Integrated Watershed Management Project – Phase 1
(KIIWP 1)**

Project Implementation Manual (DRAFT)

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1 Introduction

1.1 Overview

1. This draft Project Implementation Manual (PIM) provides guidelines for the implementation of the KIIWP 1. The PIM elaborates the procedures and processes that are to be followed in the implementation of activities in KIIWP 1. The PIM is an annex of the Project Design Report (PDR) and thus processes and procedures presented in this document are to be read in conjunction with the relevant sections of the main PDR.
2. The process presented here are a framework that is meant to assist the KIIWP implementation staff including those from RAB and the District in thinking through the processes for the different sub-components. It is proposed that at startup, the recruited staff be facilitated to review the activities and processes presented herein. The review would update, refine and firm up the as activities and processes necessary. The value in undertaking such a review would be that through the process, the implementing staff would "own" the PIM. Such ownership would ensure that the staff would follow the PIM during the implementation of activities.

1.2 The Components of the KIIWP (Phases 1)

3. The Project comprises of the following components and Sub-components:
 - **Component A: Strengthening Resilience to Drought**
 - Sub-component A.1: Catchment Rehabilitation and Protection.
 - Sub-component A.2: Irrigation Development.
 - Sub-component A.3: Infrastructure management institutions.
 - Sub-component A.4: Enhancing climate smart agriculture practices and technologies.
 - Sub-component A.5: Environmental Management Plans.
 - **Component B: Institutional development and project coordination**
 - Sub-component B.1: Policy and institutional development.
 - Sub-component B.2: Project coordination.

1.3 KIIWP Phasing

4. While entire project is as indicated above, it will be implemented in two phases: a 2.5-year preparatory phase (KIIWP 1); and, the main 3.5-year investment phase (KIIWP 2). KIIWP 1 will cover the much needed catchment rehabilitation and protection in rainfed areas. It will put in place key and urgent environmental, physical and institutional measures and conduct feasibility studies and impact assessments in readiness for irrigation and farm business development foreseen in KIIWP 2.
5. Since the actual interventions that will be implemented in KIIWP2 will be established after the feasibility studies and impact assessments, this PIM presents the procedures and processes to be followed in KIIWP 1 only. After the establishment of the actual investments for KIIWP 2, the PIM will be updated to include the procedures and processes for these investments.
6. The interventions to be implemented in KIIWP 1 will be in components A and B as follows:
 - Under component A, full implementation will be in sub-component A.1: Catchment Rehabilitation and Protection and sub-component 1.3: Infrastructure management institutions and implementation of ESMPs.

- Only a few preparatory activities are to be implemented in sub-component A.2: Irrigation Development. These include the feasibility studies and impact assessments studies that will inform the selection of the final irrigation schemes that will be implemented in KIIWP 2.

1.4 Targeting strategy

7. **Target group.** Based on the national wealth ranking system (Ubudehe), and consistent with the targeting strategy laid out in the RB-COSOP, the direct target group of KIIWP 1 is 7,167 poor and food insecure rural households, equivalent to about 32,250 people who are in the Ubudehe categories 1, 2 and 3.

8. **Targeting mechanisms:**

- a) Geographical targeting. The project will focus on the 8 drought-prone sectors of Kayonza district. The selection of specific sites will be based on the level of degradation, topography and water availability and viability of the site for development.
- b) Self-targeting. The goods and services provided by the project will respond to the priorities, financial/labour capacities and livelihood strategies of the target groups.
- c) Direct targeting. The poorest households, young farm workers and women (from category 1) will be targeted directly by the project, involving the *Umudugudu* committee at village level to ensure transparent and participative methods of household selection, for example for labour for construction activities. Women and youth will be specifically targeted to account for at least 50% and 30% of beneficiaries, respectively. Women-headed households are also expected to represent 30% of households reached. Youth will be targeted as both beneficiaries and service providers. It is also expected that the management committees will comprise 40% women and 25% youth.
- d) Empowering measures. The training of management committees will increase awareness of gender issues in infrastructure management, as well as the role of youth. Young professional organisations, such as the Rwanda Youth in Agribusiness Forum (RYAF), and the Horticulture in Reality Cooperative (HoReCo) have emerged in Rwanda, mainly composed of young graduates in Agriculture, Animal Production, Irrigation, Food Dairy technologies and Agricultural Mechanisation. Most of them have been trained in Israel for 1 year after completing their university courses in Rwanda. RYAF and HoReCo have recently signed MoUs with MINAGRI to encourage the involvement of young professionals in implementing projects that support agricultural transformation. These youth will be particularly targeted as service providers to provide technical and managerial assistance to management committees.
- e) Procedural measures. Attention will be given to costs/beneficiary contributions, timing and administrative procedures required for effective participation of the various target groups. To ensure the participation of women, attention to the location and timing of various project activities may increase their opportunity to participate.
- f) Operational measures and monitoring. A Gender, Targeting and Community Mobilisation Officer has been appointed in the MINAGRI Single Project Implementation Unit (SPIU) to coordinate and oversee the implementation of the targeting and gender strategies. In addition, KIIWP 1 project staff will include an M&E Officer that is also in charge of gender and youth. Additional operational measures are explained under component 3.

Gender strategy

9. The Agriculture Gender Strategy prepared by MINAGRI in 2010 sets clear steps to ensure that the programmes and activities targeting the agricultural sector set a

strong foundation for equal rights and equal opportunities for both women and men in rural development. The Kayonza District gender strategy also aims to "enhance equity and equality (men and women participation) in all value chains of agricultural activities: including farming, harvesting and processing, marketing and income utilisation". In response, the KIIWP 1 gender strategy aims to promote gender equality and women's empowerment through various mainstreaming measures (mentioned above, under targeting) and by pursuing the following objectives:

- Expand women's economic empowerment through access to and control over water for livestock purposes and rehabilitated rainfed farmland.
- Strengthen women's decision-making role in the community and their representation in membership and leadership of sub-catchment management committees, water for livestock user organizations and scheme and district steering committees.
- Achieve a reduced workload and an improved equitable workload balance between women and men, girls and boys by improving women's access to domestic water supply.

2 Component A: Strengthening resilience to droughts

10. This component comprises of the first interventions to be implemented aimed at improving the resilience of smallholder farmers to droughts and effects of climate change through increased levels of production and productivity. The interventions include catchment rehabilitation and development of infrastructure that will improve water supply for livestock and domestic consumption. Because of the nature of activities to be implemented, the activities under this component will be implemented in a participatory manner.

2.1 Sub-component A.1: Catchment Rehabilitation & Protection

11. This sub-component will support the implementation of participatory and comprehensive land husbandry practices in a sub-catchment setting. It will support investments in infrastructure to rehabilitate and protect the degraded farmlands as well as considerably reduce the runoff from the catchments. The sub-component will also support water for livestock and domestic water purposes. The interventions in catchment protection and rehabilitation will be selected with a view to reducing the volume and velocity of runoff and allow for rainwater to infiltrate in the soil. This will be combined with land husbandry practices geared towards increasing vegetative cover in the farms which will increase the soil fertility and further reduce the erosive force of rainfall.
12. The sub-component is designed to improve hillside agricultural management to protect against soil erosion and to enhance sustained crop productivity and ecosystem conservation. Activities to be implemented include soil conservation measures and development of infrastructure appropriate to differing slope categories (e.g. bunding, progressive and radical terracing, depending on the slope category). Further, given the acidity and exhaustion of Rwandan soils, additional activities such as liming, green manuring and composting may be necessary. Other activities in this sub-component include the construction of farm level rainwater harvesting technologies. The activities described will benefit both female and male-headed farming households in the target area. Beneficiaries, led by the sub-catchment committees, will participate in the selection of appropriate practices and technologies as well as the actual implementation of activities.
13. Implementation of activities in this subcomponent will be driven by the following key staff who the SPIU will hire at the start of implementation: Land Husbandry Specialist (LHS); District Watershed management field officers (DWMO); Land husbandry supervising engineers when required and the Irrigation Engineer (IE) for rainwater harvesting. The SPIU will contract the following service providers (SP) to support implementation of activities under this subcomponent:
 - (a) A service provider to take the lead in implementation of the land husbandry activities.
 - (b) A service provider, with proven experience in farm level rainwater harvesting technologies.
14. The SPs under the supervision of the SPIU staff will lead the process of implementation of the activities as follows:

No.	Activity	Responsibility
(a) Land Husbandry		
1	Preparation of land husbandry guidelines that will be applicable for each of the agro climatic zones	LHS
2	Mobilization of the local authorities, opinion leaders, farmers, through contacts and awareness meetings	SP/LHS/ DWMO

No.	Activity	Responsibility
3	Refresher course for the land husbandry field technicians and local leaders of on land husbandry technologies and their implementation	SP
4	Carry out an assessment and prioritize the areas that will require to be rehabilitated	SP/LHS/Farmers
5	Production a detailed and farmer-friendly manual on trees/shrub, grass/legume and fruit trees management as well as a selection of crops suitable for the zone including the crop husbandry.	DWMO
6	Training the communities on land husbandry technologies implementation, management and maintenance	SP/DWMO
7	Provision of lime and organic manure	SP
8	Establishing tree/shrub, grass/legume seed multiplication and fruits nurseries with seed and equipment stores as recommended at least one per project site	SP
9	Establishing nurseries for other agro forestry trees	Community Approach
10	Operation and maintenance of land husbandry infrastructure	community
11	Continuous monitoring of operation, maintenance and sustainability of land husbandry infrastructures	Sub-catchment Committees
(b) Farm Level Rainwater Harvesting		
1	Mobilization of the local authorities, opinion leaders, farmers, through contacts and awareness meetings	SP/LHS/ DWMO
2	Develop criteria of farmers to be supported with farm ponds	LHS/IE/District agriculture officer,(DAO)
3	Identification of the farmers that will be supported to implement the farm ponds in target sectors and local artisans to be trained in the technology	LHS/IE/DAO/Farmers,
4	Design of rainwater harvesting systems	SP
5	Training artisans on the rainwater harvesting technology including: <ul style="list-style-type: none"> • construction of the ponds • the rainwater harvesting system (from the farm runoff as well as from roofs in the homestead including gutter installation); • connection to farm ponds; • the system for pumping water from the pond to the elevated storage tank; • Gravity-fed system to the drip system on the farm; and, • protection of the pond (fencing and shade net roofing) 	SP
6	Providing the materials for pond construction (dam liner, roofing metallic structure, roofing net, shading, drip kit, pump and tanks	SP
6a	Preparation of ESMPs	
7	Construction of farm ponds in the various farms	SP/Artisans/Farmers
8	Supervision of the construction works	Irrigation Engineer
9	Operations and maintenance	Farmers

No.	Activity	Responsibility
10	Continuous monitoring of operation, maintenance and sustainability of ponds and irrigation systems	Sub-catchment Committees

15. As observed in paragraph 9 above, the different slope categories require different land husbandry measures for effective catchment protection. The different measures are as follows:

Land-husbandry Measures For The Different Slopes

No	Slope Category	Land-husbandry Measures
1	Nearly level to strongly undulating (Slope 0-6%)	Grass strips/trash lines (~1km /ha)
		Agro-forestry interventions
		Intercropping with plant cover and green manuring
		Applying manure/compost at the rate of 10tons/ha
		Mulching
2	Gently rolling to strongly rolling (slope 6- 16%)	Grass strips/trash lines (~1km /ha)
		Construction of soil bunds (1km/ha) (level or graded as per agro climatic zone)
		Planting trees/shrubs along the lower side supporting the bunds
		Intercropping and green manuring
		Applying manure /compost at 10 tons/ha and mulching
3	Hilly to steep (slope 16 - 40%)	Constructing Bench (radical) terraces (1.86km/ha)
		Planting trees/shrubs along the lower side supporting the radical terraces
		Intercropping and green manuring
		Liming with agricultural lime at 3 tons/ha
		Applying manure /compost at 10 tons/ha and mulching
4	Very steep (slope 40 - 60%)	Constructing progressive terraces (~5 km/ha)
		Intercropping and green manuring
5	Extremely step (slope >60%)	Constructing micro-basins with tree planting at 1000/ha
		Planting tree seedlings at 1000/ha

Implementation arrangements

16. Implementation of arrangements for catchment protection activities would be as follows:
- **At SPIU level:** a land husbandry expert to be recruited for the overall coordination of land husbandry activities. He /She will also be in charge of ToRs, preparation of Land husbandry guidelines, land husbandry contracts

management, preparation of annual work plans and budget as well as different documents as required in land husbandry.

- **At district level:** land husbandry field officers per site to be recruited by SPIU/RAB for supervision of land husbandry technologies implementation activities to ensure better quality of the works.
- **A catchment level (hill sides):** Sub catchment committees to be established to participate in development of sub-catchment plans, including where land husbandry activities will be carried out as well as oversee the implementation of the activities.
- **At command area level:** WUOs who actively participate in operation and maintenance of infrastructures for livestock and domestic water supply purposes.

Land husbandry indicators

Indicator 1	Area protected against soil erosion in hectares
Indicator 2	Increase in number of water harvesting farm ponds in use
Indicator 3	Area developed for Irrigation in hectares
Indicator 4	Increase in the area covered by fruits trees
Indicator 5	Increased productivity in irrigated area and rain fed area
Indicator 6	Increase in number of water harvesting farm ponds in use
Indicator 7	Area developed for Irrigation in ha
Indicator 8	Increased productivity in irrigated area and rain fed area

2.2 Water for Livestock and Domestic Purposes

17. The supply of water for livestock and domestic purposes will be improved through the development of valley tanks and drilling and equipping boreholes. The selection of where to invest in livestock watering facilities will be informed by the need to evenly spread the grazing areas across the sectors to minimize overgrazing. Selection of where the watering facilities will be constructed it to be done through participatory assessments in the sub-catchments. The selection of these sites will be part of the development of sub-catchment plans that will be produced under sub-component A.3.
18. Drilling of boreholes and construction of valley tanks are technical activities for which the SPIU will hire services providers as follows:
 - (a) A drilling contractor with capacity to undertake hydro-geological investigations and experience in drilling and equipping of the boreholes;
 - (b) A consultancy firm with experience in design and supervision of construction of valley tanks; and
 - (c) A contractor with experience in valley tanks construction.

Drilling and Equipping of Boreholes

19. Development of a borehole based water supply system entails a number of steps and processes. For each of the sites that will have been selected as per paragraph 14 above, a hydro-geological study will first be carried out. This study is meant to establish the possibility of striking ground water at that particular site as well as establishing an estimate of the water the borehole is likely to produce. This study is carried out by a qualified hydro-geological professional. It on the basis of the results of this study that an estimate for the costs of drilling can be established.
20. The next step is the actual drilling of the borehole which is undertaken by the contractor with the appropriate drilling equipment, primarily a rotary drilling rig with the necessary equipments. When the hole is drilled to the recommended depth and water is struck, then the casings will be installed still with the rig, gravel pack installed, the hole developed/cleaned and protected. The drilling equipments are then demobilized and on a later date a test-pumping unit is mobilized to establish the yield of the borehole. The borehole yield that will be established with the pump testing is what will determine the size of the pump in combination with the height at which the storage tanks will be mounted.
21. The next step will be the equipping of the borehole. In KIIWP1, the boreholes will be equipped with solar pumping units delivering water to elevated plastic storage tanks. The size of the pumping units and the storage capacity will be determined as observed above by the yield of each of the boreholes. The final key activity will be the construction of the cattle troughs and domestic water point and installation of the water delivery system.
22. The activities will be implemented as follows:

A) Consultancy Services for carrying out hydro-geological surveys and supervision of drilling works

Summary of Activities for hydro-geological Investigations and drilling supervision

No	Activity	Responsible
1	Prepare the Terms of Reference for the consultancy to carry out hydro-geological investigations and supervise drilling works	SPIU
2	Carryout the tender process, up to award of the contract, to carry out hydro-geological investigations and supervise drilling works	SPIU
3	Carry out the out hydro-geological investigations for the 20 sites	SP
3a	Prepare ESMPs	
4	Prepare tender documents for the drilling and equipping of 20 boreholes	SP
5	Supervise the drilling and equipping of the boreholes	SP

B) Drilling and Equipping of boreholes

Summary of Activities for Drilling and Equipping of Boreholes

No	Activity	Responsible
1	Carryout the tender process up to award of the contract to drill and equip the 20 boreholes	SPIU
2	Undertake the drilling of services for 20 boreholes development by implementing the activities as follows:	Contractor

No	Activity	Responsible
	Drilling works	
	Pumping test all the boreholes to establish the yields	
	Install submersible solar powered pumps	
	Construct livestock watering troughs & domestic water points	
	Install Water tanks and associated plumbing systems.	
	Train LWUO in the technical aspects of O&M of the infrastructure	
	Implement ESMPs	
3	Supervise on daily basis the all works related to Hydro-geological survey, pumping testing, drilling works & equipping of the boreholes	SP
4	Oversight of the drilling and equipping of boreholes	SPIU/District

C) Consultancy Services for Design and Supervision of Construction of the Valley Tanks

23. As in the development of borehole based systems, the valley tank water supply system also entails a number of steps and processes. For each of the sites that will have been selected as per paragraph 14 above, a site survey will first be carried out. This study is meant to establish, among others, the suitability of the soils for water storage and the possibility of capturing sufficient rainwater runoff at that particular site. This study is carried out by qualified soils and hydrological professionals as well as a land surveyor. Once the parameters are found suitable, the design of the valley tank can proceed.
24. The activities for design and supervision of the valley tanks will be as follows:

Consultancy Services for Design and Supervision of Construction of the Valley Tanks

No	Activity	Responsible
1	Prepare the Terms of Reference for the consultancy to design and supervise construction of 15 valley tanks	SPIU
2	Carryout the tender process, up to award of the contract, to design the valley tanks and prepare the bills of quantities	SPIU
3	Carry out the design including bills of quantity for construction of 15 valley tanks	Consultant
4	Carryout the tender process up to award of the contract to construction of the 15 valley tanks	SPIU
	Prepare ESIAs/ESMPs for site	
	Preparation of the Bills of quantities	
5	Supervise construction of valley bottom tanks	

D) Construction and Equipping of Valley Tanks

25. The construction of the valley tanks follows the design by the consultants. The construction basically entails the excavation of the storage and the construction of the embankment, and importantly, the spillway. The size of the storage will vary depending of the site conditions but on average the tanks under KIIWP1 are expected to be about 40,000 cubic meters on average. When the works are completed the equipping will entail the water abstraction from the valley tank with solar pumping system delivering the water to elevated plastic tanks. For the valley tanks the size of the pumping units and the storage capacity are expected to be the same. The

final key activity will be the construction of the cattle troughs and domestic water point and installation of the water delivery system.

26. The activities will be implemented as follows:

Summary of Activities in the Construction and Equipping of Valley Tanks

No	Activity	Responsible
1	Carryout the tender process up to award of the contract to construct and equip 15 Valley Tanks	SPIU
2	Undertaking the construction services for construct and equip 15 Valley Tanks development by implementing the activities as follows: Implement ESMPs as necessary Preliminary works (site installation and bush clearing) a. Excavation and compaction works b. Construction of Spillway. c. Supply and installation of submersible solar powered pump d. Supply and installation of storage tanks e. Construction of watering troughs and plumbing system f. Construction of fence g. Construction of security guard house and sanitation facilities h. Buffer zone around the valley tank i. Train LWUO in the technical aspects of O&M of the infrastructure	Contractor
3	Onsite supervision of all valley tank works	Consultant

2.3 Sub-component 1.2: Irrigation Development

27. This sub-component is meant to strengthen the support of small-scale farmers with water for irrigation. The proposed irrigation infrastructure is made of two categories: (i) irrigation in marshlands and neighbouring hillsides which will require damming to harvest enough water for off-season supplementary irrigation; ii) large pumped irrigation systems abstracting from either the various lakes in the district or directly from the Akagera River.
28. The proposal is that the KIIWP will support the implementation of the following irrigation schemes, if they are found to be viable after feasibility studies:
- Ndego - Kibare Irrigation Scheme (400ha).
 - Ndego - Humure Irrigation Scheme (600ha).
 - Ndego - Byimana Irrigation Scheme (400ha).
 - Kabare irrigation infrastructure (600ha).
 - Kanyeganyege Dam and irrigation infrastructure (150ha).
 - Gishyanda Dam and irrigation infrastructure (125ha).
29. It is only after each of these schemes has to undergone a feasibility study and ESIAs, and be found to be acceptable that they will be taken to the next stage which is the engineering design. The Government of Rwanda has provided funding to carry out the feasibility studies and designs for the first three schemes: Ndego – Kibare, Ndego - Humure and Ndego – Byimana. The activities proposed here are for the feasibility studies, ESIAs and design for the other 3 schemes (Kabare, Kanyeganyege, and Gishyanda) as well as a pipeline of bankable projects to irrigate another 5,000 hectares.

30. The activities for these studies will be as follows:

Carrying Out the Feasibility Studies

No	Activity	Responsible
1	Prepare the tender documents for carrying out the feasibility studies for Kabare, Kanyeganyege, and Gishyanda schemes and for the pipeline projects	SPIU
2	Carryout the tender process up to award for carrying out the feasibility studies	SPIU
3	Carry out the feasibility Studies for the 3 schemes and the pipeline projects including: a. Land-Husbandry b. Topographic Survey c. Hydrological Analysis d. Water-harvesting (Dam), Diversion Weir, Intake for Pumped Systems. e. Marshland and Hillside-irrigation infrastructures f. Socio-economic analysis g. Economic and Financial Analysis	Consultant
4	Review of feasibility studies	Technical Panel/Consultants/IFAD
5	Supervise the consultancy as necessary	SPIU/District
6	Selection of viable schemes for development under Phase 2	SPIU/RAB

31. The schemes that will be found feasible will undergo the full ESIA process. The process will be as follows:

Carrying out the ESIA Studies

No	Activity	Responsible
1	Prepare the tender documents for carrying out the ESIA studies for Kabare, Kanyeganyege, and Gishyanda schemes and for the pipeline projects	SPIU
2	undertake the tender process up to award for carrying out the ESIA studies	SPIU
3	Carry out the ESIA Studies for the 3 schemes and the pipeline projects including: 1. Contribute to the environmental and social design for the schemes; 2. Prepare a Project Brief for submission to the Rwanda Development Board (RDB) 3. Prepare a Scoping Report for submission to the RDB 4. Establish a baseline for biophysical, climatic conditions and socio-economic data 5. Prepare a Stakeholder Engagement Plan which can be used during the ESIA process as well as during the construction and operation phases of the schemes 6. Establish the need for physical and/or economic displacement resulting from scheme activities and proposed infrastructure, and if necessary, develop Terms of Reference and cost estimates for a Resettlement Action Plan (RAP);	Consultant

No	Activity	Responsible
	7. Develop a comprehensive Environmental and Social Management and Monitoring Plan (ESMMP), which will include cost estimates for mitigation and monitoring	
	8. Prepare an Environmental and Social Impact Assessment Report	
4	Supervise the consultancy as necessary	SPIU/District
5	Public disclose of ESIA reports, locally, nationally and on IFAD website (min. 120days)	IFAD
6	Receive comments from the public and revise ESIA	SPIU
7	Selection of irrigation schemes to be developed under Phase 2	SPIU/RAB

32. For the schemes that meet the viability criteria (technical, environmental, social and economic) the SPIU will engage a consultancy firm to carry out the detailed engineering design as follows:

Detailed Engineering Designs and Bills of Quantities

No	Activity	Responsible
1	Prepare the tender documents for carrying out the detailed engineering designs for 2275ha irrigation schemes that are found to be viable.	SPIU
2	Carryout the tender process up to award for carrying out the detailed engineering designs	SPIU
3	Carry out the detailed engineering designs for the schemes and the pipeline projects including: <ul style="list-style-type: none"> a) For the pumping Kabare scheme and any of the pipeline schemes that will require pumping, carry out the designs and BOQs for the irrigation infrastructure including: <ul style="list-style-type: none"> • intake structures; • pumping station(s); • main conveyance system; • secondary canals; • on farm application structures; • all necessary appurtenances; and • access road works. b) For the Kanyeganyege, and Gishyanda and any of the pipeline schemes that will require daming and gravity flow, carry out the designs and BOQs for the irrigation infrastructure including: <ul style="list-style-type: none"> i. Dam works: <ul style="list-style-type: none"> • Embankment; • Spillway; • intake chamber; and, • Upstream and downstream protection. ii. Irrigation infrastructure: <ul style="list-style-type: none"> • main conveyance system, • secondary canals, • on farm application structures, • all necessary appurtenances; and, • access road works 	Consultant
4	Revise the ESIA and ESMPs as necessary	SP
5	Prepare bidding documents for the irrigation schemes	SP
6	Supervise the consultancy work as necessary	SPIU/District

No	Activity	Responsible
7	External review of detailed engineering designs	Technical Panel/Consultants/IFAD

33. On completion of the detailed engineering designs, the SPIU will prepare the tender documents and process the engaging of the contractors to undertake the construction of the schemes whose studies and meet the selection criteria.

2.4 Sub-Component 1.3: Infrastructure Management Institutions

34. Support to infrastructure management institutions relates to all infrastructures constructed or rehabilitated under KIIWP. These are 10 Sub-Catchment Committees (SCCs), and 35 Water-for-Livestock User Organizations (WLUOs) (20 boreholes and 15 valley tanks), thus a total of 45 Farmers Organizations (FOs) will be formed and/or strengthened. In addition, 1 District-Level Steering Committee will be strengthened. Under this sub-component also will be the mapping of the sub-catchments and preparation of the sub-catchment management plans.
35. The SCCs will be formed and strengthened to be the institutional bodies responsible for managing and improving sub-catchment areas. They will be having a central role in the planning and implementation of activities under sub-component 1.1. The SPIU will engage a service provider for mapping of the sub-catchments. After the mapping and validating of the sub-catchments, the SCCs will be formed and their capacity built to enable them produce sub-catchment plans and oversee the implementation of the plans including land husbandry activities as well other development activities in the sub-catchments.
36. The WLUOs will be formed for each scheme and will be capacity built to manage the operations and maintenance of the schemes. The members of the committees will be elected from among the users of each of the facilities keeping in mind the need for gender inclusion. The The District level Steering Committee, which is already established, is chaired by the Vice-Mayor in charge of Economic Development and is responsible for guidance and oversight of all the FOs.

Sequence in Formation & strengthening of Infrastructure Management Institutions

No.	Activities	Responsible
1	The Monitoring department in SPIU will perform baseline survey of Water Users Organisations in Kayonza District	SPIU
2	The SPIU IFAD/RAB will recruit the following staff: 1 no. Water Users Organization specialist 2 no. Water Management Field Facilitators (WMFF)	SPIU
3	Prepare the terms of reference for a SP to undertake the mapping of the sub-catchments	SPIU
4	Recruit and contract the SP for mapping sub-catchments	SPIU
5	Undertake the mapping of sub-catchments	SP
6	Form the sub-catchment committees	SPIU/District
7	Capacity building of the sub-catchment committees	SPIU/RAB/District
8	Preparation of sub-catchment plans	SPIU/RAB/District/SCCs
9	Prepare guidelines and training Manual for O&M specific to irrigation schemes (Hillside, marshlands, small scale and Livestock waters users)	SPIU

No.	Activities	Responsible
10	The Water Users Organization specialist will jointly with the District mobilize the local authorities, opinion leaders, farmers and hold awareness meetings on establishment of Waters Association (both Irrigation water Users and Livestock water Users Associations)	SPIU and District
11	The above will hold specific mobilization meeting to create awareness on WUOs for beneficiaries of each Irrigation sites and Livestock water facilities	SPIU/District
12	The meetings will result in establishment of interim WUOs for each of the facilities and elect interim Committee /Representative of each of the WUOs	SPIU /District
13	The Water Users Organization specialist will lead the process of training the elected committee and opinion leaders in the community on their roles and responsibilities: before, during schemes development and after scheme completion	SPIU
14	After the initial training the Water Users Organization specialist will lead the process formal elections of WUO committee that will be responsible for sustainable O&M of the constructed infrastructure	SPIU
15	The Water Users Organization specialist lead in the training of the established WUO committee and members on Operation and Maintenance, Management and other aspects related to the management of their facilities	SPIU
16	The Water Users Organization specialist will lead in the training of the District Steering Committee on their roles and responsibilities.	SPIU
17	The formal training of District Steering Committee and LWUOs will be complemented study tours and exchange visits to other districts where WUOs have already sustainably managing O&M.	SPIU/District
18	The WMFF in collaboration with District steering Committee be carrying out proximity coaching: training focused on the actual needs of each of LWUOs in collaboration with District steering Committee on a regular basis	SPIU /District
19	The SPIU in collaboration with the District and RAB will support the WUOs in the registration process and fulfilling requirements for signing IMTA	SPIU/RAB/District
20	Continuously monitor the performance of the WUOs in their carriage of the O&M of their infrastructure	District/RAB/SCCs

Implementation Arrangements

- **At SPIU level:** The Land husbandry specialist and Watershed shed management Officer recruited for sub-component 1.1 will take the lead in the sub-catchment mapping, SCC formation capacity building as well as the production of sub-catchment plans. A Water Users organization Specialist will

be recruited for the overall coordination of water users organisations' activities. He /She will also be in charge of ToRs, preparation of water users' organisation guidelines and Training Manual, preparation of annual work plans and budget as well as different documents as required in field of Water users organizations.

- **At district level:** Two Water management field Facilitators will be recruited by SPIU/RAB and these will be responsible for organization of water users associations and ensure their proximity coaching towards efficient use of water and scheme operationalization.

Indicators

Indicator 1: sub-catchment maps produced

Indicator 2: sub-catchment committees formed and strengthened

Indicator 3: sub-catchment plans produced

Indicator 4: LWUOs established and strengthened

Indicator 5: increased Productivity in command area

Indicator 6: sustainable operation and Maintenance of water facilities.

3 Component B: Institutional Development and Project Coordination

37. This component is designed to strengthen government agencies to deliver project outputs and to support policy dialogue and institutional development that will sustain project interventions beyond project completion.

3.1 Sub-component B.1: Support to policy dialogue & enabling institutional environment

38. KIIWP 1 will strengthen institutions that can support directly or indirectly the implementation of KIIWP and provide policy support that is needed for the effective implementation of the project. Key activities and interventions foreseen under this sub-component include the activities briefly described below.
39. **Capacity building interventions** will be identified for KIIWP staff under the SPIU, including RAB and district personnel engaged in KIIWP implementation. These capacity building activities will be preceded by a needs assessment to be elaborated for the SPIU, RAB and district personnel.

Capacity Building of the KIIWP Implementers

No	Activity	Responsible
1	Carry out a capacity building needs assessment for all the project implementers	SPIU/RAB
2	Develop capacity building plans for the implementers including identifying potential service providers that would deliver the needed capacity building	SPIU/RAB
4	Implement the capacity building plan	SPIU/RAB/SPs
5	Continuous monitoring and evaluation	SPIU/RAB

40. **Gender and youth mainstreaming.** Poverty and gender studies will be conducted at baseline and in year 3. Initial studies will be used by RAB in connection with the SPIU to strengthen the targeting strategy and prepare a brief gender action plan for KIIWP 1. This will also pull on work already done by MINAGRI and other IFAD-supported projects. Specific training will be organised to familiarise government and project staff with gender and youth mainstreaming approaches, and special provisions will be made to ensure that gender equity concerns are adopted in the implementation of all project components. The M&E system will disaggregate data by sex and age to support gender and youth analysis.

Gender and youth mainstreaming

No	Activity	Responsible
1	Poverty and gender studies conducted in target area	SPIU/RAB
2	Prepare a gender action plan and strengthen the targeting strategy for KIIWP 1 including training of government and project staff specific training	SPIU/RAB
3	Develop data capture instruments for sex and age disaggregated M&E	SPIU
4	Implement the gender action plan	SPIU
5	Continuous monitoring and evaluation	SPIU/RAB

3.2 Sub-component B.2: Project coordination

41. The objective of this sub-component is to provide the coordination arrangements, including the financial and human resources that are needed for the implementation of the project
42. **Coordination arrangements.** The coordination arrangements for the KIIWP 1 are fully aligned with the current implementation framework of IFAD-funded projects in Rwanda. While the Ministry of Finance and Economic Planning (MINECOFIN) is the

borrower, the Lead Project Agency will be the Rwanda Agriculture Board (RAB). As the Lead Agency, RAB will be responsible for the overall implementation, management and monitoring of KIIWP 1.

43. KIIWP will be integrated within the SPIU of IFAD projects (PASP and RDDP) that are under RAB. The SPIU Coordinator will also oversee and coordinate KIIWP activities that will be implemented at both the central and district level. A District Project Steering Committee chaired by the Kayonza Vice-Mayor Economic Affairs and made up of members of the District Council, members representing the farmers, FOs and local institutions from the public and private sectors' participating in the project is already in place. The committee will be reviewing the draft Annual Work Plans and Budgets (AWPBs) and the implementation progress. It will also be responsible for the technical oversight of the implementation of the AWPBs and the project's integration into the district structure.
44. **Staffing:** The day-to-day implementation management will be under the SPIU. Within the SPIU, a dedicated KIIWP 1 unit will be established to be headed by a KIIWP Project Manager (PM). At the central level, the PM will be working directly with a dedicated KIIWP staff comprising of the following: KIIWP accountant; M&E officer (also in charge of gender and youth); an Irrigation engineer; Environment, climate and social safeguards officer; and, a Procurement officer. At district level, staff will include an accountant; a WUO Specialist; a Land Husbandry (SWC) Engineer; a Cooperative Development Officer; a horticulture specialist; and an irrigation technician, all integrated in the district organization structure but paid by KIIWP.
45. **Supervision and implementation support missions**, especially in years 1 and 2 will support focused project implementation.
46. **Project oversight.** In line with the practice for other IFAD-funded projects in Rwanda, a Project Steering Committee (PSC) would be established. The Chair of the Steering Committee is the PS of MINAGRI and the membership will be determined by MINAGRI and shared with IFAD. The PSC will provide oversight and strategic guidance of the Project and also be responsible for review and approval of AWPBs and annual reports.
47. **Other implementation arrangements.** The components will mainly be implemented through service providers and implementing partners, including RAB. For service providers and implementing partners, contracting and partnership will be based on renewable performance-based contracts or Memorandum of Understanding (MoUs).

4 Financial management Arrangements

48. The KIIWP financial management system is designed to be in line with Rwanda's financial management systems with a few IFAD specific requirements to address gaps that may exist in Country systems. The main financial management considerations in KIIWP1 include the following:
 - a. KIIWP1 will implement an embedded SPIU with project staff who are fully dedicated to the project;
 - b. KIIWP1 will use IFMIS for accounting and financial management as required by GoR. To satisfy IFAD's reporting requirements, the correct set up of IFMIS will be key at start-up of the project;
 - c. Internal audit of the project will be at least once every six months and IFAD will request GoR to share the audit reports as shall be agreed at negotiations; The Project statutory audit will be carried out by the Office of the Auditor General (OAG), among other aspects to cover in the audit terms of reference will be the audit of Statement of Expenditures (SOEs);
 - d. The KIIWP accountant at SPIU level will be responsible for all accounting functions of the project; and,
 - e. At district level, the recruited Project Accountant, working with the District finance department, will be responsible for processing documents, verifying recipients/payees, checking and collecting documents for submission to SPIU. The district project accountant shall initiate transactions in IFMIS for approval and authorisation by SPIU Headquarters.
49. **Budgeting.** The GoR national budget calendar will be followed. Considering that the budget has to be input into IFMIS in accordance with the national budgetary rules and timetable the clearance process by IFAD should be well planned and executed to precede the GoR budgeting calendar.
50. The budgeting process will be done jointly between SPIU and implementing partners using a bottom – up approach resulting in the Annual Work Plan and Budgets (AWPBs). The SPIU will consolidate the AWPB, present it for approval by the PSC and submit it to IFAD with a request for a No Objection.
51. To facilitate proper budget monitoring and control, SPIU will provide budget templates to implementing partners including districts that mirror its code/chart of accounts reflecting components, categories and activities together with funding sources as part of preparation for implementation readiness. SPIU will also guide the implementing partners on eligible activities.
52. **Accounting Systems.** KIIWP1 will use national systems with a combination of IFAD financial management requirements in areas where GoR systems may not meet all the financial management and reporting systems.
53. Under KWAMP, a Financial Procedures Manual was developed and implemented. The manual describes the accounting system, internal control procedures, basis of accounting, standards to be followed, and authorization procedures, segregation of duties, financial reporting process, budgeting procedures, financial forecasting procedures, and contract management. In addition, the manual documents the processes to be undertaken for the disbursement of expenditure and auditing arrangements. The SPIU will ensure that under KIIWP the manual is updated to pick up the new aspects under the project.
54. **Financial reporting, accounting policies adopted and explanatory notes.** KIIWP1 will be required to ensure that complete, accurate and timely reports are produced in accordance with International Public Sector Accounting Standards

(IPSAS). The SPIU will be the financial management and reporting hub, responsible for posting, reconciling and reporting on project finances.

55. Disbursement Procedures. Disbursement procedures are detailed in the IFAD disbursement handbook which will be part of this Project Implementation manual. The procedures for withdrawal of loan proceeds have been standardized to facilitate disbursements and consist of four major types;
 - i. Procedure I – Designated Account
 - ii. Procedure II –Direct Payment
 - iii. Procedure III –Special Commitment under Letter of Credit
 - iv. Procedure IV –Reimbursement
56. In practice most disbursements follow procedures I and II above, while procedure III is not recommended due to its complicated procedure and high cost and procedure IV is not commonly used in majority of projects. Disbursement will, regardless of the procedure applied, be based on a Withdrawal Application submitted by the Project. Each WA is made up of two integral parts. The first part is the WA itself, in letter form, which mentions the total amount to be withdrawn and contains requisite statements and agreements by the Project. The second part consists of one or more summary sheets with supporting documentation where individual items are listed according to the loan/grant category or subcategory to which they relate.
57. As start a number of actions/activities will be required to ensure that the financial management systems of KIIWP1 are in place. These are presented in the table below.

Actions/Activities to Ensure Smooth FM Take off

No.	Action	Responsible Party / Person	Target Date / Covenants
1	Constitute an SPIU headed by a Coordinator or other title as appropriate with fully dedicated staff to the project recruited on fixed term performance based contracts with clearly defined job descriptions and with proper segregation of duties	Director General/RAB	Within first six months or as shall be agreed during negotiations
2	Compile the first AWPB and its related Procurement plan	SPIU/RAB	Withdrawal condition
3	Update the PIM that should include a comprehensive financial management manual with a comprehensive project chart of accounts	SPIU/RAB	Within first six months of entry into force
4	Establish a PSC headed by the Permanent Secretary – MINAGRI	PS/MINAGRI	Within six months of entry into force
5	Map the accounts codes and configure the chart field to meet the accounting and reporting requirements of project.	SPIU/RAB/IFMIS Team-MINECOFIN	Part of start-up activities

58. On KIIWP1 start-up, the following is a summary of the envisaged FM procedures and processes.

Summary of Financial Management Activities/Procedures

No	Activity	Responsible	Timing/Covenants
1	Prepare the AWPBs	SPIU and implementing partners	Timed to precede GoR calendar year
2	Consolidate and submit the AWPB to PSC	SPIU	Timed to precede GoR calendar year
3	Submit the AWPB to IFAD for No Objection	SPIU	Timed to precede GoR calendar year
4	Carry out all accounting functions of the project including: <ul style="list-style-type: none"> • funds flow, • preparation of annual financial statements, • periodic financial reporting; and, • overseeing the arrangements for audits 	SPIU/District	On a continuous basis
5	Prepare and present interim financial reports capturing: <ul style="list-style-type: none"> • a statement of source and uses of funds, • a statement of uses of funds by project component by financier and expenditure category, and • a summary variance report explaining financial performance for the period 	SPIU	Quarterly
6	Produce annual Project financial statements	SPIU	Annual
7	Ensure that adequate disclosures are included in the financial statements	SPIU	In all FM reports
8	Develop a data tracking tool to capture and quantify community contribution	SPIU (Head of Finance and the Head of MIS)	At Start-up
9	Maintain an internal auditor at portfolio level	RAB/SPIU	From Start-up
10	Ensure that IFAD gets systematic access to Internal Audit Reports	RAB	Twice a year
11	Submit draft financial statements to the Office of the Auditor General	SPIU	Not later than 30 th Sept each year
12	Provide the Terms of Reference for the external audit clearly specifying IFAD audit requirements	SPIU	Not later than 30 th Sept each year
13	Carry out KIIWP external Audits that will provide: <ul style="list-style-type: none"> • opinion of financial statements; • opinion on the Statements of Expenditure; • the operation of the Designated Account; and, • any other requirements as per the IFAD audit guidelines 	Auditor General	Once a year
14	Provide financial management implementation support	IFAD	Six months apart

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Kayonza Irrigation and Integrated Watershed Management Project (KIIWP 1)

Project Implementation Manual (DRAFT)

No	Activity	Responsible	Timing/Covenants
	(One supervision mission and one follow up mission)		

5 Procurement Arrangements for KIIWP 1

59. The procurement of goods, works and services will be carried out in accordance with government regulations, with the addition that it should comply with IFAD's prior-review procedure to be specified in the Letter to the Borrower. The IFAD SPIU already in place under RAB will be responsible for the procurement of goods, services and works at the national level. The recruitment of a Procurement specialist will be budgeted to ensure that KIIWP-related procurements are well executed and monitored.
60. Procurement at the district-level will be delegated to the District's Corporate Division that includes the two procurement officers currently available at the district. Their unit will be responsible for all procurement actions at the district, within the limits specified and to be agreed below. District procurement will follow Government procedures and processes related to procurement. Procurement personnel at the district will be paid by KIIWP1. The District Tender Committee will be responsible for the advertisement of tenders and the approval of the evaluation recommendations.

5.1 Procurement thresholds and prior-review mechanism

61. Building on the KWAMP experience, a prior-review mechanism will be put in place for the SPIU and for the District, the two entities responsible for the procurement actions under KIIWP1. SPIU will be required to request a no-objection from IFAD while the district will be requiring a no-objection from the SPIU.
62. A prior-review mechanism will be the following, subject to confirmation and agreement by SPIU and RAB:

Procurement category	No-objection requirement	
Goods and works	District	SPIU
<40,000 USD	Not required	Not required
40,000-80,000 USD	Required from SPIU	Not required
>80,000 USD	Required from SPIU	Required from IFAD
Services		
<20,000 USD	Not required	Not required
20,000-40,000 USD	Required from SPIU	Not required
>40,000 USD		Required from IFAD

*These above are derived from the current thresholds for IFAD prior review, and in order to have control over procurements done at district level, it is important that thresholds are set by the SPIU. Depending on the risk assessment of the SPIU, these thresholds will be revised from time to time.

63. The actual process for procurement of Works, Goods and Services, including timeframes is described here below.

Summary of the Procurement Process

No	ACTIVITIES/STEPS IN PROCUREMENT	Responsible	Timeframe for preparation
1	Preparation of procurement plan	Procurement Department	3 weeks
2	Review of ToRs/Technical specifications	Procurement Department	1 day
3	Preparation of Bidding Document for goods or works or REOI	Procurement Department	1 day

No	ACTIVITIES/STEPS IN PROCUREMENT	Responsible	Timeframe for preparation
4	Request for IFAD No Objection on Bidding Document/RFP	Procurement Department	1 day
5	IFAD No objection to the tender document or ToRs	IFAD	3 weeks
6	Bid Invitation /Publication (30 days for national tenders/45 days for international)	Procurement Specialist	1 day
7	Bids Opening/Technical proposal opening	Tender Committee	1 day
8	Bid evaluation /Technical proposal evaluation	Tender Committee	Two weeks
9	Request for IFAD NO to the evaluation report	Procurement Department	1 day
10	IFAD no objection to the evaluation	IFAD	Latest 1 month
11	Provisional notification stage (7 days)	Procurement Department	1 day
12	Final notification stage or Invitation for opening of financial proposals for services	Procurement Department	1 day
13	Contract signature for goods and works	Procurement Department	Two weeks
14	Opening of financial proposals/ Services tenders	Tender Committee	1 day
15	Evaluation of financial proposals / Services tenders	Tender Committee	2 day
16	Final notification for services/ Services tenders	Procurement Department	1 day
17	Invitation for negotiations / Services tenders	Tender Committee	1 week
18	Request for IFAD no to the financial evaluation report/ Services tenders	Procurement Department	1 day
19	IFAD no objection to the financial evaluation report/ Services Tenders	IFAD	Two weeks
20	Contract signature	Procurement Department	1 week

6 Draft Job Descriptions

1. Project Operations Manager (Project Coordinator)

Duties and Responsibilities:

Under the authority of the SPIU coordinator, the Project's Operations Manager is in charge of the management of KIIWP's daily activities according to the financing agreement signed between the Government of Rwanda and IFAD. He (She) will respect all documented agreements in relation to the management of the project (aide memoire, back to office report, audit report, evaluation reports, midterm review, and completion report). He (She) is responsible of the subsidiary agreements between the Project and different service providers. S/he will report to the SPIU Coordinator and RAB DG especially ensuring timely physical progress report and financial statements in the required format. The Project Operations Manager will perform the following duties:

- Provide orientations for the implementation of the project;
- Ensure the project performance in accordance with the Rwandan policies on performance contracts and IFAD procedures;
- Coordinate the project team and ensure partnership with key stakeholders;
- Ensure synergies between project components to maximize the project's impact;
- Supervise the project planning and implementation according to the financing agreement, the recommendations of the steering committee as well as the recommendations of the supervision missions;
- Timely coordinate the preparation of the annual work plan and budget as well as progress reports;
- Supervise the preparation and negotiation of the MoUs, contracts and other agreements with partners and service providers;
- Execute the approved plan and budget;
- Identify areas which require external support and recruit suitable consultants;
- Guide the consultants, experts and contractors toward the realization of planned project outputs and evaluate their performance;
- Monitor the project implementation progress;
- Support the implementation support missions and the follow up missions.

Expected outputs:

- Project general objective, specific objectives and activities timely reached within the frame of the financing agreement;
- Project planning and budgeting processes implemented timely with the full participation of key partners in a participation approach;
- Project physical and financial report timely submitted to the relevant authorities in accordance to the provision of the financial agreement;
- Disbursement procedures done in accordance to the project design report;
- The Project impact data updated regularly and disseminated to project partners for measuring the results across all project components;
- Excellent relations with line ministries, implementing agencies, project beneficiaries and other key partners.

Qualification: The Operational Manager must have a Master's degree in in the following areas: Agriculture or Irrigation with 5 years of working experience or a Bachelor's degree with 10 years of working experience.

Key competences:

- Fluency in Kinyarwanda, English or French;
- Computer skills;
- Good communication skills;
- Ability to work with project's implementing partners.
- Ability to meet deadlines;
- Working experience with IFAD funded project is an advantage.

Duration: 2 years renewable performance based contract with a 6 months' probation period.

2. Accountant

Duties and responsibilities:

Under the direct supervision of the Chief Accountant, the specific duties of the Accountant are as follows:

- Capture in the books and files all supporting documents of expenditures paid from the petty cash;
- Prepare all documents that are required for the payment of suppliers' invoices duly approved by his/her supervisor;
- Monthly declaration of withholding taxes deducted from suppliers' invoices;
- Verification of supplier's invoices before payment;
- Timely posting all project accounting vouchers on the accounting software;
- Exercise proper custody of all posted vouchers and other accounting documents;
- Verify and check bank statements and accounting software printouts;
- Supervise and direct the accounting and logistical functions in order to ensure efficiency;
- Prepare and submit periodical financial reports on deadlines;
- Prepare Withdrawal Applications;
- Regular spot check of petty cash fund and other reconciliation reports;
- Timely replenishment of operation account with project bank account;
- Authorisation of payments vouchers;
- Acting on the position of the Chief Accountant in his/her absence;
- Facilitate financial audits and implementation support missions;
- Regular follow up of smooth functioning of the accounting software, and make contact with ICT staff and software suppliers;
- Submit account printouts by components to the heads of components for analysis and comments;
- Advice the project team on accounting and administration matters;
- Implement any other relevant duties assigned by the Chief Accountant.

Expected outputs:

- Financial reports prepared and submitted on time;
- Withdrawal applications prepared and submitted for replenishment;
- Accounting documents maintained properly.

Qualifications: The Accountant should have at least a bachelor's degree in accounting or finances with a practical experience of at least 5 years in financial management.

Key competences:

- Fluency in Kinyarwanda, English or French;

- Skills in accounting applications such as TOMPRO, PASTEL, SUN;
- Good communication skills;
- Fluent in Kinyarwanda, English or French (reading, writing and speaking)
- Ability to meet crucial deadlines.
- A previous experience with IFAD-funded projects would be an advantage.

Duration: 2 years renewable performance based contract with a 6 months' probation period.

3. M&E Specialist

Duties and responsibilities:

Under the direct supervision of the Head of the MIS Department, the specific duties of the M&E specialist are the following:

- Developing and establishing a pragmatic and participatory project learning system (PLS) within the project in order to capture input-output data as well as impact on project objectives;
- Identify appropriate monitoring indicators for each component and ensure that they are used in measuring the Project progress;
- Compilation of quarterly comprehensive progress reports;
- Analyzing data (linking inputs to outputs, and outputs to impact) and preparing analytical reports for project management on implementation progress, performance and impact;
- Establishing and managing the framework for any baseline survey;
- Measuring achievements against targets and measuring the impact of project activities on beneficiaries through agreed indicators;
- Facilitate the project's planning process in collaboration with other staff, and also monitoring performance of all project parties;
- Ensuring that all participating institutions and project officers maintain updated records on their activities and feed this information into the overall MIS;
- Carrying out regular internal evaluations, so as to give early warning on project performance;
- Developing a simple reporting system in monitoring all project's activities;
- In collaboration with project's staff, support the development of targeting and gender strategies;
- Assess and report on project's activities related to gender, youth and targeting aspects;
- Identify opportunities for strengthening project's implementation from a gender perspective and ensuring target groups' participation in project's activities.

Expected outputs:

- Simple, efficient and cost effective M& E;
- Planning and budgeting process implemented timely through a participatory approach;
- Project's AWPB submitted timely to MINAGRI and IFAD;
- Quarterly project progress reports available to all project partners;
- Project impact information regularly updated and available to all project partners;

Qualifications: Bachelor's degree in Project Management, Rural Development, Agricultural Economics or Business Administration with 5 years of working experience.

Key competences

- Fluency in Kinyarwanda, English or French;
- Good communication skills;

- Proven knowledge and practical experience of at least 5 years in project M&E;
- Computer literacy (Microsoft office and statistical software);
- Communication and result oriented management skills.
- Ability to work in an interdisciplinary team and meet crucial deadlines;
- Working experience with IFAD funded project is an advantage.

4. Environment, Climate and Social management officer

Duties and responsibilities:

Under the direct supervision of the KIIWP Operations Manager, the Environment, Climate and Social management officer will be responsible for orienting and ensuring the climate resilient implementation of project's activities. The specific tasks to be performed by the Environment, Climate and Social Management Officer are the following:

- Supervise baseline assessments of irrigation infrastructures and develop a strategy/guidelines for necessary modifications to make them climate resilient;
- Supervise the development of building codes/standards to ensure that irrigation investments are climate resilient;
- Working with appropriate local partners to ensure that engineers and technicians can supervise the construction of irrigation structures according to the agreed building codes and standards;
- Providing guidance to Service Providers on climate risk management in the KIIWP intervention's area.
- Act as focal point for the Rwanda Meteorological Services (RMS), REMA and RDB in the receipt and transmission of climate and agro-climate information;
- Assist in the development of agro-meteorological products and decision support systems designed for transmission to the various departments of the ministry, relevant extension services and the private sector/business partners;
- Ensuring the sound integration of climate-resilient technologies in value chain development ;
- Building KWIIP capacities in climate resilient approaches;
- Planning and implementing a capacity building program for key stakeholders based on identified needs;
- Assisting in the preparation and implementation of Learning Routes with regard to climate resilience;
- Carry out any other duties as assigned to him/her by his/her superior.

Expected outputs:

- Project's partners have access to agro-meteorological data on time;
- Climate resilient activities are mainstreamed in all project's activities;

Qualifications: Master's degree in the following areas: Climatology, Hydrology or Environmental Sciences with at least 5 years of working experience.

Key competences:

- Fluent in Kinyarwanda, English or French;
- Computer literacy;
- Good communication and results-oriented skills;
- Experience in mainstreaming climate adaptation issues within both public and private sector organizations;
- Ability to work in an interdisciplinary team and meet crucial deadlines.
- Working experience with IFAD funded project is an advantage.

5. Irrigation engineer

Under the direct supervision of the Project Operations Manager, the Irrigation Engineer will be responsible of overseeing and coordinating all activities related to Irrigation infrastructure. More specifically he/she will be responsive for the following:

- Oversee all the technical aspects related to irrigation infrastructure;
- Ensure timely implementation of project's activities in relation to irrigation development and observe the quality of works/service being implemented;
- Assist the Project to identify any technical support required in irrigation development;
- Address the technical support requests from the beneficiaries, public and private operators;
- Develop a program of capacity building for Project stakeholders and contribute to its implementation;
- Assist the preparation of feasibility/design studies of project sites including collecting design information, performing design calculations and preparing bill of quantities and cost estimates;
- Assist the project team in the planning of irrigation activities;
- Monitor the service providers recruited by the project with regard to irrigation activities;
- Perform any other assignment as prescribed by the project operations manager.

Expected outputs:

- Project planning and budgeting in relation to irrigation activities timely done with the full participation of key partners;
- Irrigation activities timely implemented according the design/feasibility studies;
- A capacity building program related to irrigation development formulated and implemented.

Qualifications: Bachelor's degree in Civil engineering or Irrigation with at least five (5) years of working experience.

Key competences:

- Fluent in Kinyarwanda, English or French;
- Computer literacy;
- Good communication and results-oriented skills;
- Ability to work in an interdisciplinary team and meet crucial deadlines;
- Working experience with IFAD funded project is an advantage.

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Annex 9: Integrated Risk Framework (IRF)

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Risk categories	Risk Probability	Risk Impact	Mitigations/comments
1. Political and governance	Low	Low	Over the last 20 years, Rwanda has enjoyed political stability which, combined with good governance and policy consistency, has created an enabling policy environment ensuring successful delivery of development programs.
2. Macroeconomic	Medium	Low	Since 2000, Rwanda has seen its economy grow by 7.9% per year. It is currently more than 3.5 times larger than in 2000. In the same period, GDP per capita has increased from USD 242 to USD 729. According to IMF's analysis, the medium-term macroeconomic outlook remains favourable and the GDP growth is expected to remain strong. This is supported by continued diversification of the export base, public investment spending to crowd-in private sector investment, and more resilient agriculture as a result of extensive irrigation programs. Inflation is expected to remain within the central bank's target of 5%.
3. Sector strategies and policies	Low	Low	The project will likely benefit from a highly enabling policy and institutional environment, with a series of new laws and policies coming into force that are fully supportive of the development of water infrastructure and cooperative development. Indeed, the sustainable development of irrigated agriculture as a key driver to boost agriculture production and productivity is fully acknowledged in most of Rwanda's flagship policy documents. Identified gaps in terms of operationalisation of new policies, laws, regulations and institutional framework will be addressed with KIIWP support. To this end, KIIWP 1 will conduct an evaluation of implementation and impact of new or existing policies related to the project activities with relevant national, and district level stakeholders.
4. Technical aspects of project or program	Medium	Low	There is a low likelihood that factors related to the technical design of the program or project may adversely impact the achievement of the project objective. The project will be implemented in two phases to initially undertake the necessary preparatory activities for irrigation development and address the urgent need for catchment rehabilitation and protection in rainfed farming areas and improved water supply for livestock. The detailed design of KIIWP 2 investments in irrigation development, climate smart agricultural production and market access will be informed by extensive analytical work beforehand. Plus, IFAD and the Government have good experience implementing similar projects well (e.g. KWAMP).

Risk categories	Risk Probability	Risk Impact	Mitigations/comments
5. Institutional capacity for implementation and sustainability	Low	Low	<p>Rwanda has an overall solid track record in project implementation and management, characterized by a recognized result-based approach and high level of financial management and procurement compliance. However, limited technical capacity, governance and institutional capacities of project stakeholders can lead to slow disbursement, lower project benefits as well as delays in implementation. Raising awareness and capacity building are key elements in KIIWP, especially of FOs and District, Sector and Cell level staff. As demonstrated by the Kirehe Community-based Watershed Management Project (KWAMP), a district-level approach in project design and implementation contributes to strong district ownership and capacity-building in planning, implementing and monitoring agricultural transformation. The institutional arrangements for KIIWP will be fully aligned with the current implementation framework of IFAD-funded projects in Rwanda. In particular, the Single Project Implementation Unit (SPIU) is already in place with core staff. The (SPIU) is effective in guiding the process of designing and implementing projects together with IFAD (and the World Bank). Involvement of experienced technical staff from KWAMP will also speed up project implementation.</p>
6. Financial management	Low	Medium	<p>The last PEFA assessment of Rwanda was in 2016. Compared to the previous one carried out in 2010, seven of eleven indicators improved while four indicators remained the same. With regard to government accountability, transparency and corruption factors, the most recent Transparency International perception index shows that Rwanda scored 55 on the 1 – 100 scale with a global rank of 48 out of 180 Countries assessed and being the third least corrupt Country assessed in Sub-Saharan Africa. The IFAD overall fiduciary risk based on the ongoing projects and the recently closed KWAMP has been assessed as low. The implementation arrangements that pose a risk of low disbursements may arise from delays in start-up due to delays in re-defining the SPIU, delays in carrying out the Environmental and Social Impact Assessments (ESIAs) that are a condition for approval of major irrigation infrastructure and delays in reconfiguring the project chart of accounts that may cause delays in submission of withdrawal applications; delays in financial reporting, among others.</p> <p>Overall assessment indicates that Rwanda is a medium risk country, characterized by strong financial management systems and internal controls. Design arrangements have taken into account this medium inherent risk, and proposed implementation and financial management based on GoR systems and minimising IFAD financial management requirements.</p>

Risk categories	Risk Probability	Risk Impact	Mitigations/comments
7. Procurement	Low	Low	Procurement will be carried out in accordance with government regulations and should comply with IFAD requirements to be specified in the Letter to the Borrower and the Financing Agreement. The IFAD SPIU already in place under RAB will be responsible for procurement at the national level. A Procurement specialist is budgeted for and will be recruited to ensure procurements are well executed and monitored. Procurement at the district-level will be delegated to the District's Corporate Division. IFAD considers the procurement capacity of the district to be satisfactory, and this arrangement builds on the successful experience of KWAMP.
8. Stakeholders	Low	Low	The likelihood and/or impact of stakeholder opposition to the project is low. Project objectives, approach and activities were discussed during the first design mission at a stakeholder meeting composed of representatives from civil society, farmer's organisations, local authorities, the private sector and the Rwanda Agricultural Board. The whole project will be coordinated through an Environmental and Social Management Framework (ESMF) to examine the risks and impacts of the proposed activities, including potential environmental and social vulnerabilities. The ESMF specifies the environmental and social management requirements (including labour and working conditions, grievance redress system, health and safety) that will be the responsibility of contractors and primary suppliers hired to construct the irrigation infrastructure. To mitigate competition between water users (especially irrigators and cattle owners) in times of scarcity, KIIWP 1 will support the increase in water storage and water supply. It will also strengthen the institutional development of various natural resource and infrastructure management committees to support joint management of limited resources within catchment areas

Risk categories	Risk Probability	Risk Impact	Mitigations/comments
9. Environment and social	High	Medium	<p>As a result of the Eastern Province's vulnerability to cyclical and persistent drought events, there is a high probability that climate change will challenge the achievement of project objectives. Land fragmentation and high population density continue to lead to catchment degradation. However KIIWP is designed in direct response to these risks so the potential impact of these risks on project objectives is moderate. KIIWP will adopt an integrated watershed management approach that will integrate appropriate crop and livestock production practices such as improved crop and fodder varieties; the promotion of a wide range of cost-effective erosion control measures (tree belts, contour belts, grass strips, contour bunds, planting of fodder grasses on bunds/ridges, use of permanent, perennial vegetation on contours, etc.); and agro-forestry (intercropping, integration of trees on farm plots, tree belts, protective forests, nitrogen fixing, erosion control measures, etc.). Climate information services or bulletins will be distributed to all relevant project stakeholders at sector, district, cooperative and community to help them cope with climate variability and climate change effects. Resilience will also be strengthened through the promotion of climate smart agriculture.</p> <p>To mitigate any adverse environmental and social impacts of the project, all watershed management schemes with a command area exceeding 100 ha will be subjected to an Environmental and Social Impact Assessment (ESIA) before funds are released for the specific investments. The ESIA will be aligned with the national General Guidelines for Environmental Impact Assessment (2006) and the Environmental and Social Management Guidelines for agriculture projects (2016). ESIA certificates are site-specific and valid for the entire project implementation phase. All feasibility studies for irrigation schemes, hydro-geological surveys for boreholes drilling and valley ponds, water permit requests and ESIA procedures will be financed and initiated during KIIWP 1. The exact nature and extent of adaptation and mitigation measures to be adopted during design and implementation phases will be determined according to specific site locations and proposed size of irrigation, water harvesting and small storage technologies.</p> <p>Furthermore, the whole project will be coordinated through an Environmental and Social Management Framework (ESMF) to examine the risks and impacts of the proposed activities.</p>
Overall	Medium	Low	

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Annex 10: Exit Strategy

Mission Dates: 23 April-04 May 2018

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Report No. 5007-RW

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East and Southern Africa Division
Programme Management Department

Annex 10: Exit Strategy

The exit strategy of the project is in-built from design and implementation. The implementation of the project will be done by RAB and through district teams and the private sector will be engaged from the earliest possible opportunity. The government entities are permanent structures that will be able to absorb support activities after the end of the project.

The interventions to be done by the project will be owned by the community organisations that will be supported to have the capacity to operate them. Users of the infrastructure will be involved from the studies, construction and operation and maintenance. Operation and maintenance manuals in the language best understood by the users will be prepared and the users trained. At the beginning of the construction, RAB will sign an implementation agreement with the potential users of the infrastructure that will clarify the roles and responsibilities of the parties.

Each irrigation scheme, borehole and valley bottom tank will be handed over to the users on partial completion of the works and a handover certificate will be issued at full handover. The handover certificate will also indicate the responsibilities of the government and the users during the operational phase.

The project will gradually withdraw from each intervention after the handover is done, but government agencies in extension, water resources management and natural resources among others, and the private sector will take over.

The project design is built on lessons learnt from recent IFAD-financed projects that have provided important insights which will be key to the project's sustainability and exit strategy.

The above approach and the sustainability factors mentioned below, will ensure a smooth, responsible and sustainable exit of project funded activities.

Institutional sustainability. The institutional development foreseen by KIIWP aims at gaining the user buy-in and satisfaction on which sustainability depends. Infrastructure management institutions like Sector- and District-level Steering Committees and Sub-Catchment Committees will play an active role in the design, construction and operation and maintenance of infrastructure supported by KIIWP. The sustainability of the water resource and irrigation schemes will be further enhanced by the 6 Water User Organizations and 35 Water for Livestock User Organizations to be strengthened and/or developed by the project.

Social sustainability (Empowerment). The group-based approach has proven effective in supporting and involving the rural poor, whether engaged in on-farm or off-farm activities. Using Farmer Field Schools as a basis for smallholder farmers to become accustomed to working together and sharing knowledge and information will build trust over time and become a sustainable basis for them to establish more formal associations like WUOs and WLUOs, and cooperate in activities related to the production and marketing of their products. As for cooperatives, using long term coaching and mentoring support instead of one-off training will increase their chances of success and long term sustainability. The engagement of Business Development Service Providers who will act as an advocate for cooperative members engaging in contracts with other value chain actors will ensure that implementation is sensitive to the needs and concerns of the target households.

Participation of the private sector. In line with the Government of Rwanda's recognition that agricultural growth must be driven by investments of private actors, KIIWP will involve private-sector entrepreneurs such as large-scale farmers, wholesalers, processors and exporters, as well as financial institutions operating at both local and national level. The delivery of water services, provision of agricultural advisory services, backward linkages to input suppliers and financial service

providers, forward linkages to markets, and direct co-investments in post-harvest infrastructure are some of the key tools that will promote the development of mutually beneficial business relationships between KIIWP target groups and private stakeholders, and thus enhance the long term sustainability of the project's investments.

Economic and financial sustainability. The project's economic and financial analysis has established that the project will generate a positive return. The EFA shows that KIIWP is financially profitable for rural households engaged in agricultural production with financial internal rate of return for farmers ranging from 20 to 27% depending on the production system. The sensitivity analysis shows that the economic profitability of KIIWP would remain satisfactory even if the project costs increase by 50%, the project benefits decrease by 40% or if the benefits lag behind by two years.

Environmental sustainability. Good environmental stewardship is at the heart of the project success. Within KIIWP project, the integrated watershed management practices will consist of good integration between crop and livestock production, combined with the promotion of a wide range of cost-effective erosion control and water retention measures. In addition, the ecological sensitivity of the project area will require increased attention to good agricultural practices that farmers will be trained in. KIIWP environmental sustainability will be further enhanced by the adoption of adaptation and mitigation measures through good agricultural practices, water harvesting and climate-smart storage technologies, that will be determined according to specific site locations, size of irrigation schemes, and production systems. In irrigation schemes, solar energy to pump water will be considered to avoid the use of expensive and GHG emitting fossil fuels.

Enabling policy environment. The project will benefit from a highly enabling policy and institutional environment, with a series of new laws and policies coming into force that are fully supportive of the development of water infrastructure and cooperative development. Identified gaps in terms of operationalisation of new policies, laws, regulations and institutional framework will be addressed with KIIWP support. The achievement of policy and legislation frameworks that are conducive to the replication and dissemination of new experiences and achievements is an important element for sustainability, replicability and scaling up of KIIWP interventions.

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Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 11: Mainstreaming themes – Eligibility criteria checklist

Mission Dates: 23 April-04 May 2018

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Project No. 2000002229

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East and Southern Africa Division
Programme Management Department

Mainstreaming themes – Eligibility criteria checklist

	<input type="checkbox"/> Gender transformational	<input type="checkbox"/> Youth sensitive	<input type="checkbox"/> Nutrition sensitive	<input checked="" type="checkbox"/> Climate finance
Situation analysis	<input type="checkbox"/> National gender policies, strategies and actors <input type="checkbox"/> Gender roles and exclusion/discrimination <input type="checkbox"/> Key livelihood problems and opportunities, by gender <input type="checkbox"/> Use (pro-WEAI) assessment for M&E baseline	<input type="checkbox"/> National youth policies, strategies and actors <input type="checkbox"/> Main youth groups <input type="checkbox"/> Challenges and opportunities by youth group	<input type="checkbox"/> National nutrition policies, strategies and actors <input type="checkbox"/> Key nutrition problems and underlying causes, by group <input type="checkbox"/> Nutritionally vulnerable beneficiaries, by group	
Theory of change	<input type="checkbox"/> Gender policy objectives (empowerment, voice, workload) <input type="checkbox"/> Gender transformative pathways <input type="checkbox"/> Policy engagement on GEWE	<input type="checkbox"/> Pathways to youth socioeconomic empowerment <input type="checkbox"/> Youth employment included in project objectives/activities	<input type="checkbox"/> Nutrition pathways <input type="checkbox"/> Causal linkage between problems, outcomes and impacts	
Logframe indicators	<input type="checkbox"/> Outreach disaggregated by gender <input type="checkbox"/> Women are > 40% of outreach beneficiaries <ul style="list-style-type: none"> • Pro-WEAI indicator 	<input type="checkbox"/> Outreach disaggregated by age	<input type="checkbox"/> Outreach disaggregated by gender <ul style="list-style-type: none"> • Further details to be confirmed 	
Human and financial resources	<input type="checkbox"/> Staff with gender TORs <input type="checkbox"/> Funds for gender activities <input type="checkbox"/> Funds for Pro-WEAI surveys in M&E budget	<input type="checkbox"/> Staff with youth TORs <input type="checkbox"/> Funds for youth activities	<input type="checkbox"/> Staff or partner with nutrition TORs <input type="checkbox"/> Funds for nutrition activities	IFAD Adaptation Finance \$8,263,000 IFAD Mitigation Finance \$0 Total IFAD Climate-focused Finance \$8,263,000
ECG Remarks	Gender Nutrition Youth <input type="checkbox"/> No social inclusion themes			

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 12: List of eligible activities to be financed by FIPS

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

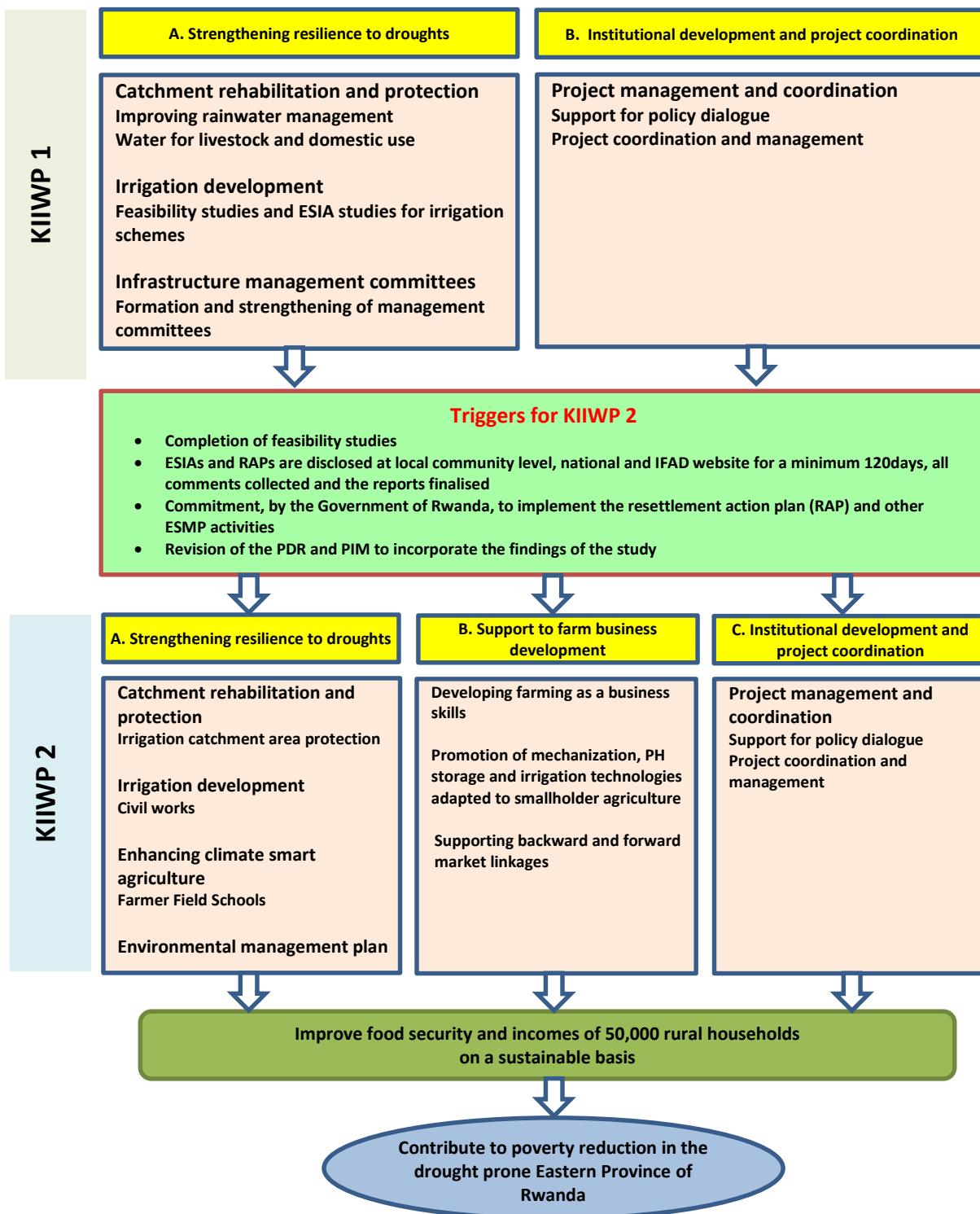
Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 12: Information on KIIWP 2

This annex provides information on the anticipated components and activities of KIIWP 2. It also identifies the pertinent lessons learned for KIIWP 2 from the country loan portfolio and presents the theory of change for KIIWP 1 and 2.

Figure 1: KIIWP 1 and KIIWP 2 by component



Component A: Strengthening resilience to droughts

Sub-component A.1: Catchment Rehabilitation and Protection

The catchment rehabilitation and protection of irrigation schemes will be done following the preparatory activities of sub-catchment planning and management committee development made under KIIWP 1.

Sub-component A.2: Irrigation Development

Irrigation development will depend on the identification of feasible irrigation sites by the studies conducted in KIIWP 1. After completion of the feasibility studies and full disclosure and approval of ESIA, the irrigation schemes to be developed will be selected and submitted for financing. The GoR will apply for additional financing from IFAD for the development of 2,275ha. In addition, if the feasible area is bigger than 2,275ha, the GoR can approach other financiers for the development of the irrigation schemes.

The proposed irrigation infrastructure is made of two categories: i) irrigation in marshlands and neighbouring hillsides which will require dams to harvest enough water for off-season supplementary irrigation; and, ii) large pumped irrigation systems abstracting from either the various lakes in the district or directly from the Akagera River.

Potential results comprise: the Ndego Irrigation Scheme (net 1,400ha); Kibare Irrigation Scheme (net 600ha); Kanyeganyege Irrigation Scheme (net 150ha + Dam); Gishynda Irrigation Scheme (net 125ha + Dam). However, other irrigation schemes will be developed if these schemes are found to be unviable.

Sub-component A.3: Infrastructure management institutions

To date, none of the existing WUOs in the District have signed an Irrigation Management Transfer Agreement with the District. The aim will be that after scheme completion and fulfilling all conditions all WUOs and WLNUOs in the District will ultimately sign an Irrigation Management Transfer Agreement (IMTA) with MINAGRI/RAB, which will be co-signed by Kayonza District authorities. The project will focus on preparing all WUOs and WLNUOs, both existing and newly formed ones, to sign the IMTA before project completion.

Sub-component A.4: Enhancing climate smart agriculture practices and technologies

A long list of existing CSA practices and technologies will be compiled By RAB Crop Officers and Kayonza District and Sector Agronomists in liaison with expert partners. RAB researchers will test proposed CSA technologies with select farmers in the different areas to come up with the technologies and practices that work best under different environments/conditions and crops. Short-term international technical assistance will be sought to prepare training materials on best CSA practices and technologies, that will be selected and promoted in each KIWP project area.

Training and demonstrations of CSA will be delivered through Farmer Field Schools and the establishment of demonstration plots on both rain-fed and irrigated land. The FFS curricula will be defined through a consultative process in which the farmers, the extension workers as well as the private sector have a say.

Promotion of good nutrition practices and support to household food security will raise awareness among communities of how to improve access to local foods and diversify family diets. Emphasis will be put on children, pregnant and breastfeeding mothers and people with HIV and AIDS who are the most vulnerable to malnutrition. Short-term TA will be sought to

develop a training module on basic nutrition education, which will be incorporated into the FFS training.

A Gender Action Learning System will be promoted to increase awareness of gender roles in the households and communities by improving their capacity to negotiate their needs and interests and find innovative, gender-equitable solutions in livelihoods planning and value chain development.

Sub-component A.5: Environmental Management Plan.

Environmental and social safeguards will be implemented in this sub-component.

Component B: Support to farm business development

Sub-component B.1: Developing Farming as a Business (FaaB) skills

Business advisory services. KIIWP will strive to assist farmers engaged in commercial production to acquire a better understanding of the market demands as well as to understand the gross margin calculations to assess profitability and plan production accordingly. A specific FaaB training module will be developed and incorporated in the FFS curriculum¹. KIIWP 2 will ensure that RAB and District frontline staff and FFS Facilitators are systematically involved in this training to ensure a spill-over effect and sustainability beyond the project's life.

Business Development Service Providers (BDSPs) will be hired as coaches or mentors; they will support the project beneficiaries through dedicated ad-hoc assistance based on the specific challenges they meet, and along the different stages of the cropping seasons. The project will organize pre-season meetings for cooperatives², which will facilitate exchanges with prospective buyers, help farmers identify market demand and opportunities, and thus plan their production accordingly. Market exposure will be enhanced by the cooperatives' participation in trade fairs or agricultural shows.

The BDSPs will also facilitate marketing arrangements with traders, processors and/or major off-takers through improved communication and negotiation skills, market-based production programming and joint marketing.

Capacity building of cooperatives. Farmers supported through new irrigation or water for livestock schemes will be encouraged to join existing cooperatives or form new cooperatives that will be registered with the Rwanda Cooperative Agency (RCA). Building on support by RCA, the organizational and technical capacity of both new and existing cooperatives will be strengthened. In addition, KIIWP 2 will establish and develop cooperative linkages and partnerships with WUOs/WLUOs (through seasonal contracts), district and sector staff, RCA staff as well as other stakeholders. Where needed formal agreements or MoUs will be prepared and signed.

Sub-component B.2: Promotion of mechanization, post-harvest storage and irrigation technologies

In line with RAB mechanization programme initiated in 2009, KIIWP, through the FFS training, will sensitize farmers and cooperatives in using farm machinery in different farming operations. The project will also facilitate the linkages of cooperatives with farm machinery

hiring services, by providing incentives for land preparation, hay baling, fertilizer transport, etc. To scale-up access to modern irrigation technologies, the project will build on the support provided by the GoR to assist farmers' investments in simple, affordable and demand-driven Small-Scale Irrigation Technologies (SSIT).

Whenever possible, KIIWP will encourage the optimal use of drying grounds and warehouses already in place in Kayonza District. Particular emphasis will be given to strengthening the linkages between small-holder farmers and the cooperatives or companies that have already received co-financing support from the Post-harvest and Agribusiness Support Project to develop storage, processing or transport facilities in the maize and beans value chains. For new investments that may occur after PASP completion, or for other value chains that are not supported by PASP in Kayonza District (esp. rice), KIIWP will provide grant support using modalities similar to PASP project.

Sub-component B.3: Supporting backward and forward market linkages

KIIWP 2 will strive to improve access to and use of adequate financial services by the target population of Kayonza. Activities will revolve around two types of interventions: (i) strengthening of Community Based Finance Institutions and their active linkage to the cooperatives supported by KIIWP 2; and (ii) facilitating their access to agricultural insurance systems that can alleviate farming risks. In this process, KIIWP 2 will build on the existing agricultural lending products that have been developed in recent years.

Promotion of Agriculture Insurance Schemes. In 2017, the GoR moved towards the development of a National Agriculture Insurance Scheme recommends the implementation of a first phase supporting comprehensive risk insurance (MPCI – Multi Peril Crop Insurance) to cover yield losses due to non-preventable risks such as drought, flood, pests and diseases, etc. The project will seize this opportunity to support MINAGRI's technical support unit in piloting the first phase of the MPCI scheme for maize and beans VCs in Kayonza.

Public-Private-Producers Partnerships (4Ps). In the specific case of pumped irrigation systems that are intended to develop a highly commercial smallholder irrigated production system, 4P-like arrangements with the private sector will be developed whenever feasible. KIIWP will support small-scale farmers with irrigation water supply infrastructure, sensitization and cooperative institutional development, while neighbouring large-scale farmers will manage the production and delivery of irrigation water to smallholder farmers at a fee, ensure a reliable market for smallholder produce, and/or provide technical and farming-as-a-business advisory services in lieu of FFS and BDSPs.

Implementation arrangements. This component B will be implemented under the overall responsibility of the MINAGRI SPIU and the direct coordination and supervision of the Program Manager to be recruited. At SPIU level KIIWP will lean on the Nutrition Specialist and Farmer Organization Specialist recently hired by RDDP project, as well as the Market Support Specialist already assisting other ongoing IFAD-funded projects.

To complement the business development services provided by experienced coaches/mentors, young professional organisations, such as the Rwanda Youth in Agribusiness Forum, and the Horticulture in Reality Cooperative will be mobilized by the project as service providers whenever the need and opportunities arise, in both rain-fed and irrigated areas. Other specialized institutions identified as implementing partners include the Rwanda Cooperative Agency, NAEB (especially for horticulture export crops), the Ministry of Environment, and the Ministry of Health among others.

Component C: Institutional development and project coordination

This component is designed to strengthen government agencies to deliver project outputs and to support policy dialogue and institutional development that will sustain project interventions beyond project completion. To this effect, KIIWP has been integrated with the SPIU structure of RAB that is mandated to implement agricultural projects on behalf of MINAGRI. KIIWP 2 will continue the coordination activities initiated in the first phase at both SPIU and District level under sub-component C.1. In addition, as described below, KIIWP 2 will strengthen institutions that can support directly or indirectly the implementation of KIIWP and provide policy supports that are needed for the effective implementation of the project.

Sub-component C.1: Policy and institutional development

Support for policy dialogue will be provided by KIIWP through an evaluation of implementation and impact of new or existing policies related to the project activities with relevant national, and district level stakeholders. Below are concrete examples of policy discussion points that can be raised and addressed in multi-stakeholder platforms and fora of dialogue to be supported by KIIWP: Support to national policy on contract farming; Support national policy on issues of availability and quality of seeds, including multiplication.

Gender and youth mainstreaming. To ensure gender and youth mainstreaming into project activities and outcomes, RAB in connection with the SPIU will prepare a brief gender action plan and youth strategy, building on work already done by MINAGRI and other IFAD-supported projects. Specific training will be organised to familiarise government and project staff with gender and youth mainstreaming approaches, and special provisions will be made to ensure that gender equity concerns are adopted in the implementation of all project components. The M&E system will be gender and youth-disaggregated to support gender and youth assessments and analysis, and a peer learning group on gender will be established. The officer in charge of gender and youth in the SPIU will be specifically responsible for ensuring and overseeing the implementation of the gender action plan and youth strategy.

Capacity building interventions will be identified for KIIWP staff under the SPIU, including RAB and district personnel engaged in KIIWP implementation. These capacity building activities will be preceded by a needs assessment to be elaborated for the SPIU, RAB and district personnel. The financing of these activities will be done by the concerned entities and co-financed by the project, provided that these capacity building activities are benefiting KIIWP implementation and build the sustainability prospects of the project. Collaboration with the Rwanda Capacity Development and Employment Services Board (CESB) will be thus explored and pursued.

Sub-component C.2: Project coordination

This component focuses on providing the coordination arrangements including the financial and human resources for the implementation of the project.

Lessons learned

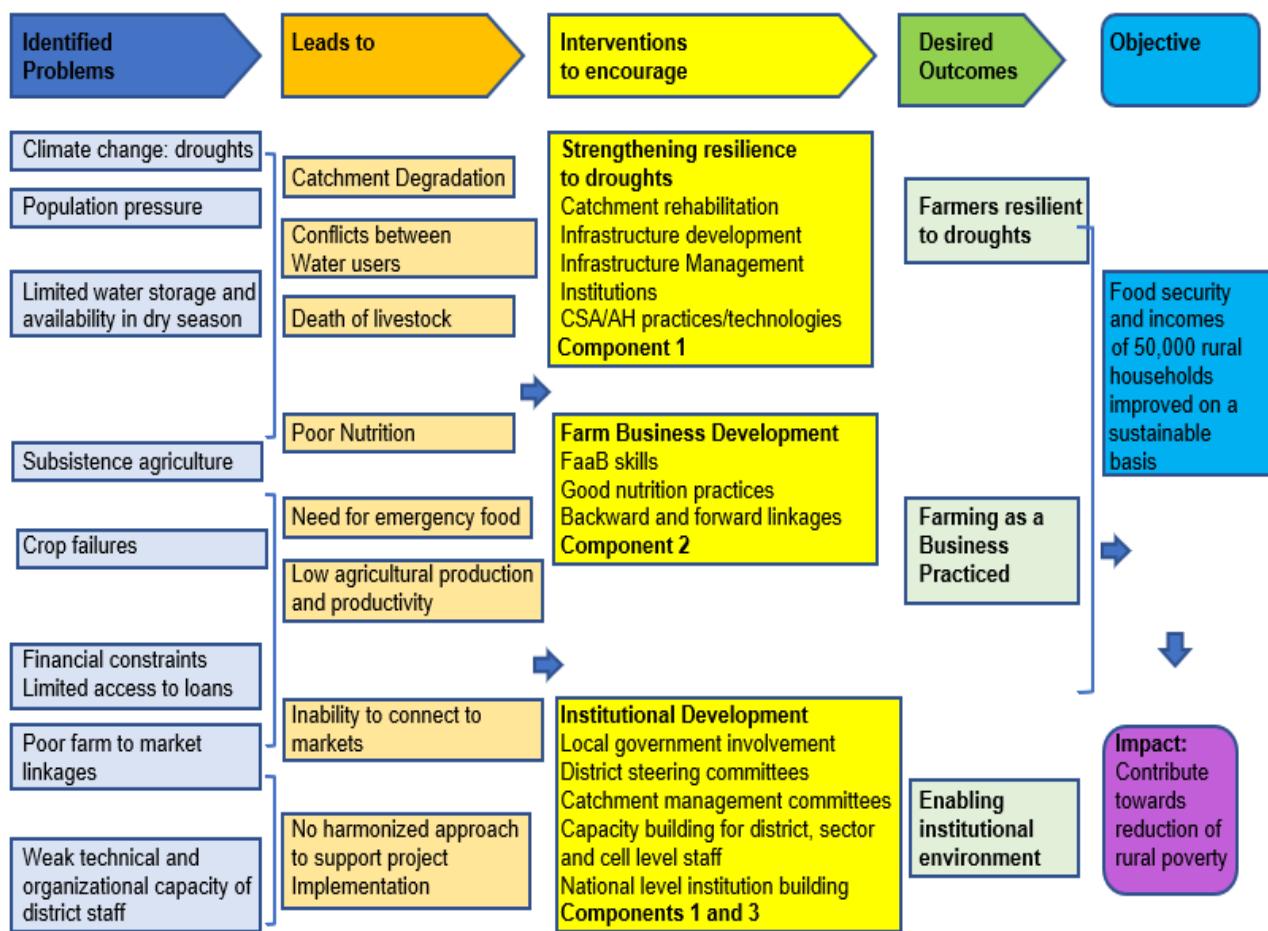
The country loan portfolio provides various lessons learned for the design of KIIWP 2:

1. Cooperatives, farmer organisations capacity building: whilst several cooperatives were either formed or rehabilitated, and supported, they continued to face organizational and governance issues. Further comprehensive and tailored capacity building is required for these institutions. This is precisely what KIIWP foresees to

provide under component B (Support to Farming Business Development) during KIWP 2.

2. Development of farmer's organisational capacity to participate in markets through public-private-producer partnerships is essential but to be successful, formation of 4Ps requires proper diagnostic assessment of key public and private actors and their capacities to foster partnerships from the outset. PASP experience demonstrates that when commercial linkages between farmers and buyers are formalized and trust is built, off-takers can become co-investors with farmers and instrumental to help them access financial services and other market and product quality information that are needed to add value and grow their businesses to scale.
3. In Kayonza District, PASP has supported the development of seven hubs related to the dairy, maize and bean value chains. These hubs are instrumental in terms of provision of training and business advisory services, advancement of farmer cooperatives, construction/rehabilitation of post-harvest infrastructures, creation of market linkages, engagement of private sector and access to financial services. In order to ensure sustainability, capacity building and hub development need to systematically involve District and sector level staff and local leaders. A ToT on hub development, business development and 4P arrangements needs to be organized with participation of all these actors.
4. The potential of horticulture to contribute actively to Rwanda's export diversification has been demonstrated in the last few years. It is also a labour-intensive industry characterized by high incomes per square meter and quick returns on investments, two aspects that are of vital importance in the context of Rwanda's land-scarce resources. Additionally, it is likely to attract youths who typically cannot access much land and are particularly interested in quick wins. Besides economic receipts and jobs, other horticulture related benefits include improving people's nutritional situation, encouraging public-private-producer partnerships in horticulture-related industries, and promoting Rwanda's attractive agro-climatic conditions.
5. Limited access to financial services remains a key bottleneck for smallholder farmers to graduate from subsistence farming to commercial farming. PRICE-supported performance-based grant scheme has proven that horticulture is a bankable sector and it attracted 35 Financial Institutions including Microfinance Institutions, Savings and Credit Cooperatives, Microfinance banks, Commercial Banks and the Rwanda Development Bank.

Table 1: Theory of change for KIIWP 1 and KIIWP 2



Anticipated Financing Plan for KIIWP 2

The project will be financed by: (i) IFAD up to USD 25.7 million (43.4%), through a highly concessional loan; (ii) Private sector for USD 322 thousand (0.5%); (iii) ICCO for USD 246 thousand (0.3%), (iv) Government of Rwanda for a total of USD 8.8 million (15%) in the form of tax exemptions; (v) Co-financiers for a total of USD 22 million (37.3%); and (vi) Beneficiaries for USD 2 million (3.4%). See Tables 2 and 3 for details.

Table 2: Financing Plan by Components for KIIWP 2 (US\$ 000)

	Beneficiaries		IFAD		Co-Financiers		The Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
A. Strengthening resilience to droughts										
1. Catchment rehabilitation and protection structures	-	-	4,667.9	31.6	7,457.1	50.4	2,661.6	18.0	14,786.5	25.0
2. Irrigation Development	249.7	1.0	8,249.8	32.4	12,419.0	48.8	4,537.0	17.8	25,455.6	43.0
3. Infrastructure Management Institutions	-	-	84.8	97.7	-	-	2.0	2.3	86.8	0.1
4. Enhancing climate smart agriculture practices and technologies	-	-	2,465.8	49.3	2,193.3	43.8	346.9	6.9	5,006.0	8.5
5. Environmental and Social Management Plan	-	-	1,770.3	92.6	-	-	140.8	7.4	1,911.1	3.2
Subtotal Strengthening resilience to droughts	249.7	0.5	17,238.6	36.5	22,069.4	46.7	7,688.3	16.3	47,246.0	79.8
B. Support to farm business development										
1. Developing Farming as a Business skills	20.7	2.5	749.1	90.3	-	-	60.0	7.2	829.8	1.4
2. Promotion of mechanisation, post-harvest storage and irrigation technologies	1,761.7	39.5	1,518.6	34.0	-	-	961.1	21.5	4,464.0	7.5
3. Supporting backward and forward linkages	-	-	2,451.3	83.2	-	-	164.6	5.6	2,947.8	5.0
Subtotal Support to farm business development	1,782.4	21.6	4,719.1	57.3	-	-	1,185.7	14.4	8,241.7	13.9
C. Institutional Development and Project Coordination										
1. Institutional Support	-	-	75.0	100.	-	-	-	-	75.0	0.1
2. Program Management and Coordination	-	-	3,667.4	0	-	-	0.0	-	3,667.4	6.2
Subtotal Institutional Development and Project Coordination	-	-	3,742.4	100.	-	-	0.0	-	3,742.4	6.3
Total PROJECT COSTS	2,032.1	3.4	25,700.0	43.4	22,069.4	37.3	8,874.1	15.0	59,230.0	100.0

Table 3: Expenditure Accounts by Financier for KIIWP 2 (US\$ 000)

	Private sector		ICCO		Beneficiaries		IFAD		Co-Financiers		The Government		Total
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount
I. Investment Costs													
EQUIPMENT & MATERIALS	222.6	5.0	-	-	1,630.5	36.6	1,292.7	29.0	295.9	6.6	1,016.5	22.8	4,458.1
GOODS & SERVICES & INPUTS	92.5	2.1	35.4	0.8	20.7	0.5	2,140.7	48.7	1,444.7	32.9	658.9	15.0	4,392.9
WORKS	-	-	-	-	-	-	12,917.6	32.3	19,876.1	49.7	7,198.6	18.0	39,992.4
VEHICLES	-	-	-	-	-	-	-	-	-	-	-	-	-
CONSULTANCIES	-	-	-	-	-	-	1,506.7	96.8	50.6	3.2	-	-	1,557.3
TRAINING & WORKSHOPS	-	-	187.3	5.3	-	-	2,926.3	83.2	402.1	11.4	0.0	-	3,515.8
GRANTS & SUBSIDIES	-	-	-	-	-	-	1,098.6	100.0	-	-	-	-	1,098.6
Total Investment Costs	315.0	0.6	222.7	0.4	1,651.2	3.0	21,882.6	39.8	22,069.4	40.1	8,874.1	16.1	55,015.0
II. Recurrent Costs													
SALARIES & ALLOWANCES	-	-	16.7	0.5	-	-	3,533.6	99.5	-	-	0.0	-	3,550.2
OPERATING COSTS	-	-	-	-	380.9	57.3	283.9	42.7	-	-	0.0	-	664.8
Total Recurrent Costs	-	-	16.7	0.4	380.9	9.0	3,817.4	90.6	-	-	0.0	-	4,215.0
Total PROJECT COSTS	315.0	0.5	239.4	0.4	2,032.1	3.4	25,700.0	43.4	22,069.4	37.3	8,874.1	15.0	59,550.2

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex 12: SECAP Clearance Sheet

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

SECAP Clearance Sheet



TO: Donal Brown
Associate Vice President, PMD

FROM: Lauren Phillips
Director OPR

DATE: 31 March 2020

SUBJECT: Adherence to SECAP requirements for Category A projects only.

Project Title: Kayonza Irrigation and Integrated Watershed Management Project - Phase I

Country: Rwanda

Division: ESA

Country Programme Manager: Francesco Rispoli

Project Category: A

Executive Board: 02/05/2019

Implementation Stage

1.The Environmental and Social Impact Assessment (or other relevant SECAP studies) has been completed and reviewed by the relevant national authority and IFAD	Yes
2.The Free Prior and Informed Consent (FPIC) has been obtained by the borrower or grant recipient	N/A
3. The FPIC Implementation Plan has been developed at the design stage and reviewed by the relevant national authorities and IFAD	N/A
4. The ESIA (or other relevant SECAP studies) has been cleared/approved by the relevant National Authorities for disclosure on IFAD website	Yes
5.The FPIC process has been completed or the FPIC Implementation Plan has been cleared/approved by the relevant National Authorities for disclosure	N/A

<p>6.The ESIA and /or FPIC/FPIC Implementation Plan has been disclosed on IFAD website?</p> <p>Effective disclosure date on IFAD website: 17/01/2019</p> <p>Notes</p> <p>KIIWP1 only include category B interventions, given that it focus on preparatory studies for irrigation schemes as well as ESIAAs which are precondition to proceed to KIIWP2</p>	N/A
<p>7.The Resettlement Action Plan (RAP) has been completed and reviewed by IFAD and the relevant national authorities</p>	N/A
<p>8. The review of the land acquisition and compensation process has been completed and reviewed by IFAD and the relevant national authorities</p>	N/A
<p>9.The RAF has been cleared by National Authorities for disclosure on IFAD website</p> <p>Effective disclosure date on IFAD website:</p> <p>Notes</p>	N/A

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex: Partnerships foreseen in KIIWP2

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 13: Partnerships foreseen in KIIWP 2

MINAGRI will maintain an oversight role and lead the policy interventions and dialogue for the sector in general and for KIIWP implementation in particular. The Permanent Secretary in MINAGRI will maintain the role of Chair within the steering committee of KIIWP.

IFAD-funded "Climate Resilient Post-Harvest and Agribusiness Support Project" (PASP) is implemented in Kayonza too and as of April 2018, a total of 16 entities (of which nine cooperatives) had their business plans already co-financed by PASP in the maize and beans value chains. Ten of these projects led to the construction/rehabilitation of warehouses, five related to drying/milling equipment, and one to maize and beans transportation KIIWP will ensure beneficiaries are connected to these structures, and build on lessons learned on post-harvest management, cooperatives capacity building and forage production.

IFAD-funded Rwanda Dairy Development Program (RDDP) is operational in 12 districts of four Provinces of Rwanda: East (Nyagatare, Rwanamagana, and **Kayonza**), North (Gicumbi, Burera, and Musanze), West (Nyabihu, Rubavu and Rutsiro) and South (Nyanza, Huye, and Ruhango). It focuses on developing the dairy value chain through improving cattle productivity, milk quality and processing capacity of the dairy industry, and strengthening the policy and institutional framework for the sector. Synergies will be created in Kayonza District, especially in dairy development and water for livestock.

IFAD-funded Project for Rural Income through Exports (PRICE) is a country-wide project focusing on the establishment of pro-poor cash crop value chains involving smallholder production and early transformation in partnership with private operators. Under KIIWP, synergies will be established under the development of horticulture value chains for both domestic and export markets.

Access to Finance Rwanda (AFR) has the core objective of stimulating the development of the financial sector in Rwanda. AFR's intention is to remove the systemic barriers that hinder access to financial services by putting the low income people particularly the rural poor and women at the centre of its interventions. AFR supports the development and provision of financial services including savings, credit, insurance, payments and remittances. AFR is funded by the UK Department for International Development (DFID,) Sweden, the United States Agency for International Development (USAID), the MasterCard Foundation and KfW Development Bank. For KIIWP implementation, collaboration with AFR would be explored in policy dialogue in rural finance and for specific instruments that are relevant for KIIWP implementation.

ICCO Cooperation: The newly launched 'Strengthening African Rural Smallholders' (STARS) programme is a five-year initiative of ICCO to support 210,000 farmers (50% women) in rural Ethiopia, Burkina Faso, Rwanda and Senegal to access appropriate financial products and agricultural services. Strong areas of collaboration with ICCO have been identified. For more details, please see Annex 4 under Component B.

Business Development Fund (BDF): Established in 2011 as a wholly owned subsidiary of the Development Bank of Rwanda (BRD), BDF has the objective of assisting SMEs to access finance, particularly those without sufficient collateral to obtain credit from traditional financial institutions at reasonable rates. For KIIWP implementation, collaboration with BDF could be explored, especially with the Guarantee Fund and matching grant schemes currently managed by BDF and financed by PASP, PRICE and RDDP.

Rwanda Cooperative Agency (RCA) promotes, regulates and supervises the grouping of many smallholders into more effective market-oriented cooperative organizations. RCA was created through Law n° 16/2008 of 11.06.2008 which is strongly related with Law n° 50/2007 of 18.09.2007 adopted by the Parliament to determine the establishment, organization and functioning of Cooperative Organizations in Rwanda. RCA is in charge of

several activities connected with the creation and supervision of cooperatives including: registering, regulating and supervising cooperatives; setting standards and formulating professional ethics for prudent management; assisting with capacity building through training and seminars; encouraging the cooperative movement to take advantage of investment opportunities at national, regional and international levels; carrying out research and studies; advising the Government; and developing good relations and collaborating with other agencies carrying out similar missions.

Rwanda Capacity Development and Employment Services Board (CESB) established under the Law N°43/2016 of 18/10/2016 is strategically positioned under the Ministry of Public Service and Labour (MIFOTRA). CESB aspires to be a center of reference and support engine for Capacity Development interventions and Employment Promotion advisory services in the Country. Its mission include, among others: (i) advise Government on the implementation of institutional capacity-building and human resource development strategies and how to match them with employment promotion; (ii) monitor and coordinate the implementation of the national institutional capacity-building and human resource development strategies and those related to employment promotion; (iii) play a role in the national institutional capacity-building and human resource development planning; (iv) manage the National Capacity Development Fund and mobilize resources for initiatives under capacity development and employment promotion.

Partnerships. KIIWP will provide an opportunity to further strengthen the collaboration with the other Rome-based UN agencies. The project will leverage FAO expertise in FFSs which will be used to enhance smallholders' CSA and AH practices and technologies. The use of Rural Invest to develop bankable business plans, and mobile apps developed by FAO (e.g. Agrimarket place, Weather and Crop Calendar, e-Nutrifood, and a Cure and Feed livestock app) will also be promoted in project implementation during KIIWP 2. IFAD experience with FAO and International Water Management Institute (IWMI), in supporting investments in Agricultural Water Management (AWM) has informed the design of KIIWP 1 and will be instrumental to further shape KIIWP 2.

Potential areas for collaboration with WFP include the Farmer to Market Alliance (FtMA), which takes a market led approach promoting access to predictable markets and affordable finance, to technologies and quality input, including handling and storage solutions. Partnerships with NGOs and key players, such as AGRA, SNV and Technoserve, will be continued to pilot innovations and mobilise additional resources for the achievements of the project development objectives. Opportunities to collaborate with ICCO International have been particularly explored during the design process. The newly launched 'Strengthening African Rural Smallholders' (STARS) provides concrete opportunities for cooperation. KIIWP will leverage on the existing resources of ICCO-STARS to scale-up its current interventions in Kayonza, which is based on supporting smallholders through a combination of interventions meant to enhance backward and forward linkages: develop entrepreneurship skills, strengthen cooperative governance, promote business models to access inputs and post-harvest equipment through partnerships with processors, build the capacity of financial institutions, develop agricultural assessment tools for risk mitigation.

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex: Project risks and mitigation measures foreseen in KIIWP2

Mission Dates: 23 April-04 May 2018

Document Date: 31/03/2020

Project No. 2000002229

Report No. 5007-RW

Loan ID 2000002900

East and Southern Africa Division
Programme Management Department

Annex 14: Project risks and mitigation measures foreseen in KIIWP2

Main risks	Mitigation measures
Climate and environment risk. Rwanda faces increasing effects of climate change as evidenced by prolonged droughts.	Strengthening resilience to drought and promotion of CSA and AH practices and technologies form a major part of the project.
Land fragmentation and high population density lead to catchment degradation.	Catchment rehabilitation and protection structures and systems will be implemented, new farming systems are required to increase productivity and water efficiency.
Competition between water users in times of scarcity (especially irrigators and cattle owners).	KIIWP provides for increasing water storage (small valley dams) or (solar powered) boreholes for livestock. Catchment water management committees will be strengthened, in order to support joint management of limited water resources.
Low farming entrepreneurship skills prevent the graduation of the target population from subsistence farmers to commercial smallholder farmers.	Farming as Business skills will be enhanced through the proximity coaching approach. Particular emphasis will be put on the basics of FaaB, that are a pre-requisite to enable farmers to take informed decisions on what they should produce, which market they should aim at and which investment they can afford.
Weak management capacity of cooperatives hampers their ability to develop as a fully-fledged commercial entity to market crop surplus.	KIIWP is expected to (i) support focused capacity development programmes to foster the governance and management capacity of cooperatives, and (ii) facilitate their marketing arrangements with traders, processors and/or major off-takers through improved communication and negotiation skills, market-based production programming and joint marketing. BDSPs will actively accompany the cooperatives up to the stage of signing supply contracts that ensure a fair distribution of the profits and enhanced trust between the different parties.
Lack of large and/or reliable market could lead to heavy post-harvest losses, especially for the most perishable products like fruits and vegetables.	The rapid rate of urbanization in Rwanda has already initiated a strong growth in the domestic demand for horticultural produce. The demand for horticulture exports is also on the raise (+ 75% in export value from 2016 to 2017), and cross-border trade is a substantial market that is extremely profitable during the dry season, when the regional production is low. Irrigated lands will thus enjoy a comparative advantage during these months. In all cases, the selection of horticultural produce grown under KIIWP will be 100% market-driven. KIIWP is also expected to capitalize on experience of PRICE and PASP projects: through the BDSPs, the project will engage actively with the key off-takers who have already managed to make a break through on the international markets.
Common External Tariff barriers and unregulated importation of cheaper soya beans from external markets could affect the competitiveness of Rwanda farmers and their interest in producing such crops despite high demand from the private sector (esp. for animal feed).	Thorough market assessment and gross margin analysis will be carried out with the support of the BDSPs before farmers engage in soya production. Should this crop reveal to be less profitable than other crops farmers would like to engage in, it will be replaced by an alternative crop that presents a better comparative advantage.

Main risks	Mitigation measures
Limited access to financial services restrains smallholder farmer's capacity to (i) invest in the small-scale irrigation technologies (SSIT) and (ii) access the necessary working capital to implement the CSA practices promoted by KIIWP.	KIIWP will strive to build on the existing agricultural lending products that were developed in the last years. Opportunities to collaborate with ICCO (STARS program) and others will be seized and a grant fund to assist smallholder farmers in accessing finance to co-invest in irrigation technologies and post-harvest infrastructure will be set in place.
Weak technical capacity, governance and institutional capacities can lead to slow disbursement, lower project benefits as well as delays in implementation.	Raising awareness and capacity building are key elements, especially of FOs and District, Sector and Cell level staff. The SPIU is already in place with core staff. Involvement of experienced technical KWAMP staff will also speed up project implementation. Supervision and implementation support missions, especially in years 1 and 2 will support focused project implementation.
The re/afforestation activities foreseen in Kayonza water catchment areas, that are now falling under the Ministry of Environment and Natural Resources, may not intervene along the same timelines as the project's interventions.	The PSC chaired by the PS MINAGRI will play a key role in ensuring that KIIWP's interventions are well coordinated with those of other Ministries, especially the Ministry of Environment that has launched a special planting programme in the Eastern Province (see Annex 12 SECAP Note). The sector- and district level catchment committees are also expected to further ensure that this programme responds well to the specific needs of KIIWP target groups.

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase I Project Design Report

Annex: Kiiwp Esmf Report 20181130 Final

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GOVERNMENT OF RWANDA



**Ministry of Agriculture and Animal Resources
(MINAGRI)**

Rwanda Agriculture and Animal Resources Development Board (RAB)

**Kayonza District Irrigation & Integrated Watershed Management Project
(KWIIP)**



**Environmental and Social Management Framework
(ESMF)**

FINAL REPORT

November 2018

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Lake Ihema, the Bramin Scheme in the foreground and Humure beyond

Acronyms and Abbreviations

Agri-TAF	Agriculture Technical Assistance Facility
ANP	Akagera National Park
BDSPs	Business Development Service Provider
CBD	Convention on Biological Diversity
CBFI	Community Based Finance Institution
CGIAR	Consultative Group on International Agricultural Research
CITES	International Convention on the Trade in Endangered Species
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CSA	Climate Smart Agriculture
DDP	District Development Plan
DEO	District Environment Officer
ECC	Environment and Climate Change
ECCO	Environmental and Climate Change Officer
EDPRS	Economic Development and Poverty reduction Strategy
EF	Environmental Flow
EICV	Integrated Household Living Conditions Survey
ENRM	Environment and Natural Resource Management
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plans
FaaB	Farming as a Business
FAO	Food and Agriculture Organization,
FAW	Fall Army Worm
FBF	Fortified Blended Food
FFS	Farmer Field School
FIRR	Financial Internal Rate of Return
FO	Farmers' Organisation
FPIC	Free, Prior and Informed Consent
GGCRS	Green Growth and Climate Resilience Strategy
GIS	Geographical Information Systems
GRM	Grievance Redress Mechanism
Ha	Hectare
HH	Household
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
ICT	Information Communication Technology
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IL	Impact Level
INDC	Intended Nationally Determined Contribution
IPMP	Integrated Pest Management Plan
IWUO	Irrigation Water Users Organisation
KIIWP	Kayonza Integrated Irrigation and Watershed Development Project
km	Kilometre
KWAMP	Kirehe Community-based Watershed Management Project
LDC	Less Developed Countries
LPA	Lead Project Agency
LWH	Land Husbandry, Water Harvesting and Hillside Irrigation Project
m ²	Square metre
m ³	Cubic metre
MINAGRI	Ministry of Agriculture and Animal Resources
MININFRA	Ministry of Infrastructure

MINIRENA	Ministry of Environment
MPCI	Multi Peril Crop Insurance
NGO	Non-Governmental Organization
NST	National Strategy for Transformation
O&M	Operation and Maintenance
PAP	Project Affected Persons
PAPSTA	Support Project to the Strategic Plan for the Agriculture Transformation
PASP	Post-harvest and Agribusiness Support Programme
PCBs	Polychlorobiphenyls
PCR	Physical Cultural Resources
PRICE	Project for Rural Income through Exports
PSC	Project Steering Committee
PSF	Private Sector Federation
PSTA	Strategic Plan for Agricultural Transformation
RAB	Rwanda Agriculture and Animal Resources Development Board
RAF	Resettlement Action Framework
RAP	Resettlement Action Plan
RB-COSOP	Results-Based Country Strategic Opportunities Programme
RCA	Rwanda Cooperative Agency
RDB	Rwanda Development Board
REMA	Rwanda Environmental Management Authority
RICA	Rwanda Inspection and Competition Authority
RIMP	Rwanda Irrigation Master Plan 2010
RLMUA	Rwanda Land Management and Use Authority
RSB	Rwanda Standards Board
RSSP	Rural Sector Support Program
RWFA	Rwanda Water and Forestry Authority
SDC	Sector Development Committee
SDG	United Nations Sustainable Development Goals
SECAP	Social, Environment and Climate Assessment Procedures
SEDO	Socio-economic Development Officers
SPIU	Special Projects Implementation Unit
SSO	Social Safeguards Officer
SWC	Soil and Water Conservation
TA	Technical Assistance
TSS	Technical Secondary School
TVET	Technical and Vocational Education and Training
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
VCT	Voluntary Counselling and Testing
VTC	Vocational Training Centres
WHO	World Health Organisation
WUO	Water Users Organisation

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Special thanks are due to the community members in the Project area who made such an effort to come to the stakeholder consultations and gave us their precious time and valuable inputs and recommendations.

Executive Summary

INTRODUCTION

Rwanda's Eastern Province has suffered from recurrent drought in recent decades. In 2016, a severe drought resulted in extremely poor crop yields and the loss of more than 2,400 heads of cattle. As a result, the Government of Rwanda (GoR) had to provide food relief and water for livestock to support some 47,000 households in the worst affected districts of Kayonza, Nyagatare, Gatsibo, Ngoma and Kirehe. In order to support these districts to increase resilience against such drought-induced calamities, the GoR requested the International Fund for Agricultural Development (IFAD) to formulate a new integrated irrigation and watershed development project focussing on Kayonza District, which was most seriously affected.

The goal of the Kayonza Integrated Irrigation and Watershed Development Project (KIIWP) is to '*Contribute to poverty reduction in the drought prone Eastern Province of Rwanda*'. The Project's Development Objective is to '*Improve food security and incomes of 50,000 rural households on a sustainable basis*'.

KIIWP investments focus on irrigation and integrated watershed management and planning, including integrated activities and investments on water harvesting and storage, irrigation schemes and the development of marshland development. The Project will impinge on ecologically sensitive areas (namely the Akagera National Park and marshlands), irrigate fields that are greater than 100ha in area, and may necessitate a significant increase in the use of agrochemicals. Thus, as per IFAD's Social Environmental and Climate Assessment Procedures (SECAP) screening guidelines, the Project has been accorded an overall Category A classification.

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

As the exact boundaries and/or locations of the interventions have not yet been determined, nor have feasibility studies been carried out, it is not possible to prepare environmental and social impact assessments (ESIAs) and environmental and social management plans (ESMPs) for the various subprojects. Hence the preparation of an Environmental and Social Management Framework (ESMF) was deemed necessary in order to inform the design, and to guide the preparation of ESIAs or ESMPs for the subprojects.

The ESMF study commenced in August 2018. The study methodology comprised: collection and review of primary and secondary baseline data; consultations with key stakeholders and project area communities, site visits to all the eight project districts, and report writing.

This ESMF is based on the Project Design Report (PDR) dated August 2018. It will be noted that the PDR is still under development, and although the sub-component descriptions may change, the types of interventions will remain the same.

PROJECT DESCRIPTION

Project Location

Kayonza District is located in Eastern Province, Rwanda. It is bordered to the north and north-west by Gatsibo District, Rwanamagana District to the west, Ngoma District to the south-west and Kirehe District to the south. Its shares its eastern border with Tanzania. The Project area covers the eight drought-prone sectors of the District of Kayonza in the Eastern Province of Rwanda, namely Gahini, Kabare, Kabarando, Murama, Murundi, Mwiri, Ndego and Rwinkwavu sectors.

Project Components

The Project will comprise three components, namely:

- Component 1: Strengthening resilience to droughts. This will invest in irrigation infrastructure development in marshlands and hillsides for intensive smallholder agriculture and improved water supply for livestock and domestic use; catchment rehabilitation including terracing and agro-forestry; and support for the development and establishment of infrastructure management institutions. These investments combined with the activities implemented under Component 2, will result in effective water and land-use management and improved survival of cattle during droughts.
- Component 2: Support to farm business development. This component will focus on promotion of climate smart agriculture (CSA) practices and technologies for irrigated and rainfed lands improved under Component 1, promotion of good nutrition practices, capacity development investments to foster Farming as a Business (Faab) skills, governance and management capacity of cooperatives, enhanced access to rural financial services and development of 4Ps.
- Component 3: Institutional Development and Project Coordination. This component will provide the institutional, managerial and administrative support services needed to implement the two technical components. Opportunities to support the development and implementation of national policies, strategies and/or regulations related to the Project interventions will be prioritized.

KIIWP will directly target approximately 50,000 households which will benefit from terracing and agro-forestry and resultant improved water retention; irrigated farming in marshlands and hillsides; organisational strengthening activities supporting sustainable water management by water user organisations; smallholder pumped irrigation schemes in Ndego and Kabare Sectors; water harvesting infrastructure; and provision of water for livestock and domestic use. Most of KIIWP's target group will comprise men and women farmers and livestock keepers, as well as men, women, youth and the physically challenged in wage labour and off-farm activities along the target value chains.

Project Implementation Arrangements

The Lead Project Agency for KIIWP will be the Rwanda Agriculture and Animal Resources Development Board (RAB) which will have the overall responsibility for the coordination and execution of the Project. KIIWP will be integrated within the Special Projects Implementation Unit (SPIU) for IFAD projects that are under RAB. The SPIU Coordinator will also oversee and coordinate KIIWP activities that will be implemented at both the central and district level. The IFAD SPIU Environmental and Climate Change Specialist will be responsible for monitoring the environmental, social and climate performance of the subprojects. A Project Steering Committee (PSC) will be set up, where the PS of MINAGRI will be the chair of the PSC.

At district-level, staff will include an accountant; a WUO Specialist; a Land Husbandry (SWC) Engineer; a Cooperative Development Officer; a horticulture specialist; and an irrigation technician all integrated

in the district organization structure and paid by KIIWP. It is recommended that the District KIIWP Team include an Environmental and Climate Change Officer and a Social Safeguards Officer. The management of infrastructure and optimal use of developed land will be ensured by a Scheme Steering Committees for irrigation and soil conservation activities at both District and Scheme level.

Sub-catchment Committees will be set up for each selected watershed and will work closely with sector development committees (known as SDCs) and with FOs and various other associations

Selected Sites for Interventions

The selection of interventions has been based on the participatory approach, technical considerations and economic considerations. The participatory approach involves establishing the types of crops that the smallholder farmers are already growing, what they would like to produce, identification of markets, capacity to contribute to the Project (whether in cash or kind), how they can contribute (for example at what point during the year are they able to contribute, whether they prefer to stagger their contribution over the Project period, etc). Technical considerations include water availability; availability of land for irrigation and catchment protection activities; climatic factors; soil characteristics, stability and suitability; topography; proximity to settlements; and accessibility of the proposed sites. The key economic considerations in site selection are investment cost per hectare and a favourable Financial Internal Rate of Return (FIRR).

Four sites have been selected for pumped irrigation in Ndego and Kabare Sectors totaling 2000 ha, about 275 ha of land will be developed for marshland irrigation in Rwinkwavu, Kabare and Kabarondo Sectors; and in Muruma Sector, farm ponds will be constructed for rainwater irrigation of some 10ha of land. Catchment rehabilitation and protection interventions will include terracing and agroforestry and will cover an estimated 1300ha. It is also proposed that in Ndego, Gahini, Murundi and Mwiri Sectors, 7 new valley tanks will be constructed, 15 valley tanks will be rehabilitated, and 20 boreholes will be installed to provide water for livestock and domestic purposes. The selected sites and respective interventions are tabulated in Table E.1 below.

Table E.1: Selected Sites and Respective Interventions

Infrastructure	No.	Av. Size (ha)	Total area (ha)	Comments
Irrigation				
Pumped irrigation	3	400 600 400	1400	Ndego sector: 3 sites (Kibare, Humure, Byimana) Source: Lakes Kibare, Ihema, Nasho
	1	600	600	Kabare sector: 1 site (Gakoma) Source: Lake Nasho
Small marshlands			275	To irrigate both marshlands and hillsides Sectors: Rwinkwavu, Kabare (River Gishanda) 125 ha Kabarondo (River Kanyeganyege):150 ha
Farm-level ponds	200	0.05	10	Source: rainwater Locations: Murama Selection criteria: terraced land, but no water Pond size 50-200m3
Catchment Conservation				
Land Husbandry (Terraces + agroforestry, mulching, liming, etc)			7500	Includes 2275 irrigated and rainfed Kabare, Kabarondo, Rwinkwavu: dam or irrigation related Murama (900ha), Kabarondo (190ha): rainfed Criteria for selecting locations: terraced land with water scarcity; non-terraced land Av. Household land holding: 0.3ha
Provision of Water for Livestock and Domestic Purposes				
Valley tanks new	7			Ndego, Gahini, Murundi and Mwiri Sectors Locations of new tanks and boreholes and respective capacities not known at this stage.
Valley tanks rehab	15			No. of people and livestock to be supplied not yet established.
Boreholes	20			

POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT

The Constitution of the Republic of Rwanda, promulgated in 2003 and revised in December 2015, articulates 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. The Constitution recognizes ownership of property and every person's right to private property. Consequently, private property, whether individually or collectively owned, is inviolable. However, the right to property may be overruled in the case of public interest, and in such cases procedures are determined by the law and subject to fair and prior compensation. Key national policies and strategies relevant to KIIWP are the National Environment Policy, Land Policy, Agriculture Policy, Fertilizer Policy, Water Resources Management Policy, Health Sector Policy, Green Growth and Climate Resilience Strategy, Biodiversity Strategy and the Strategy for Transformation. Pertinent national legislation and ministerial orders cover Environment, Land, Expropriation in the Public Interest, Structure of Lands, Modalities of Land Registration, Agrochemicals, Environmental Impact Assessment, and Protected Animal and Plant Species.

With regard to the institutional framework for environmental management as applicable to KIIWP, the Ministry of Environment (MINIRENA) is the ministry responsible for the environment. The Rwanda Environmental Management Authority (REMA) was established under Law No. 16/2006 of 2006 as amended in 2013, as the authority in charge of supervising, monitoring and ensuring that issues relating to environment are integrated in all national development programs. However, the mandate for implementing EIA of development activities is delegated to the One Stop Centre within the Rwanda Development Board (RDB). Ministry of Agriculture and Animal Resources (MINAGRI) has a primary mandate for the development, transformation and modernization of agricultural sector in Rwanda, while the Rwanda Agriculture and Animal Resources Development Board (RAB) has a mandate to coordinate all activities in relation with agriculture and animal resources development. The Rwanda Water and Forestry Authority (RWFA) is responsible for implementing policies, laws, strategies and Government decisions related to the management of forests and natural water resources. Finally, the Eastern Province and Kayonza District Administration are also involved in supporting the RDB to review Project Briefs, EIA reports, organize and host public hearings, and in the implementation of environmental management and monitoring plans.

Rwanda is party to a number of international treaties and conventions including: the Convention on Biological Diversity (CBD), Cartagena Protocol to the CBD, Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES), the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol to the UNFCCC, the Ramsar Convention, the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on Commercial Transactions of Agricultural Pesticides and Other Poisonous Products, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes, the Montreal Conventional on Substances that Deplete the Ozone Layer, and the Bonn Convention on Conservation of Migratory Species of Wild Animals.

IFAD'S SAFEGUARD POLICIES

IFAD has developed safeguard policies to support the sustainable implementation of its activities and interventions in achieving its mandate to eradicate rural poverty and food insecurity. These include policies on Improving Access to Land and Tenure Security, Disclosure of Documents, Environment and Natural Resources, Gender Equality and Women's Empowerment, and Targeting, as well as a Climate Change Strategy and Social, Environment and Climate Assessment Procedures (SECAP).

In general, there are no great deviations between the GoR and IFAD policy streams. The main differences are that the GoR policies do not specifically provide for climate risk categorisation, and FPIC and livelihood restoration where physical and economic displacement may occur.

LESSONS LEARNED

IFAD has supported a number of projects in the agricultural sector in Rwanda, namely Support Project to the Strategic Plan for the Agriculture Transformation (PAPSTA), Kirehe Community-based Watershed Management Project (KWAMP), Post-harvest and Agribusiness Support Programme (PASP), and is currently supporting the Project for Rural Income through Exports (PRICE). The World Bank is funding the Rural Sector Support Program (RSSP) and Land Husbandry, Water Harvesting and Hillside Irrigation Project (LWH). Some of the key lessons from these projects are:

- Capacity building is required at various levels and groups: project beneficiaries, irrigation water users organisations (IWUOs), cooperatives, MINAGRI personnel, District and sector level staff.
- IWUOs must be formed early in the project development process;
- The success of commercial linkages between farmers and buyers is based on trust between the two parties.
- Competent service providers must be engaged to develop the sound technical designs for irrigation schemes.
- The formation of road brigades in KWAMP has ensured maintained and accessible feeder roads to facilitate the transport of produce from irrigation schemes to markets.
- Innovations or models from other countries need to be introduced early in the design stages for communities and farmers to understand the processes involved.
- More effort needs to be made to involve youth in agriculture.
- The watershed management approach should incorporate land, soil, water, vegetation, topography, and above all, the human watershed community.
- Integrated projects can serve to develop close cooperation between different ministries and government agencies. For example, in the case of KWAMP, collaboration between the project and REMA facilitated the implementation of measures for the protection of buffer zones by planting grasses, agroforestry trees, forestry and soil erosion control measures, and with MINIRENA resulted in capacity building of hydrographic committee members.
- Consideration of alternative low-cost technologies in the early stages of the project will allow for monitoring and assessing the performance of interventions during the project period. In the case of KWAMP, biogas systems were introduced later on in the project, and therefore it was not possible to assess the success of the intervention in terms of watershed and natural resource management, which was the prime purpose of the intervention.

ENVIRONMENTAL AND SOCIAL CHARACTERISTICS OF THE KIIWP PROJECT AREA

Topography: The Project area is characterised by a series of hills that run roughly north to south through the middle of the district (the Eastern Plateau). The hills give way to valleys where floodplains and wetlands are found. To the east of this line of hills is a large gently undulating expanse – the Eastern Savannah – which slopes towards the Akagera wetlands system.

Climate: The Project area receives an average rainfall below 700mm, and higher temperatures, frequently exceeding 30°C in February and July-August. The area is therefore subject to prolonged

periods of drought. The Baseline Climate Change Vulnerability Index¹ for Rwanda indicates that Eastern Province is most vulnerable in terms of exposure, sensitivity and adaptive capacity to climate change.

Geology, Soils and Minerals: The soils in the Project area are derived from metamorphic rocks and granitic rocks of the Precambrian Period. They are mainly oxisols particularly around the lakes and water bodies, vertisols where the wetlands are found, inceptisols in the lowland areas between the wetlands and the Akagera National Park, and small occurrences of entisols. Most of the Project sites lies in relatively flat or gently undulating terrain, and soil loss is considered to be low. Mineral resources found in Kayonza District are wolfram (tungsten), cassiterite (tin) and coltan in Rwinkwavu, Murundi, Ruramira, Mwili, Rukara, Ndego and Kabarondo Sectors.

Hydrology and Surface Water Resources: The Project area falls entirely within the Lower Akagera Catchment. The Akagera River forms the eastern border of Kayonza District with Tanzania. The River has several small tributaries, such as the Kadiridimba River and Cyizange River, that originate to the south west of the District, and flow north through the Project area to join the Akagera River to the north of the Akagera National Park. In addition, there are a number of lakes in the Project area, namely Lakes Nasho, Chyambwe, Gishanda and a small section in the southern part of Lake Ihema. The rest of Lake Ihema lies in Mwiri Sector within the Akagera National Park, together with Lakes Hago, Kivumba, Ngerenke, Kihari and the southern tip of Lake Kisanju. The lakes in the Akagera/Nasho complex shallow (less than 10 m in depth). They have high nutrient values, species diversity and productivity.² The Akagera River shows bidirectional flow patterns which depend on the sequence, magnitude and duration of hydrological events in upstream catchments and within the lower Akagera catchment itself. “Reverse flow” occurs when the Akagera River is in flood as a result of rainfall in the upstream catchments (Akagera and Ruvubu) filling up the lakes. The Lower Akagera Catchment Master Plan states that the width and depth of the channels between Akagera River and lakes are a crucial factor for maintaining the hydrological functionality, recommends that abstraction of water for agricultural use between the Akagera River and its lakes should be avoided³. Based on catchment wide data, the adjusted water balance for the Lower Akagera Catchment indicates that at catchment level the renewable resources are sufficient to cater for demand until 2030, after which resources will be stressed during the twenty-year dry year; but by 2040, water resources during the dry season will be stressed for most years, except when exceptionally wet years are experienced.

Hydrogeology and Groundwater Resources: The Project area is dominated by permeable fractured aquifers (quartzites on schist base) and low permeable fractured aquifers (schist and micaschist) which are likely to have low suitability for groundwater. The Lower Akagera Catchment Master Plan recommends that if and when groundwater aquifers are exploited in Murundi, Gahini and Mwiri, they should be closely monitored for diminishing water tables⁴.

Environmental Flow: There is no nationally set standard for environmental flow (EF), and the Rwanda Water and Forest Authority (RWFA) determines EF on a case by case basis. However, the Lower Akagera Catchment Master Plan proposes an EF of 33% of the average monthly flow, but states that the water balance of the lower Akagera shows sufficient resources up till 2030, but environmental flow may be compromised during dryer years (1 in 20 dry year).

Wetlands: In 2010, REMA listed and mapped all wetlands in the country and assigned them various

¹ REMA (2015). Baseline Climate Change Vulnerability Index.

² REMA (2015). State of the Environment and Outlook Report

³ Rwanda National Water Resources Master Plan; Master Plan Report – Appendix 08NAKL. Catchment Master Plan – NAKL

⁴ Op. cit. Lower Akagera Master Plan

protection levels: i) total protection where no activities are allowed to take place; ii) conditional exploitation which requires a basic environmental and social impact assessment to be carried out, and for which the EIA licence issued by the Rwanda Development Board stipulates the conditions and types of activities that are permitted to be conducted in those wetlands; and iii) unconditional exploitation which allows use under given conditions. Most of the proposed irrigation schemes will draw water from conditional wetlands. It is noted that the proposed scheme at Humure in Ndego Sector will draw its water from Lake Ihema, where the shoreline bordering the scheme is under total protection. The scheme design will therefore have to consider an alternative site, or alternative methodology for abstraction and pumping of water to the scheme.

Vegetation and Forests: The savannah vegetation in the Project area comprises a mosaic of grassland, broadleaved and/or deciduous shrubland and forest. Within the Akagera wetland complex south of the Akagera National Park, there are a total of 77 vascular plants of which two are endangered orchid species (*Eulophia angolensis* and *Eulophia guineensis*)⁵. A major threat to the water bodies in the Project area is the invasion of lakes - including Lakes Ihema and Nasho – by Water Hyacinth (*Eichhornia crassipes*). There were three types of forests in Kayonza District: natural, agroforestry and forest lots (woodlots), but the only natural forests now left in the District are those in the Akagera National Park.

Fauna/Wildlife: Human activity throughout much of the District has disturbed faunal habitats, and there is a paucity of large mammals in the Project area, apart from Hippopotamus (*Hippopotamus amphibius*) which can be found in a number of dams/valley tanks in the Project area, Baboon (*Papio anubis*), Vervet Monkey (*Chlorocebus pygerythrusantelope*), and perhaps some smaller species of antelope. Otherwise, wildlife in the Project area is largely confined to the Akagera National Park. However, the wetlands in the Project area provide unique habitats for a number of faunal species. Threats to aquatic fauna in the Project area include the decrease of native fish species in the lakes of the Nyabarongo-Akagera river system due to the invasion and increase of predator species, such as *Protopterus aethiopicus* and *Clarias gariepinus*. While no extensive faunal surveys have been carried out in the Project area, it is likely that the wetlands to be utilised for Project activities may be inhabited by some threatened or endangered species. The environmental impact studies carried out for the proposed sites must therefore take this into consideration.

Akagera National Park: The Akagera National Park (ANP) was established in 1934 and originally covered an area of more than 2,500 sq km. Following the civil strife, a number of refugees settled around the park, and as a result the wildlife populations were severely affected by poaching for meat, and due to clearing for cultivation. Since 1994, the park area has reduced by about 50% of its total area (it is now 1,200 sq km in area) to provide land to returning refugees and too ensure protection of wildlife in the remaining area. The ANP harbours a number of unique, vulnerable or threatened large mammals including the aquatic Sitatunga (*Tragelaphus spekii*), Elephant (*Loxodonta africana* - Vulnerable), Masai Giraffe (*Giraffa camelopardalis tippelskirchi* – Vulnerable) and Lion (*Panthera leo* - Vulnerable). The Park is now an important tourist attraction.

Demographics: Kayonza District has a population of 350,211 individuals, of which about 55% of the population of Kayonza district are aged 19 years or younger⁶. It is the country's least densely populated district at 178 inhabitants per square km according to the 2012 National Population Census. The selected KIIWP intervention sectors make up 67% of the district's population with Murundi (37,738); Kabare (36,365); Gahini (33,590); Kabarondo (30,811); Rwinkwavu (29,420); Mwiri (25,156); Ndego (20,900) and Murama (20,180).

⁵ Fischer, E (2011). Biodiversity Inventory of Key Wetlands in Rwanda. Final Report. REMA.

⁶ <http://www.statistics.gov.rw/publication/size-resident-population>

Land Tenure: Current land laws provide for equal access to land without discrimination based on sex or origin. It is mandatory to register land property to both spouses married in a community and spousal consent is now required for transfer of the property. Rwandan owners of agricultural land in rural areas may be granted a 99 year renewable leasehold.

Agriculture: The main crops grown in the Project area are maize, beans, cassava, soya and rice. Coffee, pineapple and fruit trees are also grown. However, recurrent drought, occasional flooding, pestilence (locusts, army worm) and crop diseases have resulted in continuously poor yields or crop failures.

Livestock: Cows are very important in Kayonza District with 23 % (20,406 households) owning 53,051 cows. Murundi sector has the highest number of households that own cows with the highest number of cows followed by Gahini and Mukarange sectors.

Health: The District has two hospitals in Gahini and Rwinkwavu, 15 health centres and 4 health posts. Key health challenges are malaria and malnutrition. About 73% of the population is covered by health insurance.

Social Protection: Kayonza District has a large number of vulnerable households: 41,634 people from 11,196 households are supported through the *Ubudehe* program. 0.7% of households are headed by persons under 21 years of age and 4.2% of households are headed by disabled people and women. Only 20% of the District's population is covered by the social protection system.

Education: Literacy rate for persons aged 15 years and older is 67.1%. Net enrolment rates at secondary and primary schools are 19.1% and 92.9%, while gross secondary and primary school enrolment rates are 38.4% and 150.9%. Drop out rates are 10.9% in primary, 13.1% in secondary and 2.4% in upper secondary. The main challenges in the education sector are inadequate classrooms and latrines both in primary, lower and upper secondary schools.

Water Resources: The majority of households use a public standpipe (37%), followed by a protected spring (27%). More than a quarter (28%) of households in Kayonza District still use an unimproved drinking water; 22% of these use surface water (from lakes and rivers).

Household Income: Household income in Kayonza District is based on agricultural production, wages, business, rent and transfers including remittances.

Gender: 25% of households in Kayonza District are headed by females and 5% are de facto female-headed households', i.e. those headed by females during the absence of a male head who is ordinarily present. The percentage distribution of employment by gender in Kayonza District, shows that the majority of females in Kayonza District are small-scale farmer workers (78%), followed by wage farmer and independent non-farmer workers (both at 6%). 5% of females are wage non-farmer workers. Males are also involved in small-scale farm work at a lower percentage than females (61%). Males are wage non-farm workers and independent non-farmers in greater proportions than females, however (18% and 13% respectively).

STAKEHOLDER CONSULTATIONS

Key outcomes from consultations undertaken during the ESMF study are as follows:

Cooperative Approach for Delivery of KIIWP: Target beneficiary stakeholders and opinion leaders generally demonstrated awareness of and experience in cooperative frameworks and expressed

support for the plans to deliver KIIWP interventions in this modality. Most of the residents of the proposed Kibare pumped irrigation site indicated that they had not worked in cooperative arrangements and sought clarifications during the focus group discussion.

Target Beneficiary Crop Priorities for KIIWP: Focus group discussions with target beneficiaries and opinion leaders in the proposed pumped irrigation sites of Kibare, Humure and Byimana in the Ndego sector and of Gakoma in Kabare sector were unanimous in indicating maize, beans and soya as priority crops. Rice, banana, sugarcane as well as vegetable crops including tomato and beetroot were indicated as priority crops. In the land husbandry support intervention areas, coffee was indicated as the highest priority due to its resistance to drought and favourable market prices. Other priority crops included pineapple, avocado, mango, orange, lemon, tree-tomato and passion fruit. Banana and cassava were also indicated as priority crops but these have suffered disease infestations that destroyed their crops.

Target Beneficiary Willingness to Invest in KIIWP: Focus group discussions indicated a willingness to invest in the necessary maintenance infrastructure for irrigation including pumping systems, dams and boreholes. Target beneficiary stakeholders said that they already invest resources and cash in growing crops every season for the required inputs, although the crops fail in most seasons due to drought. Some focus group discussions indicated a need for capacity development in business skills and financial management.

Land Use Competition and Conflicts: Potential conflicts were flagged in some focus group discussions and discussions with individuals. In Kageyo, it was reported that farmers compete among themselves to irrigate rice, and for watering cattle in the dry season when the flow in the rivers is reduced. Stakeholders indicated a need to rehabilitate valley dams that were silted and for the construction of others as well as boreholes for livestock water requirements. Similar potential for conflict was observed in Humure and Kibare where cattle graze and water in the area targeted by the Project for pumped irrigation. Human/wildlife conflict was also highlighted as a problem, especially with hippos and baboons.

Community Sentiments: The stakeholders expressed the need for help to mitigate effects of persistent droughts. The community of Humure gave an account of crop failures season after season while they see the neighbouring Bramin farm prospering with bumper harvests from irrigation. They were frustrated that the Government often has to provide them with food relief purchased from neighbouring Tanzania whereas they are capable of feeding themselves by irrigating their crops from the same source that Bramin draws its water from. The same frustration was expressed by residents of Byimana and Gakoma in reference to the Buffet irrigation scheme located within a few kilometres from their fields.

Target Beneficiary Grievance Resolution Views for KIIWP: Focus group discussions demonstrated a good understanding of conflict resolution mechanisms within cooperative rules as laid out in corporate constitutions as well as national laws and regulations on cooperatives. It was explained that conflicts that develop within a cooperative are resolved by a grievance/conflict resolution committee. Unresolved grievances in cooperatives must be escalated to the Rwanda Cooperative Agency (RCA), the statutory body in charge of coop regulation and management. RCA will attempt to redress cooperative-born grievances through its mediation and arbitration system before forwarding them to the country's court system if unable to resolve them. Complaints are escalated to local governance structures when settlement is not reached at the cooperative level, starting with sector level and escalating to the district level if still not resolved. Court systems are available to complainants if conflicts remain unresolved through the existing resolution mechanisms and local governance

structures. The Court systems are available to complainants if conflicts remain unresolved through the existing resolution mechanisms and local governance structures.

POTENTIAL ENVIRONMENTAL, SOCIAL AND CLIMATE-RELATED IMPACTS

Beneficial Impacts

The main positive impacts of KIIWP are envisaged as being crop diversification and increased value of production in hillside areas; increased value of agricultural production in marshlands; reduced post-harvest losses and increased sales in output markets; increased value of livestock production; and improved access to water for livestock and humans. These impacts will contribute to improved food security and higher household incomes, in line with the Project's development objectives. As mentioned above, KIIWP will target 50,000 rural households, directly and indirectly. Most of KIIWP's target group will comprise men and women farmers and livestock keepers, as well as men, women, youth and the physically challenged in wage labour and off-farm activities along the target value chains. Overall, it is expected that women will account for at least 50% of total beneficiaries.

Adverse Impacts

Irrigation Schemes

Although actual designs of the irrigation schemes are still to be developed, it is likely that the irrigation schemes will include one or more of the following: diversion weirs/intakes; headworks; dams, dam walls/embankments; conveyance canals, secondary, tertiary and field canals; pumps and pump houses; water storage facilities; distribution pipes; and drainage lines; workshops, sheds, offices; fuel storage; access/scheme roads, bridges and footpaths. The most significant impacts due to the construction and operation of the irrigation schemes are likely to be:

- Reduction in downstream flow as a result of diversion of water, which could compromise water availability downstream to satisfy human and livestock demand, and affect aquatic habitats and biodiversity (ie. environmental flow);
- Inundation of the river upstream, caused by damming or access roads, which could result in physical and economic displacement, hinder access to grazing and water sources for livestock, and destroy vegetation and natural habitats;
- Soil erosion caused by scheme excavation works (including access/scheme roads, dams) and poorly managed upper catchment areas, leading to loss of cultivable land and/or siltation of canals;
- Soil degradation and salinization due to improper application of agrochemicals, overwatering and poor drainage;
- Reduction in water quality due to application of agrochemicals or oil spills, affecting water potability for domestic and livestock use downstream, as well as causing poisoning of aquatic fauna;
- Loss of biodiversity and ecological imbalances caused by: clearing land for agriculture, installing irrigation infrastructure (eg. intakes in wetlands or lakes), poaching as a result of the schemes' proximity to the Akagera National Park, and from pesticides poisoning of non-target species, particularly bees and other beneficial insects;
- Resistance to pesticides and pest resurgence due to poor application of pesticides;
- Temporary and permanent land take for construction sites and irrigation infrastructure leading to loss of land and assets;
- Denied or hindered access for livestock to water sources and/or pasture;

- Community health and safety risks from: construction activities; storage, handling, use and disposal of agrochemicals; failure of dam structures; increase prevalence of water-borne diseases such as malaria;
- Human/wildlife conflict as a result of wildlife raiding farms and destroying crops;
- Reduction in water availability due to climatic events, such as prolonged dry seasons and subsequent drought, or due to diversion of water upstream for water supplies or irrigation subprojects;
- Flooding due to climatic events resulting in loss of soil and crop damage.

Catchment Rehabilitation

Although catchment rehabilitation and protection are intended to improve environmental conditions in catchment areas, some interventions could have adverse impacts. The most significant ones relate to:

- Failure of structures due to poor design and/or construction, or excessive rain;
- Use of exotic species for slope protection and bio-engineering resulting in the spread of invasive species;
- Denied or hindered access to natural resources or grazing areas;
- Permanent acquisition of land for catchment rehabilitation leading to loss of land and assets;
- Loss of plants or trees of cultural and traditional significance.

Provision of Water for Livestock and Domestic Use

Typical impacts resulting from construction and rehabilitation of valley tanks are likely to be:

- Soil erosion caused by scheme excavation works and concentration of livestock around valley tanks and boreholes;
- Poorly managed upper catchment area leading to siltation of valley tanks;
- Loss of biodiversity due to flooding of land for valley tanks;
- Loss of land, crops or assets due to land inundated by new valley tanks;
- Destruction of physical cultural resources due to land take for valley tanks.
- Impacts on groundwater aquifers from over-abstraction of water at boreholes;
- Reduction in water availability in tanks and lowering of aquifer levels due to climatic events, such as prolonged dry seasons;
- Flooding due to climatic events resulting in soil erosion, siltation of tanks, overflowing or failure of tank structure; damage to borehole infrastructure;
- Impacts on community health and safety from construction activities, or as a result of tank structure failure;
- Human/wildlife conflict due to hippos inhabiting valley dams.

Proposals to address the key risks and impacts are summarised in the last section of this Executive Summary.

CLIMATE RISK ASSESSMENT

According to SECAP's climate risk classification guidelines as described above, KIIWP is classified as high risk because it promotes agricultural activity on areas subject to extreme climatic events, such as flooding, drought, tropical storms or heat waves; climate scenarios for the Project area foresee changes in temperature, rainfall or extreme weather that will adversely affect the Project's impact, sustainability or cost over its lifetime; the Project promotes agricultural activity on marginal and/or

highly degraded areas (such as on hillsides, deforested slopes or floodplains); and the Project lies in an area which regularly experiences weather-related losses and damages. Indeed, studies indicate that temperatures are expected to rise across the country with increased rainfall in high areas of the country and significant reductions in the low-lying eastern parts of the country including Kayonza District. Kayonza District lie within the highest climate change vulnerability index indicated for the Eastern Province.

Climate change scenarios on one-way inter-basin transfer into the Lower Akagera with its own contribution diminished could impact on the hydrological balance including the necessary environmental flow. The Project would therefore benefit from a detailed hydrological study that take into account the long term climate change impact scenarios.

KIIWP is likely to alleviate opportunistic pests and diseases that take advantage of moisture stress and compromised immune systems of livestock due to inadequate forage and drinking water. However, it may contribute to an increase in vector-borne diseases such as malaria.

All the three components of the Project are aimed at climate resilient agriculture and livestock husbandry. However, due consideration of climate change factors must be given in the planned hydrological studies to be prepared as part of the suite of investigations to be carried out during the Project feasibility studies.

RESETTLEMENT ACTION FRAMEWORK

The Resettlement Action Framework (RAF) for KIIWP discusses the steps for preparing a resettlement action plan for KIIWP subprojects where physical and economic displacement may occur. The RAF describes, among others, processes for screening, establishing the need for a RAP, the requirements of the Project Affected Persons (PAP) census and socio-economic survey, land and asset surveys, the setting up of a grievance redress mechanism, establishing a cut-off date, eligibility criteria, the entitlement matrix, valuation methodology, compensation and resettlement measures, RAP implementation, budgets for RAP implementation and monitoring, monitoring and evaluation, and disclosure.

ENVIRONMENTAL, SOCIAL AND CLIMATE CHANGE MANAGEMENT PROCEDURES

The SPIU-IFAD staff who will be involved in the implementation and coordination of KIIWP will include Coordinator, Finance Officer, M&E Officer, Procurement Officer, Administration Officer, the Environmental and Climate Change Specialist and the agro-meteorologist. Staff specifically dedicated to KIIWP within the SPIU will include the KIIWP Programme Manager, an accountant, an M&E officer in charge also of gender and youth, an irrigation engineer, a WUO Specialist, a Land Husbandry/Soil and Water Conservation (SWC) Engineer, and a Cooperative Development Officer. At the District level, KIIWP staff will consist of an accountant, a WUO Specialist, a Land Husbandry (SWC) Engineer, a Cooperative Development Officer, a horticulture specialist, and an irrigation technician. It is recommended that the KIIWP district team be complemented with an Environmental and Climate Change Officer (ECCO), and a Social Safeguards Officer (SSO) as well.

The first step in the environmental, social and climate change management procedures is to screen the subprojects to establish whether they are eligible to be supported through KIIWP. This will be done by the KIIWP Project Team. It should be noted that IFAD will not fund projects in areas of critical habitats or which result in conversion or degradation of such habitats, production or trade in any

product or activity deemed illegal under host country laws or regulations or international conventions and agreements, or subject to international bans, such as pharmaceuticals, pesticides/herbicides, ozone depleting substances, PCB's, wildlife or products regulated under CITES; production or activities involving harmful or exploitative forms of forced labour and/or harmful child labour. In addition, it is recommended that subprojects involving the physical and/or economic displacement of more than 20 persons should not be implemented under KIIWP due to the complex logistics and funds required to properly implement the resettlement processes.

The second screening step is to categorise the subprojects to determine the level of environmental and social risk, and therefore the level of assessment to be undertaken for those subprojects.

Rwanda EIA guidelines define 3 Impact Level (IL) categories that are determined through the screening process:

- IL1: Projects believed to have minimal adverse impacts, that can easily be identified through a Project Brief and not requiring further environmental analysis;
- IL2: Projects believed to have adverse, but not irreversible environmental impacts and for which mitigation and management measures can be readily designed and incorporated into the project;
- IL 3: Projects for which it is evident that there will be significant and adverse environmental impacts whose mitigation measures cannot readily be prescribed, and thus, must undergo through a complete EIA process.

SECAP prescribes the following screening categories:

- Category A projects require one or combination of a formal Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Framework (ESMF), Resettlement Action Framework (RAF)/ Resettlement Action Plan (RAP), free, prior and informed consent (FPIC)/FPIC implementation plan and Indigenous People Plan.
- Category B projects are those that may have some adverse environmental and/or social impacts on human populations or environmentally significant areas but the impacts are less adverse than those for Category A, are site-specific and few are-irreversible in nature, and can be readily remedied by appropriate preventive actions and/or mitigation measures. While no formal ESIA is required for Category B projects, in many cases further environmental analysis could be undertaken during project preparation or implementation. In some cases, an ESMF is developed during project preparation or implementation. Category B projects require an ESMP.
- Category C projects generally do not require additional environmental analysis because the activities have positive environmental impacts, or negligible or minimally adverse environmental impacts. They would include, for example, technical assistance grants for agricultural research and training, grants to generate global environmental impacts, research, capacity building and institutional strengthening.

The proposed subprojects under KIIWP have been accorded screening categorization as illustrated in Table E.2 below.

Table E.2 Screening Categorisation of KIIWP Subprojects

Infrastructure	Comments	REMA Risk Categorisation	SECAP Risk Categorisation	Rationale for Categorisation
Irrigation				
Pumped irrigation	3 sites in Ndego sector: Kibare (400 ha), Humure (600ha), Byimana (400ha) Source: Lakes Kibare, Ihema, Nasho respectively	IL3	Category A	Command areas greater than 100ha Humure scheme borders Akagera National Park. Intake likely to be in totally protected wetland. The

Infrastructure	Comments	REMA Risk Categorisation	SECAP Risk Categorisation	Rationale for Categorisation
				park and its wetlands are areas of national importance and high biodiversity and endemism.
				Kibare and Byimana schemes intakes in conditional wetlands.
				Peculiar hydrological characteristics which need to be thoroughly studied: shallow lakes with reverse flow phenomenon from lakes upstream to Akagera River
	1 site in Kabare sector: Gakoma (600ha) Source: Lake Nasho	IL3	Category A	Command areas greater than 100ha Intake in conditional wetland
				Peculiar hydrological characteristics which need to be thoroughly studied: shallow lakes with reverse flow phenomenon from lakes upstream to Akagera River
Small marshlands	Dams to irrigate a total of 275 ha both marshlands and hillsides Rwinkwavu/Kabare sectors, on River Gishanda, irrigating 125 ha Kabarondo Sector on River Kanyeganyege irrigating 150 ha	IL3	Category A	Command areas greater than 100 ha Medium-scale dams with dam height greater than 5m
Farm-level ponds	Source: rainwater Locations: Murama Selection criteria – a lot of land which has been terraced, but no water Pond size 50-200m ³	IL2	Category B	Small scale water harvesting which will have minor impacts.
Catchment Conservation				
Land Husbandry (Terraces + agroforestry, mulching, liming, etc)	7500 ha in total, including 2275 ha irrigated and rainfed Kabare, Kabarondo, Rwinkwavu: dam or irrigation related Murama (900ha), Kabarondo (190ha): rainfed Criteria for selecting locations: terraced hillsides with water scarcity; non-terraced hillsides Av. Household land holding: 0.3ha	IL2	Category B	Watershed management and soil and water conservation activities in non-sensitive areas. Unlikely that more than 20 people will be physically or economically displaced.
Provision of Water for Livestock and Domestic Use				
Valley tanks new	Ndego, Gahini, Murundi and Mwiri Sectors. 7 new valley tanks Locations of new tanks not known.	IL2	Category B	Involve natural drainage into valley depressions. May require walls, but these will be less than 5m in height; Possible economic or physical displacement but will affect less than 20 people, particularly for acquisition of buffer zone. Impacts would revolve around degradation around borehole site which can be readily managed.
Valley tanks rehab	Ndego, Gahini, Murundi and Mwiri Sectors. Rehabilitation of 15 existing valley tanks	IL2	Category B	Rehabilitation of existing structures, involving repairing tank walls, desilting and landscaping activities, as well as rehabilitation of degraded valley tank environs. Impacts would revolve around degradation around borehole site which can be readily managed.

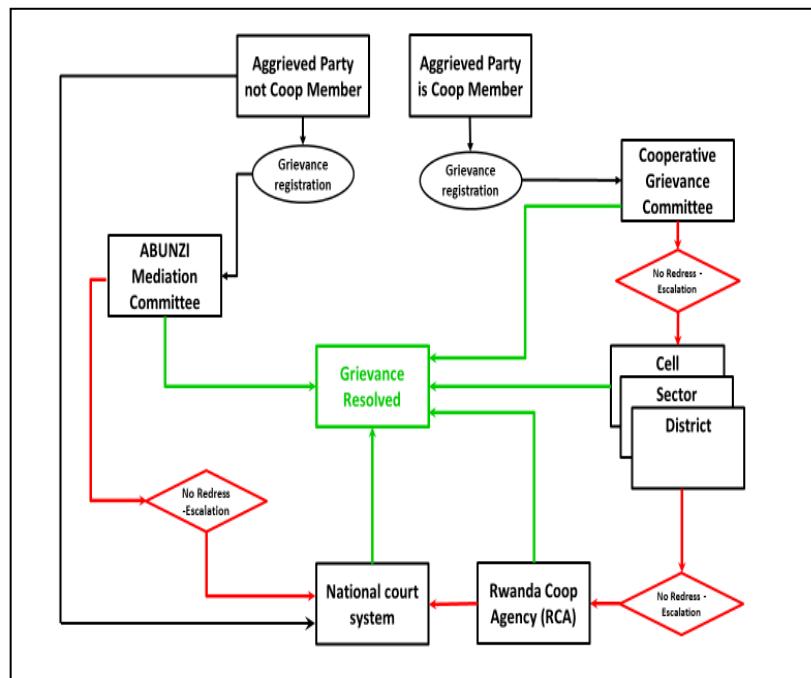
Infrastructure	Comments	REMA Risk Categorisation	SECAP Risk Categorisation	Rationale for Categorisation
Boreholes	Ndego Gahini, Murundi and Mwiriri Sectors. Possibly 20 boreholes. Borehole location and capacity not known. No. of people and livestock to be supplied not established.	IL2	Category B	There are few boreholes in the area, and therefore if there is groundwater, the aquifer is unlikely to be stressed or overutilized. Impacts would revolve around degradation around borehole site which can be readily managed.

Depending on the subproject siting and designs, other safeguards documents may be required, such as Resettlement Action Plans, Integrated Pest Management Plans, Dam Safety Plans, Physical Cultural Resources (PCR) Assessment, Climate Risk Analysis, or other management plans dealing with environmental and social aspects.

During consultations to be carried out for ESIAs/ESMPs, the processes for disclosure of the documents should be communicated. IFAD's SECAP procedures also require that sufficient consultations have been carried out with key stakeholders (ie. the communities) in order to satisfy its requirements for Free Prior and Informed Consent (FPIC). The ESIAs, RAPs, IPMPs, Dam Safety Plans, PCR assessments will be disclosed by RAB and IFAD. Approvals for ESIAs and ESMPs will be done by RDB, after review by IFAD. RAPs will be approved by the Kayonza District Land Office and the Rwanda Land Management and Use Authority (RLMUA). Dam Safety Plans will be approved by IFAD, the Ministry of Infrastructure (MININFRA) and the Ministry of Environment (MINIRENA).

A grievance redress mechanism (GRM) will be prepared by the Scheme Grievance Committees, and will follow either the *Abunzi* system if aggrieved party is not a member of the cooperative concerned, or it would follow the resolution mechanism typically used by the cooperatives as stipulated in the provisions of Law N° 48/2013 of 28/06/2013 establishing Rwanda Cooperative Agency (RCA). The RCA requires that cooperatives request arbitration on unresolved grievances of registered by their members. RCA evokes its grievance redress mechanism, failure at which it is escalated to the

Figure E1 KIIWP Grievance Redress Mechanism



national court system. Aggrieved parties who are not members of a cooperative would register grievances in the *Abunzi* system or directly in the national courts, depending on the gravity of the grievance. This is illustrated in Figure E.1. IFAD's Complaints Procedure is also available to receive complaints from project-affected people via email at SECAPcomplaints@ifad.org.

Performance monitoring will ensure that safeguards instruments are prepared to the required standard and approved, and that the ESMPs and RAPs are being implemented. At the Project management level, this will be done by the SPIU ECC Specialist. For intervention level activities,

performance monitoring will be done by the IWUOs, Cell Socio-economic Development Officers (SEDOs), sub-catchment committees and livestock water user organisations (LWUOs). Results monitoring involves the monitoring compliance against Project level environmental and social indicators, as well as measuring the effectiveness of the safeguards instruments. Results monitoring will be carried out annually by the SPIU ECC Specialist, KIIWP Environment and Climate Change Officer, (ECCO) the Social Safeguards Officer (SSO) and the District Environment Officer (DEO).

Quarterly and annual reviews will be undertaken by the KIIWP ECC Officers and Social Safeguards Officer. The reviews will produce a Quarterly and Annual Review Reports for each sector which will be submitted to the Project Steering Committee. Workshops will be held each year where environmental, climate change and social performance of the Project will be reviewed and discussed, and recommendations made for improved Programme performance.

The KIIWP Project Management Team will be responsible for ensuring that environmental and social audits are carried out once a year during Project implementation for Category A subprojects and once in two years for Category B subprojects. The audits will be carried out by independent consultants. The KIIWP Project Management Team will submit quarterly and annual environmental, social and climate resilience performance reports to the PSC and to IFAD.

CAPACITY BUILDING

MINAGRI has an Environment and Climate Change (ECC) Specialist whose primary focus is on regulation and strategic planning, but this officer will not be directly involved in KIIWP oversight. Although RAB has many staff with high-level specialised expertise, the RAB personnel who will be responsible for overseeing KIIWP may not be fully aware of the various environmental, social and climate interactions that may occur from the KIIWP Project activities and how environmental, social and climate risk mitigation are to be mainstreamed into Project activities. In Kayonza District, there is one District Environmental Officer (DEO) who is responsible for inspection of all environmental management activities. The DEO works with the sector level specialists (such as the agronomist), but the latter do not have any training in environmental issues. Generally, therefore capacity for monitoring environmental, social and climate-related issues is lacking at the district level. There are no functional sector environmental committees. However, at cell level Socio-economic Development Officers (SEDOs) are in charge of environmental management, but again have very little understanding of environmental issues.

Training will be carried out targeting KIIWP Project Management Team at the SPIU and District level, the DEO, District and cell SEDOs, District Agriculture Inspector, Technical Service Providers, IWUOs and LWUOs, watershed and irrigation farmers, hydrographic basin committees and Project communities, including women, youth and the physically challenged. Training will be carried out at national, district, sector and cell level, at the hydrographic basin level, through workshops, classroom sessions, farmer field schools, and roll out training. Training topics will vary from group to group, but will include:

- Requirements of the national environmental, social and climate policies, legislation and administrative frameworks;
- Requirements of IFAD's SECAP and ERNM, Climate, Land and Disclosure Policies;
- ESMF processes, procedures and institutional arrangements to develop and implement required safeguards documents;
- Screening as prescribed in the ESMF;
- Environmental, social and climate impact assessment, IPMP, RAP, PCR approaches and requirements;
- Preparation, implementation and monitoring of ESMPs, ESIAs, IPMPs and RAPs;

- ESMPs and monitoring key environmental and social performance indicators for each subproject site;
- Reporting and monitoring implementation of ESMPs, IPMPs and RAPs;
- Environmental and social best practices – including, for example, proper application of chemical inputs, pest management, water efficiency, water saving agronomic practices, soil fertility management, dam safety, gender empowerment and labour saving techniques;
- The use of climate and weather information in agriculture;
- Participatory mapping;
- Watershed management;
- Conservation agriculture techniques.

Technical Assistance will be hired on temporary basis, as and when necessary, to support the Project Management Team and other key Project implementers at both National and District level to mainstream environmental, social and climate issues, carry out training, prepare training materials and assist in the preparation of Project Implementation Manuals.

ESMF IMPLEMENTATION BUDGET

The cost for the implementation of activities proposed in this ESMF is estimated at USD 2,978,500. This covers costs for preparation of safeguards documentation, hiring of dedicated staff to oversee environmental, social and climate-related aspects of KIIWP activities, capacity building, Project compliance monitoring, annual audits, technical assistance and annual reviews. The ESMF implementation budget is summarized below:

Table E.3 Estimated ESMF Implementation Budget

Item	Year 1 USD	Year 2 USD	Year 3 USD	Year 4 USD	Year 5 USD	Total cost USD
Preparation of safeguards documents	130,000	1,000,000	170,000	0	0	1,300,000
RAP Implementation	0	90,000	225,000	0	0	315,000
KIIWP Staff Salaries	15,500	31,000	31,000	31,000	31,000	139,500
Capacity building	140,000	75,000	225,000	200,000	50,000	690,000
Project monitoring	12,000	24,000	24,000	24,000	24,000	108,000
Annual Independent Audits	0	0	100,000	30,000	86,000	216,000
Technical Assistance	125,000	25,000	0	0	0	150,000
Annual ESC Performance Workshops	0	15,000	15,000	15,000	15,000	60,000
TOTAL COST (USD)	422,500	1,260,000	790,000	300,000	206,000	2,978,500

SUMMARY OF KEY ISSUES ARISING AND RECOMMENDATIONS FOR DESIGN

Hydrology: The hydrology of the Akagera River and its lakes are complex. There is a “reverse flow” when the Akagera River is in flood as a result of rainfall in the upstream catchments (Akagera and Ruvubu) filling up the lakes. The lakes are reportedly shallow, and the width and depth of the channels between Akagera River and lakes are a crucial factor for maintaining the hydrological functionality, and

therefore any alteration to the channels may have serious consequences. In addition, the Lower Akagera Catchment Master Plan indicates that at catchment level the renewable surface water resources are sufficient to cater for irrigation use and other demand until 2030, after which resources will be stressed during the 1 in 20 dry year. By 2040, the Plan states that water resources during the dry season will be stressed for most years, except when exceptionally wet years are experienced. ***In order to accurately ascertain the availability of water resources for the Project, it is crucially important that a detailed hydrological study be carried out for the proposed Project area in order to substantiate or otherwise, the recommendations of the Lower Akagera Master Plan. This will then inform the number of hectares that can be sustainably irrigated.***

Environmental Flow: There is a need for maintaining an environmental flow to sustain aquatic ecosystems and to support human, agricultural, livestock and industrial demand downstream. While the proposed dams are being filled, and when the irrigation schemes are drawing water from the river sources, a prescribed environmental flow will have to be released downstream. The Lower Akagera Master Plan proposes an environmental flow of 33% of the average monthly flow. This means that the amount of water released downstream will have to be adjusted according to monthly flow patterns. ***RWFA will propose a suitable environmental flow for each site, which will be stipulated in the Water Abstraction Permit for that site. The scheme and dam designs will therefore have to take the recommended environmental flows into consideration as this will influence on the intake works as well as the potential area to be irrigated.***

Wetlands: A key concern for the proposed scheme at Humure in Ndego Sector is that the spur of Lake Ihema which protrudes outside the Akagera National Park is classified as totally protected. This is reasonable, since the rest of the lake lies within the ANP and any disturbance (for example in terms of water abstraction, sedimentation from erosion or pollution from agrochemicals) will affect the lake's water quality and possibly quantity, and therefore its biodiversity. IFAD will not support projects in areas of critical habitats or which result in conversion or degradation of such habitats. ***An alternative source of water will have to be identified for the Humure scheme, or the scheme location shifted to enable water to be drawn from the conditional wetlands of Lake Kibare.*** For interventions that will draw water from conditional wetlands (namely Kibare, Byimana, Gakoma, and the dams on the Gishanda and Kanyeganyege Rivers), RDB will issue an EIA Certificate of Approval that will list a number of conditions for the respective developments. ***IFAD will specify explicit conditions for wetland protection in the loan agreement which will need to be adhered to during subproject implementation.***

Biodiversity: The wetlands within the Project area are likely to be rich in biodiversity, and may harbour some endemic faunal and floral species. Any disturbance to these wetlands, for example due to changes in water flow regimes as a result of abstraction for the proposed irrigation schemes, and due to dam construction, may affect these species. ***An ecological risk assessment should be conducted to identify and assess the significance of risks to wetland ecology in the subproject areas that are located upstream and downstream of the proposed irrigation sites, as well as any potential risks to biodiversity in the Akagera National Park. If species of national or global importance are identified, scenario planning and an adaptive management strategy will have to be prepared, or the sites may have to be relocated, or alternative water sources sought, so as not to affect these species.***

Buffer Zones: National requirements stipulate the need to maintain buffer zones for all water bodies. These vary from 20m to 50m, depending on the type of water body. ***During the design of schemes and valley tanks, the national requirements for buffer zones must be accommodated. In some cases, this may result in the acquisition of land or assets, and therefore will necessitate the preparation of a resettlement action plan. If the schemes are close to the ANP, wetlands, woodland/forest, a buffer zone should be established, the width of which should be based on discussions with ANP and on***

REMA regulations, and applying precautionary principle for maximum buffer width for ANP and wetlands.

Dams: The dams to be constructed for the schemes in Rwinkwavu and Kabarondo Sectors are expected to have wall heights between 5 and 15 m, and according to SECAP's Guidance Statement #8 on Dams and their Safety, these are considered as large dams. ***To ensure dam safety, IFAD will require the loan agreement to contain a covenant to ensure that dams and reservoirs are designed, constructed, operated, maintained, superintended and eventually decommissioned to the highest possible standards. MINAGRI will need to engage a suitably qualified consultant with extensive experience and a proven record in dam design. In addition, MINAGRI will have to adopt and implement dam safety measures for the design, bid tendering, construction, operation and maintenance of the dam and associated works.***

Climate Risk Analysis: According to SECAP's climate risk classification guidelines, KIIWP is classified as high risk because it promotes agricultural activity on areas subject to extreme climatic events, such as flooding, drought, tropical storms or heat waves; climate scenarios for the Project area foresee changes in temperature, rainfall or extreme weather that will adversely affect the Project's impact, sustainability or cost over its lifetime; the Project promotes agricultural activity on marginal and/or highly degraded areas (such as on hillsides, deforested slopes or floodplains); and the Project lies in an area which regularly experiences weather-related losses and damages. ***Although the Project interventions themselves are intended to reduce vulnerability to the effects of climate change, an in-depth climate risk analysis must be undertaken prior to the full design of the Project in order to inform the design and decision-making processes, as required by SECAP.***

Community Expectations: The communities' expectations are high in regard to the proposed irrigation interventions. However, until the hydrological and ecological studies mentioned above are undertaken, the sizes, and indeed the sustainability of the proposed schemes cannot be confirmed. The studies are expected to be completed by 2020, and communities may lose faith. ***Therefore, community expectations need to be managed by the Kayonza District administration, particularly at cell level. The ESIA studies to be prepared for the various schemes should include a Stakeholder Engagement Plan which should contain a Stakeholder Communication Strategy detailing how community expectations can be managed, and the roles that the authorities and KIIWP Project Teams in implementing the Communication Strategy.***

Physical and Economic Displacement: This may occur due to land acquired for scheme infrastructure, catchment protection and to create and maintain buffer zones. The eligibility criteria proposed in this ESMF recommends that subprojects that may physically or economically displace more than 20 people should not be considered under KIIWP, due to the capacity of the Project and District, and logistics required, to implement the necessary RAP and other safeguards requirements, as well as to carry out monitoring of displaced persons. ***Where physical and economic displacement of 20 or less people may occur, a simple RAP is required, following the guidelines provided in Annex 4 of this ESMF.***

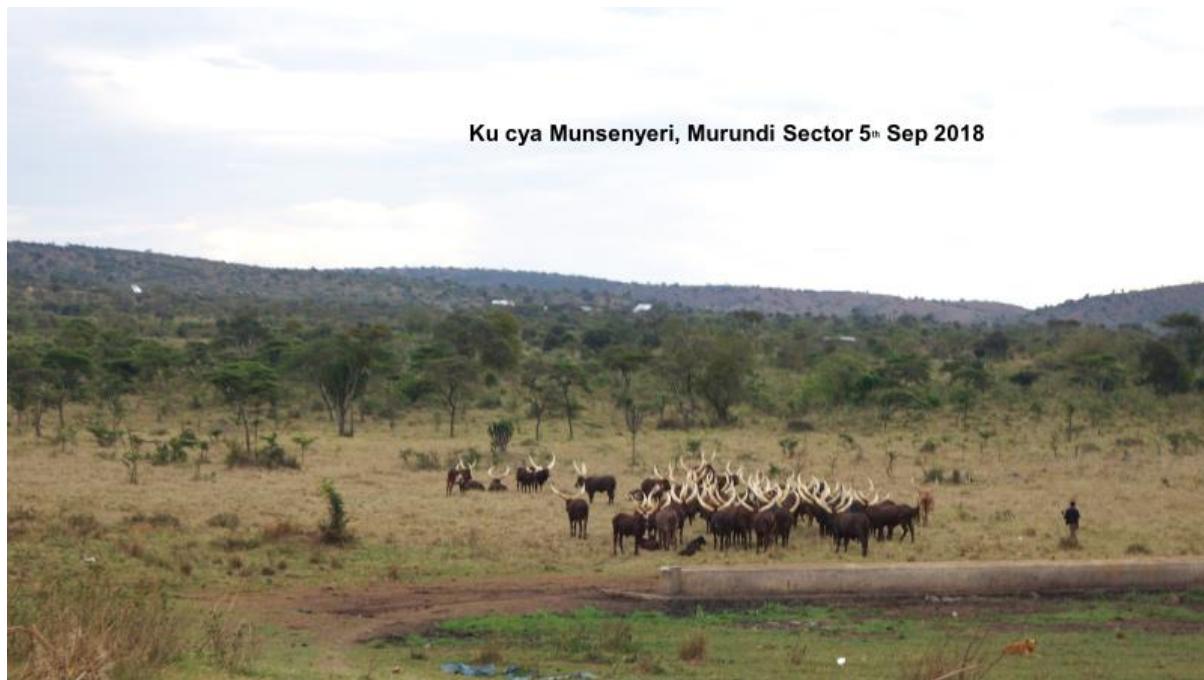
Health: Malaria is responsible for 46.3% of morbidity cases in Kayonza District. The proposed irrigation schemes will result in pools of stagnant water which provide breeding habitats for mosquitoes. Since May 2018 the District Health Office has begun a campaign to plant mosquito repelling plants/trees such as Artemisia, Geranium and Neem around homesteads and fields. ***The Project should work with the District Health Office to acquire these plants and plant them around the proposed schemes and dams.***

Access to Pasture or Grazing: Irrigation schemes may hinder access paths used by livestock to reach water sources or pasture, as observed at the pumped irrigation sites in Ndego and Kabare Sectors.

Competition between land for grazing and land for catchment protection and agriculture was also raised as a potential source of conflict during community consultations. ***At the pumped irrigation sites, the design should consider the possibility of providing alternative watering points (eg. troughs) for livestock at locations as agreed with the communities and livestock owners. In addition, Village level land use plans need to be developed which demarcate land use for different purposes, and more specifically for KIIWP purposes for agriculture, catchment protection and grazing.***

Human/Wildlife Conflict: Farmers reported that their farms are frequently raided by hippos which reside in the dams and valley tanks, and also by baboons. This has led to substantial loss of crops, and poses a danger to farmers as well. The Project aims to enhance crop yields, but may also encourage increased crop raiding by wildlife. ***The ESIA studies should study this issue in detail, and propose measures for reducing or eliminating human-wildlife conflict. Usually fencing is proposed to keep wildlife out. In view of the size of the command areas, this would be a costly measure, but may have to be considered if no other alternatives prove effective.***

Community Involvement in Subproject Development: Local involvement is key to sustainability and local knowledge is very important, for example in terms of siting infrastructure. The communities expressed their desire to be involved in the subproject preparation, design and implementation and requested that they be consulted beforehand on how they would be expected to invest in the scheme development. ***Therefore, it is important that the subproject communities are involved in all stages of the development of subprojects, including siting of infrastructure. They must also be extensively consulted on their ability to contribute, and the modalities of how they can or are able to contribute, since all members of the communities do not have access to cash or loans at any given time. Moreover, the Project design should be more specific about how youth and the physically challenged members of the community can be involved in Project activities.***



1 Introduction

1.1 Background to the Kayonza Irrigation and Integrated Watershed Management Project (KIIWP)

Rwanda has abundant untapped water resources in the form of natural lakes, rivers, groundwater, marshlands and runoff. The United Nations' Food and Agricultural Organisation's (FAO) AQUASTAT estimates Rwanda's internal renewable water resources at $31.9 \times 10^9 \text{ m}^3/\text{year}$ and the National Irrigation Master Plan (2010) identifies potential irrigable area of 589,711 ha. Buoyed by support from government resources and development partners, Rwanda has sharply increased the area under irrigation from 8,000 ha in 2010 to the current 48,000 ha, but the country has an ambitious target of 100,000 ha to achieve by 2020.

In 2016, Rwanda's Eastern Province was seriously affected by a severe drought which led to the death of 2,417 heads of cattle as well as poor crop yields during Season A (October to December). As a result, more than 47,000 households in the districts of Kayonza, Nyagatare, Gatsibo, Ngoma and Kirehe were affected and became food insecure. The Government of Rwanda (GoR) had to provide food relief and water for livestock to support the affected districts. Although these districts have since come up with measures to mitigate drought-induced calamities, in order for these initiatives to achieve long-term impacts and deliver increased resilience, the Government requested IFAD to formulate a new integrated irrigation and watershed development project focussing on Kayonza District, which was most seriously affected.

Consistent national strategies and policies, including the second Economic Development and Poverty Reduction Strategy (EDPRS 2), the Strategic Plan for the Transformation of Agriculture (PSTA 4) and the National Strategy on Climate Change and Low-Carbon Development (NSCCLCD), the Kayonza District Irrigation and Integrated Watershed Management Project (KIIWP) will improve the resilience of smallholder farmers to droughts and effects of climate change through increased levels of production and productivity of selected food and cash crops, livestock and improved market access and business development. Thus, KIIWP is expected to improve household food and nutrition security, income and asset ownership for smallholder farmers, particularly amongst vulnerable groups including women-headed households and youth. This is in line with the United Nations' Global Compact which supports the Zero Hunger Challenge⁷ to end hunger and malnutrition by 2030, as well as the Scaling Up Nutrition (SUN) movement⁸.

1.2 Goal and Objectives of KIIWP

KIIWP's Development Goal is to '*Contribute to poverty reduction in the drought prone Eastern Province of Rwanda*'. The Development Objective is to '*Improve food security and incomes of 50,000 rural households on a sustainable basis*'. The Project design includes operational synergies with ongoing activities supported by the GoR, the ongoing IFAD-supported projects in the country (PRICE, PASP and RDDP), and other Development Partner-supported programmes in the Project area. KIIWP will also build on the experience of the recently completed KWAMP, the successful Community-based Watershed Management Project implemented in the neighbouring Kirehe District.

⁷ The five pillars of the UN's Zero Hunger Challenge are: i) all systems are sustainable from production to consumption; ii) an end to rural poverty: double smallscale producer incomes and productivity; iii) adapt all food systems to eliminate loss of waste of food; iv) access adequate food and healthy diets for all people all year; v) an end to malnutrition in all its forms. <https://www.un.org/zerohunger/>

⁸ <http://scalingupnutrition.org/>

KIIWP's goal will be achieved through the development of sustainable, profitable and intensive small-scale agricultural activities supported through Public Private Producers Partnerships (4Ps) whenever opportunities exist in the selected Project sites and areas.

The main expected outcomes and outputs of the Project include:

- Enhanced food security and incomes and reduced rural poverty in the Project area;
- Farmers' drought resilience strengthened;
- Increased acreage of farmland under water-related infrastructure;
- Increased acreage of farmland under climate resilient management and practices;
- Increased farmers' economic benefits from market participation and increased sales;
- Improved capacity of Farmer Organizations and local development actors, including local government.

Map 1.1 KIIWP Project Area



1.3 Rationale and Objectives of this ESMF

IFAD's Environment and Natural Resource Management (ENRM, 2011) Policy stresses that project designs present opportunities to improve systematic integration and scaling up of environmental and

natural resource management. Such integration can help IFAD to engage in new and strengthened partnerships with specialized entities for enhanced and effective responses to issues associated with natural resources and, climate variability and change. IFAD's Social Environmental and Climate Assessment Procedures (SECAP, 2017) describe how to better mainstream environmental, social and climate change considerations into the project cycle, going beyond "doing no harm" to maximize development gains.

IFAD's Climate Change Strategy (2010) calls for a more systematic response to increasing demands from the Fund's clients for technical support and innovation to better respond to climate change. This means analysing and addressing climate change challenges during the early stages of programme and project design to build resilience and adaptive capacity.

In line with IFAD's project cycle processes, a SECAP review note was prepared during early design in August 2018. KIIWP investments focus on irrigation and integrated watershed management and planning, including integrated activities and investments on water harvesting and storage, irrigation schemes and the development of marshland development. Some of the Project interventions – especially the irrigation subprojects – will impinge on ecologically sensitive areas (namely the Akagera National Park and marshlands), irrigate fields that are greater than 100ha in area, and may necessitate a significant increase in the use of agrochemicals. Thus, as per SECAP's screening guidelines, the Project has been accorded an overall Category A classification.

The exact site boundaries and/or locations of interventions have not yet been determined, and feasibility studies have not been carried out. Therefore, at this stage, it is not possible to prepare environmental and social impact assessments (ESIAs) and environmental and social management plans (ESMPs). The Environmental and Social Management Framework is therefore intended to guide the preparation of ESIAs or ESMPs for the subprojects. Subproject specific ESIAs will be undertaken during Project implementation for those schemes (or interventions) classified as Category A, while ESMPs will be prepared for schemes classified as Category B. For interventions where physical and/or economic displacement may occur, resettlement action plans (RAPs) will be prepared. Some Project interventions may hinder livestock access to water and grazing pastures, and may trigger the need for Free Prior and Informed Consent (FPIC)⁹: an FPIC Implementation Plan has been prepared to guide this process (see Annex 5).

IFAD recognises that GoR has its own systems for delivering safeguards and that supporting Government's efforts to strengthen and use their systems would enhance country ownership, extend development impacts, and reduce transaction costs. Indeed, the Government of Rwanda is committed to environmental protection and has taken significant steps to ensure a balance between economic development and environmental protection, as well as to prevent environmental degradation. Projects that affect the environment are subject to Environmental Impact Assessments (EIAs) prior to obtaining authorization for their implementation, issued by the Rwanda Development Authority (RDB).

The specific objectives of the ESMF are to:

⁹ Free, Prior and Informed Consent Principle: FREE implies no coercion, intimidation or manipulation. PRIOR implies consent is sought far enough in advance of any authorization or commencement of activities, and the time requirements of consultation and consensus processes are respected. INFORMED implies that all information relating to the activity is provided to concerned people and that the information is objective, accurate and presented in a manner or form that is understandable to these people. CONSENT implies that the concerned people have agreed to the activity that is the subject of the consultation. These people also have the prerogative to withhold consent or to offer it with conditions. Consultation and participation are key elements of a consent-seeking process.

- Identify key linkages between rural poverty and environmental management and assess the potential impacts of the proposed Project on the environment, including the natural resource base, and on the health and livelihoods of communities in the target areas;
- Identify potential impacts of KIIWMP and explore and identify key options for advancing environmental and social sustainability.
- Prepare a generic Environmental and Social Management Plan for the direct impacts and indirect impacts, as well as incremental impacts as they relate to the proposed components/activities;
- Establish clear procedure and methodologies for the environmental and social assessments, review, approval and implementation of subprojects to be financed under KIIWMP. Include specifying how unidentified subprojects whose exact location are unknown will systematically address environmental and social issues in the screening for environmental and social impacts and categorization, site selection criteria, mitigation measures, design, implementation and operational phases as well as maintenance of the subproject lifecycle;
- Specify appropriate roles and responsibilities, and outlining reporting procedures for managing and monitoring environmental and social risks associated with the subprojects. Includes project-level grievance redress system and formulating labour management procedures for inclusion in contractor's bids and contract documents;
- Determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF;
- Identify key conditions relevant to the implementation of the ESMF that need to be included in the loan agreement; and
- Develop budgetary needs required to implement the ESMF requirements.

1.4 Approach and Methodology used for the Preparation of the ESMF

The preparation of this ESMF has been guided by IFAD's policies and SECAP as well as Rwanda's legal framework for environmental and social management. Key requirements of these instruments are described in detail in Chapter 3.

The ESMF conforms with IFAD's safeguard policies, including the Indigenous Peoples Policy (2009), Policy on Disclosure of Documents (2010), Climate Change Strategy (2010), Environment and Natural Resources Management Policy (2012) and Social, Environment and Climate Assessment Procedures (SECAP, 2017). These are also summarised in Chapter 3.

The ESMF study commenced in August 2018. The study methodology comprised: collection and review of primary and secondary baseline data; consultations with key stakeholders and Project area communities, site visits to all the eight Project districts, and report writing.

This ESMF is based on the Project Design Report (PDR) dated August 2018. It will be noted that the PDR is still under development, and although the sub-component descriptions may change, the types of interventions will remain the same. Thus the approach to ensuring compliance with safeguards requirements presented in this ESMF will still apply.

A validation workshop was held on 22nd November 2018 to present the findings of the ESMF study and elicit comments from key holders to be incorporated into the final version of the ESMF.

The ESMF study team, sites visited and study timelines are presented in Annex 12.

1.5 Stakeholder Consultations

At the national level, the team met with officers from MINAGRI, REMA, MINIRENA's Environment and Climate Change Department and Water Resources Management Department. At the district level, discussions were held with the Kayonza District Mayor, Vice Mayor for Economic Development and other district officials.

In addition, discussions were held at the Project sites with 212 persons comprising opinion leaders, potential beneficiary farmers and livestock keepers as well as other members of the Project communities.

The list of persons consulted is presented in Annex 2. Details of the outcomes of consultations are presented in Chapter 6, while notes on community consultations and participant list are provided in Annexes 9 and 10, respectively. A validation workshop was convened for discussing the findings of this ESMF. The workshop participants are listed in Annex 2.

1.6 Disclosure of this ESMF and FPIC Implementation Plan

IFAD's Policy on the Disclosure of Documents (2010) requires full disclosure to the public, and includes information notes on projects being developed for Board presentation, agreements for approved loans and grants, and project/programme design documents which include ESAs, ESMFs, RAPs and RAFs. This ESMF and FPIC Implementation Plan (presented in Annex 5) will therefore be disclosed on IFAD's official website (<http://www.ifad.org>).

In addition, although disclosure of ESMFs are not provided for under the Rwandan environmental framework, this ESMF will be disclosed on MINAGRI's and RAB's official website, and also at the District level, so that all interested and other parties are able to access the document.

1.7 Limitations and Assumptions

Limitations

The main limitations in the preparation of this ESMF have been:

- The Project Design Report was still in the process of being developed during the ESMF preparation, and the proposed sites, the types and specific locations of various the interventions were still under discussion. Thus as mentioned above, the description of the sub-components may differ in the various versions of the PDR. The Project description adopted for the purposes of this ESMF is that from the PDR dated August 2018.
- Pre-feasibility or feasibility studies had not been prepared for any of the proposed sites.
- Baseline data was sourced from primary data where possible. However, where district level data has not been officially submitted or disclosed, or was not always available or accessible, secondary data has had to be relied on, much of which has tended to be outdated.
- This ESMF is intended to be an "umbrella document" to guide the preparation of all the environmental, social and climate assessments to be prepared under the Project. Subproject specific ESAs and ESMPs will be carried out for each of the selected sites, and where required, RAPs will be prepared. At this stage, the number of ESAs, ESMPs and RAPs that will need to be prepared cannot be established since the subproject feasibility and designs have not been done, and therefore the costs associated with these studies can only be estimates.
- The ESMF also proposes that a number of baseline studies be carried out to inform the Project design. Costs for these baseline studies will be established during the scoping phase of the ESIA studies.

Assumptions

The assumptions made are as follows:

1. At this stage of the Project, sites for the irrigation schemes have been selected but the area that is feasible for irrigation and the layout for each scheme have not been determined. While general areas for catchment protection have been identified, the specific boundaries for catchment protection activities have not been established. However, it is likely that proposed irrigation schemes and catchment protection activities will result in some physical or economic displacement of communities, if not for the command area itself, for other associated infrastructure such as pumping mains, canals and access roads, or access to grazing and water sources. In such cases, RAPs will be prepared based on the Resettlement Action Framework (RAF) outlined in Chapter 9, and presented in more detail in Annex 4. The RAP will be disclosed as a precondition to financing the subprojects. The process will entail meaningful consultation and negotiation with potentially affected people, according to the FPIC Implementation Plan presented in Annex 5. Should there be no agreement between the land owner and the Project, the specific interventions associated with affected people will be modified, or abandoned if changes are not possible.
2. A number of ESAs, ESMPs and RAPs will be prepared for this Project. It would be impractical to post all these documents on the IFAD site for disclosure. All ESAs and RAPs for Category A subprojects will be disclosed as required by IFAD's Disclosure Policy. However, it is assumed that the posting of this ESMF will satisfy the requirements of IFAD's Disclosure Policy for the disclosure of ESMPs.

1.8 Report Presentation

This report is presented in thirteen (13) chapters and twelve (12) annexes.

Chapter 1 sets the context of the ESMF by describing the background to KIIWP, the Project's goals and objectives, as well as rationale. The methodology for developing the ESMF is described, as well as an overview of stakeholder consultations held. It also presents disclosure requirements for the ESMF, and limitations and assumptions made during the preparation of this ESMF.

Chapter 2 describes the Project target regions and its components. Chapter 3 describes the policy, legal and institutional framework for environmental, social and climate-related management in Rwanda. It presents IFAD's Safeguard Policies, describes differences in IFAD and GoR policies and the requirements of international conventions and treaties to which Rwanda is party.

Lessons learned from completed and other ongoing IFAD-supported projects in Rwanda, namely Support Project to the Strategic Plan for the Agriculture Transformation (PAPSTA), Kirehe Community-Based Watershed Management Project (KWAMP), Post-harvest and Agribusiness Support Programme (PASP), and Project for Rural Income through Exports (PRICE) are summarised in Chapter 4. Included in that chapter are lessons from the World Bank's Land Husbandry, Water Harvesting and Hillside Irrigation Project under the Rural Sector Support Programme.

Chapter 5 presents an environmental and social profile of Kayonza District.

Chapter 6 summarises the outcome of the consultations held during the preparation of this ESMF and provides information on community priorities for agricultural development.

Generic environmental, social and climate-related impacts due to irrigation schemes and watershed development and management initiatives, their mitigation and cumulative and synergistic impacts are

presented in Chapter 7. This chapter also discusses site-specific key environmental and social issues that emerged during the site visits and consultations for each sector and which need to be considered during Project design.

Chapter 8 discusses climate risk and its implications on the Project.

An outline Resettlement Action Framework is provided in Chapter 9. This is intended to guide the preparation of a resettlement action plan, which may be required in the event that physical and economic displacement occurs.

Chapter 10 describes the environmental and social management procedures for KIIWP and is therefore the essence of this ESMF. Chapter 11 discusses capacity building needed to implement the requirements of the ESMF, while Chapter 12 gives an estimated budget for the implementation of the ESMF.

Chapter 13 summarises the key environmental, social and climate risks and makes recommendations for those risks that should be considered during the Project development and design.

The annexes contain: References; List of Persons Consulted; Sample TORs for ESIA Studies; Resettlement Action Framework; FPIC Implementation Plan; Guidelines for an Integrated Pest Management Plan; Guidelines for a Dam Safety Plan; Sample Contract Clauses for Environmental and Social Management; Minutes of Community Consultations; Potential Beneficiary Consultation Participant List; Proceedings of the ESMF Validation Workshop; and Study Team, Sites Visited and ESMF Timelines.



2 KIIWP Project Description

The following description of the KIIWP is based on the draft Project Design Report (August 2018). As the Project design evolves, there may be some changes to specific component activities. However, it is believed that the Project description in this section fairly represents the nature and types of activities proposed under the Project.

2.1 Overview of the Project Area Characteristics

Kayonza District is located in Eastern Province, Rwanda. It is bordered to the north and north-west by Gatsibo District, Rwamagana District to the west, Ngoma District to the south-west and Kirehe District to the south. Its shares its eastern border with Tanzania.

The Project area comprises the eight drought-prone sectors of the District of Kayonza in the Eastern Province of Rwanda, namely Gahini, Kabare, Kabarando, Murama, Murundi, Mwiri, Ndego and Rwindikavu sectors. The sectors are relatively hot and arid, with rainfall averaging 900 mm per year. However, the abundant surface water resources suggest that there is good potential for irrigation – estimated at some 30,000ha for Kayonza District. District population data (2016 census) put the population of the District at 392,676, with 26.4% of the population living below the poverty line, and 9.5% living in extreme poverty (EICV-4). About 80% of the total active population in the District is engaged in agriculture as their main economic activity and source of income. The landholding per capita of 0.5 ha/household is moderately large compared with the rest of the country. In addition to crop production, livestock is intensified in the district. In the eight drought-prone sectors targeted by the Project, 58% of all households raise some type of livestock, 24% have cows.

2.2 Target Groups

The 2016 census indicates that the number of people in the eight target sectors is 262,967, of which 51.5% are women. Based on the national wealth ranking system (*Ubudehe*)¹⁰, and consistent with the targeting strategy laid out in the Results-Based Country Strategic Opportunities Programme (RB-COSOP), KIIWP's direct target groups will comprise about 50,000 poor and food insecure rural households (HH). Almost all households (58,209 HH = 99.97%) are categorised as Cat 1, 2 or 3. Almost half of them (49%) fall into Categories 1 and 2, which is higher than the overall District (47%) and also higher than the national average (43.9%). 31% of the households are female-headed.

KIIWP will directly target 28,000 households in the eight Project sectors:

- 21,925 households that are members of the 54 farmer cooperatives growing rice, maize & beans or horticulture in these sectors, and will be supported through Farming as a Business (Faab) skills, cooperative strengthening, and backward/forward linkages. Depending on their locations, a large part of these households will also benefit from other specific activities.

¹⁰ *Ubudehe* is a classification of Rwandans based on economic status. Ubudehe categories are as follows: Category 1: Families who do not own a house or cannot pay a rent, have a poor diet and can hardly afford basic household tools and clothes; Category 2: Those who have a dwelling of their own or are able to rent one, mostly get food and wages from working for others but rarely get full time jobs; Category 3: Those who have a job and farmers who go beyond subsistence farming to produce a surplus which can be sold; and Category 4: Those who own large-scale business, individuals working with international organisations and industries as well as public servants.

- 6,415 households that are not members of these cooperatives, but may be supported by other specific activities.

Out of the total 28,000 direct target households, 21,585 will receive specific support as follows:

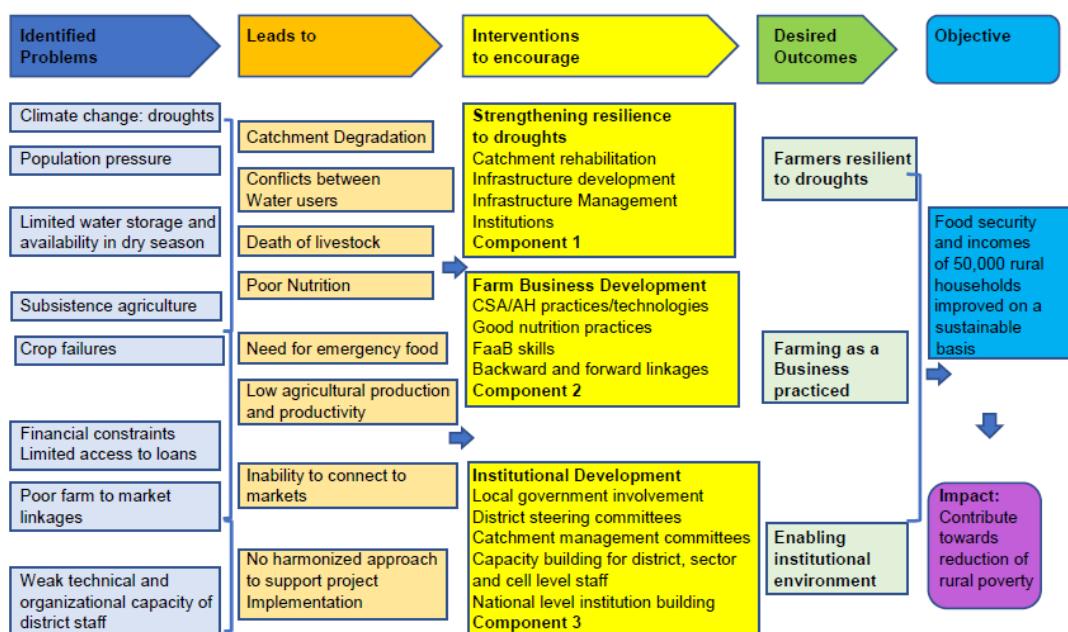
- 7,350 households benefiting from terracing and agro-forestry (estimated on basis of average 0,3 ha land area per household);
- 2,225 households farming in marshlands and hillsides that will be developed by KIIWP (estimated on basis of average 0.3 ha land area per household);
- 5,560 households in marshland schemes where no infrastructure development will take place, but organisational strengthening activities are geared towards sustainable water management by Water Users Organizations (WUOs);
- 4,350 households to be included in small/holder schemes in Ndego pumping schemes;
- 400 households benefiting from water harvesting infrastructure;
- 1,700 households that have cows and benefit from water for animals.

Indirectly, all households farming in the watersheds (another 22,000 households) will be targeted under Catchment Rehabilitation and Protection Component (Component 1.1) and will thus benefit from improved water retention and improved soil fertility. Business development opportunities and market linkages will also benefit other farming families.

Theory of Change

The Theory of Change diagram below developed for KIIWP captures the rationale behind the Project's components and activities, its outcomes and outputs.

Figure 2.1 KIIWP Theory of Change



2.3 Programme Components

The Project will comprise two core technical components and a third component supporting institutional development and Project coordination. These components, their sub-components and the linkages between them are described in more detail below.

2.3.1 Component 1: Strengthening Resilience to Drought

Sub-component 1.1: Catchment Rehabilitation and Protection

This component will support investments in infrastructure to rehabilitate and protect the degraded farmlands as well as considerably reduce the runoff from the catchments. The interventions will be selected with a view to reducing the volume and velocity of runoff and allow for rainwater to infiltrate in the soil. This will be combined with land husbandry practices geared towards increasing vegetative cover in the farms which will increase the soil fertility and further reduce the erosive force of rainfall. Under this component, watershed management plans will be developed which will identify the zones in most need of protection and the action to be taken to rehabilitate and protect them. Such action will include, among others: slowing down runoff by construction of check dams, gabions, side drains, etc., along the runoff water courses as well as terracing and contour bunds in the farms as necessary. These will be complimented with agro-forestry activities including planting of selected agro-forestry trees, shrubs and grasses as well as pastures rehabilitation.

Sub-component 1.2: Irrigation Development

This sub-component is meant to strengthen the support of small-scale farmers with water for irrigation and to a lesser extent, water for livestock and domestic purposes. Four different types of irrigation infrastructure are to be developed:

- i. Infrastructure for marshland and hillside irrigation: This is to be achieved by harvesting and storing water from streams and runoff in the catchments. Kayonza District has relatively few and modest flow springs, which are the same springs that the District has identified for marshlands development. These springs will be assessed and where they are found to have enough flow, storage dams of around 250,000m³ will be constructed to irrigate both the marshlands, which are relatively small and the surrounding hillsides. It is foreseen that it could be possible to get three springs where such storage could be possible. Each would store water that would enable supplemental irrigation for about 130 ha. The marshlands where the spring does not have enough flow to warrant impounding would be developed with a simple weir.
- ii. Pumped irrigation systems: The sectors neighbouring the Akagera River are the driest and possibility of irrigation is through pumping systems, either from the river or from the lakes in the area. A feasibility study has already been carried out for irrigation in one of the sectors, Ndego, that concludes that it is feasible to irrigate with water pumped from Lake Nasho. Already in Ndego, there is a private sector commercial entity, Bramin, carrying out irrigation from Lake Ihema which further reinforces the feasibility of pumped irrigation. A subproject will be developed for small scale farmers in the area to irrigate up to 1000 ha. The Project will explore a partnership between Bramin and the smallscale farmers whereby Bramin will manage the irrigation infrastructure as well as assure the farmers of a reliable, profitable market for their produce.
- iii. Farm-level rainwater harvesting structures: These will be small ponds that would harvest water of between 50 to 200m³, which will enable farmers to carry out supplemental irrigation in plots ranging between 230 to 950 m². The ponds will be lined and covered with shade net as well as fenced for security reasons. The ponds will be allocated on graduated subsidies basis

depending on financial status – mix of subsidies and loans based on livelihood status of the target farmers.

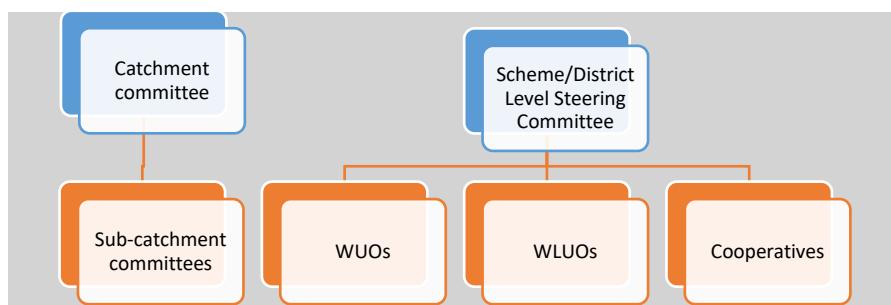
- iv. Livestock and domestic water infrastructure: Kayonza District has plans to develop and improve water-related infrastructure for livestock. Towards this end, KIIWP would support construction of seven new valley tanks and rehabilitation of 15 existing ones. The valley tanks, which will be designed to store around 40 m³ each, will be equipped with a solar pumping system, plastic storage tanks, and livestock watering troughs. The Project will further support the drilling and equipping of around 20 boreholes that will provide water for livestock and for domestic purposes. Each of the developed boreholes will be equipped with solar pumping systems, and livestock troughs.

In addition, the Project will develop and/or restore about 100km of feeder roads. The construction process will engage the local communities to carry out manual labour, during which they will be trained in road maintenance skill and capacitated to form ‘road brigades’ that will be contracted by the District government to maintain the feeder roads. This activity will be entirely financed by the GoR.

Sub-component 1.3: Infrastructure Management Institutions

In order to ensure long-term sustainability, KIIWP will support the institutional development of infrastructure management institutions that will play an active role in the design, construction and operation and maintenance of infrastructure. The organisations will also be central in ensuring equitable access to water for its members, including farmers and livestock keepers and developing drought contingency plans. In the drought-prone sectors these organisations will also be tasked with ensuring maximum water use efficiency and environmental protection. Infrastructure management institutions will benefit all users of the infrastructure directly, as well as households farming in watersheds protected and managed by the committees. The different institutions are presented in the figure below. The committees (in blue) are at District or Scheme level, involving a mixture of stakeholders. The institutions (in red) are Farmer Organisations, namely sub-catchment committees, Water Users Organisations, Water Livestock Users Organisations and Cooperatives.

Figure 2.2 KIIWP’s Institutions at District Level



Capacity building will take place, covering three key areas: (i) governance (ii) technical water management (O&M), and (iii) monitoring and exchange of experiences. The capacity building will be based on a participatory Farmer Field School approach. Capacity building will also focus on environmental, social and climate change aspects, as described in detail in Chapter 11.

2.3.2 Component 2: Support to Farm Business Development

Sub-Component 2.1: Enhancing Climate Smart Agriculture (CSA) Practices and Technologies.

This sub-component will identify CSA practices and technologies through liaison between the RAB Crop Officers and Kayonza District and Sector Agronomists, and the Consultative Group on International

Agricultural Research (CGIAR), the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), the Food and Agriculture Organization, the Departments of Research and Land Husbandry, Irrigation and Mechanization at RAB, but also the private sector, recent development projects and Non-Governmental Organizations (NGOs) in order to compile a long list of existing CSA practices and technologies and select the most appropriate ones for KIIWP target groups and areas. Short-term international technical assistance (TA) will then be sought to prepare training materials on best CSA practices and technologies. Training and demonstrations of the CSA practices will be delivered through 800 Farmer Field Schools and the establishment of 80 demonstration plots on both rain-fed and irrigated land. Short-term TA will be sought to develop a training module on basic nutrition education, which will be incorporated in the FFS training.

A Gender Action Learning System (GALS) will be promoted in order to increase awareness of gender roles in the households and communities by improving their capacity to negotiate their needs and interests and find innovative, gender-equitable solutions in livelihoods planning and value chain development.

In line with RAB mechanization programme initiated in 2009, KIIWP, through the FFS training, will sensitize farmers and cooperatives in using farm machinery in different farming operations such as land preparation, spraying, water pumping, small-scale irrigation and transportation of produce and fertilizers. KIIWP will also encourage the communication and dissemination of meteorological bulletins tailored to climate risks and vulnerabilities specific to selected cash and food crops suitable to Kayonza District.

Sub-component 2.2: Developing Farming as a Business (FaaB) Skills

KIIWP will impart business skills to assist farmers engaged in commercial production to acquire a better understanding of the market demands such as preferred varieties, quality criteria, quantity, required post-harvest practices, as well as to understand the gross margin calculations to assess profitability and plan production accordingly. A specific FaaB training module will be developed, and incorporated in the FFS curriculum.

Business Development Service Providers (BDSPs) will be hired with a role of a coach or mentor; they will support the Project beneficiaries through dedicated ad-hoc assistance based on the specific challenges they meet, and along the different stages of the cropping seasons. Young professional organisations, such as the Rwanda Youth in Agribusiness Forum¹¹ and the Horticulture in Reality Cooperative¹², as well as physically challenged members of the Project communities, will be mobilized by the Project as BDSPs whenever the need and opportunities arise, in both rain-fed and irrigated areas.

The Project will also ensure that the farmer-based organizations/cooperatives are capacitated to develop as commercial entities. Farmers supported through new irrigation or water for livestock schemes will be encouraged to join existing cooperatives, or form new cooperatives that will be registered with the Rwanda Cooperative Agency (RCA).

Sub-Component 2.3: Supporting Backward and Forward Market Linkages

KIIWP will thus strive to improve access to and use of adequate financial services by the target population of Kayonza. To this effect, KIIWP activities in rural financial services will revolve around two

¹¹ <http://www.ryaf.rw/spip.php?article1>

¹² <http://horecorwanda.com/background/>

types of interventions: (i) strengthening of Community Based Finance Institutions (CBFIs)¹³ and their active linkage to the cooperatives supported by KIIWP through the development of outreach plans and tailor-made delivery mechanisms; and (ii) facilitating their access to agricultural insurance systems that can alleviate farming risks.

KIIWP will leverage on the existing resources of ICCO-STARS¹⁴ to scale-up its current interventions in Kayonza¹⁵. ICCOs' direct TA will be sought for capacity building of the 12 *Umurenge* SACCOS and 4 MFIs operating in Kayonza, the active linkage of these SACCOS to MFIs, and the mobilization of cooperative members to join SACCOS or MFIs.

The Project will support MINAGRI's technical support unit in piloting the first phase of the Multi Peril Crop Insurance (MPCI) scheme for maize and beans VCs in Kayonza, with a contribution of USD 200,000 per year. It will also facilitate study tours for insurance companies and financial institutions' managers, and raise awareness of the target 54 cooperatives on the MPCI mechanisms.

In the specific case of pumped irrigation systems that are intended to develop a highly commercial smallholder irrigated production system, 4P-like arrangements with the private sector will be developed whenever feasible. KIIWP will support small-scale farmers with irrigation water supply infrastructure, sensitization and FO institutional development, while neighbouring large-scale farmers will manage the production and delivery of irrigation water to smallholder farmers at a fee, ensure a reliable market for smallholder produce, and/or provide technical and farming-as-a-business advisory services in lieu of FFS and BDSPs.

2.3.3 Component 3: Institutional Development and Project Coordination

Sub-component 3.1: Policy and Institutional Development

This sub-component will strengthen institutions that can support directly or indirectly the implementation of KIIWP and provide policy supports that are needed for the effective implementation of the Project. Support for policy dialogue will be provided by KIIWP through an evaluation of implementation and impact of new or existing policies related to the Project activities with relevant national, and district level stakeholders.

To ensure gender mainstreaming into Project activities and outcomes, RAB in connection with the SPIU will prepare a brief gender action plan, building on work already done by MINAGRI and other IFAD-supported projects. Specific training will be organised to familiarise government and Project staff with gender mainstreaming approaches, and special provisions will be made to ensure that gender equity concerns are adopted in the implementation of all Project components.

Capacity building interventions will be identified for KIIWP staff under the SPIU, including RAB and district personnel engaged in KIIWP implementation. These capacity building activities will be preceded by a needs assessment to be elaborated for the SPIU, RAB and district personnel.

¹³ Examples of CBFIs are the Savings and Credit Cooperative Societies (SACCOS), and Micro-Finance Institutions (MFIs) operating in the project areas.

¹⁴ <https://www.icco-cooperation.org/en/projects/stars>

¹⁵ Key data about STARS interventions in Kayonza District: Target 2,200 HH for value chain development (5 rice cooperatives; 10 maize cooperatives) and 1,000 HH for rural agricultural finance support - Gender focus 50% women - Refinancing Duterimbere MFI for loans to farmers: USD 150,000 budget - MFI direct support and VC development: USD 56,000 budget.

Sub-component 3.2: Project Coordination

The Lead Project Agency (LPA) for KIIWP will be the Rwanda Agriculture and Animal Resources Development Board (RAB) which will have the overall responsibility for the coordination and execution of the Project. Though the MINAGRI Permanent Secretary (PS) is currently the Chief Budget Officer, it is expected that this role will be shifted to RAB in the implementation of KIIWP, as well as the implementation of the ongoing projects: RDDP and PASP. KIIWP will be integrated within the SPIU of IFAD projects (PASP and RDDP) that are under RAB. The SPIU Coordinator will also oversee and coordinate KIIWP activities that will be implemented at both the central and district level. The structure of RAB and how the IFAD SPIU will be integrated within it is yet to be finalized and shared with IFAD. Institutional arrangements for implementation of KIIWP activities are further described in the section below.

2.4 Institutional Arrangements for KIIWP Implementation

2.4.1 Project Oversight

The Lead Project Agency for KIIWP will be the RAB which will have the overall responsibility for the coordination and execution of the Project. KIIWP will be integrated within the SPIU of IFAD projects (PASP and RDDP) that are under RAB. The SPIU Coordinator will also oversee and coordinate KIIWP activities that will be implemented at both the central and district level. In addition to the existing IFAD SPIU staff performing cross-cutting functions of finance/accounting, M&E, procurement and administration, the following KIIWP staff are proposed: (i) a KIIWP Programme Manager; (ii) an accountant dedicated to KIIWP implementation and transactions; (iii) an M&E officer in charge also of gender and youth; (iv) an Irrigation engineer; (v) a WUO Specialist, (vi) a Land Husbandry/Soil and Water Conservation (SWC) Engineer, and vii) a Cooperative Development Officer. The IFAD SPIU Environmental and Climate Change Specialist will be responsible for monitoring the environmental, social and climate performance of the subprojects.

A Project Steering Committee (PSC) will be set up, where the PS of MINAGRI will be the chair of the PSC. The membership of the PSC will be determined by MINAGRI and shared with IFAD. It is recommended representatives from REMA and RWFA should be nominated to sit on the PSC.

Component 1 activities will need more hands on management, both on a day to day basis and at the higher levels. Component 2 activities which provide support to farm business development will mainly be implemented through service providers and implementing partners, including RAB. For service providers and implementing partners, contracting and partnership will be based on renewable performance-based contracts or Memorandum of Understanding (MoUs).

2.4.2 District Level

At district-level, staff will include an accountant; a WUO Specialist; a Land Husbandry (SWC) Engineer; a Cooperative Development Officer; a horticulture specialist; and an irrigation technician all integrated in the district organization structure and paid by KIIWP. It is recommended here that an Environmental and Climate Change Officer (ECCO), and a Social Safeguards Officer (SSO) are also taken on as part of the District KIIWP Project Team.

A District Steering Committee chaired by the Kayonza Mayor and made up of members of the District Council, members representing the farmers, farmers organisations (FOs), and local institutions from the public and private sectors' participating in the Project will be put in place. The committee is due to meet at least twice yearly, once to review the draft Annual Work Plan and Budget (AWPB) and again at mid-year to review the implementation progress. It will be responsible for the technical oversight of

the implementation of the AWPB and the Project's integration into the district structure. The Project will also work with Farmer Organizations, notably different commodity-based Cooperatives, WUOs and national and international Non-Governmental Organisations (NGOs). Raising awareness and capacity building are key elements, especially of FOs and District, Sector and Cell level staff. Practically the Project will avail a budget for twice yearly planning and M&E meetings.

The management of infrastructure and optimal use of developed land at district level is ensured by a Scheme Steering Committee for irrigation and soil conservation activities at District level. The committee is composed of:

- a) Vice Mayor in charge of Economy development and Finance: Chairperson;
- b) Director of Agriculture and environment in the District: vice chairperson;
- c) Officer in charge of Cooperatives: Secretary;
- d) RAB Staff – from Eastern Zonal Head
- e) District officer in charge of irrigation program;
- f) Environment Officer;
- g) Socio-economic Development Officer;
- h) Gender Officer;
- i) Officer from “One Stop Center”;
- j) Executive Secretaries of sectors where the infrastructures are located;
- k) Chairperson of cooperative/ or representative of farmers operating on the developed land,
- l) Representative of irrigation water user association on the developed land with irrigation canals;
- m) Representative of the District Environmental Committee
- n) Representatives of stakeholders, development projects and Government entities operating in the District in land development, conservation and optimal use programmes.

Responsibilities of Scheme Steering Committee at District level are as follows:

- Mobilising the users of developed land to adhere to cooperative or irrigation water user associations when developed land is equipped with irrigation infrastructures;
- Approving the action plan of cooperative or irrigation water user associations operating on developed land in the District;
- Monitoring the use of infrastructures available in developed schemes of the District;
- Advising on management and use of cooperative and irrigation water user association resources on developed land;
- Monitoring the law enforcement with regard to management and conservation of natural resources on developed land;
- Preventing and solving conflicts that may rise between land and water users;
- Following up erosion control activities on watersheds around the scheme;
- Following up on implementation of environmental and social management and monitoring plans and climate risk mitigation plans prepared for each irrigation site;
- Following up on the implementation and monitoring of the Resettlement Action Plan;
- Reporting to competent Government authorities.

It should be noted that MINAGRI has recently advertised for positions of District Agriculture Inspectors (DAIs) who will report directly to the PS MINAGRI. This officer will represent MINAGRI in the district, and among other tasks, assist in the preparation and coordination of various programmes that the MINAGRI is implementing in the District. The DAI will also cooperate and collaborate with all key players in the agricultural sector, work closely with District authorities, RAB stations and NAEB zonal staff.

2.4.3 Scheme Level

A Steering Committee will be established at scheme level to oversee infrastructure and optimal use of developed land. The Committee at the scheme level will be composed of:

- a) The Executive Secretary of the Sector in which the scheme is located: Chairperson;
- b) Officer in charge of agriculture at sector level: Deputy chairperson;
- c) Officer in charge of Development and social affairs in the cell where the scheme is located (Secretary);
- d) The chairperson of the Cooperative/ Investor operating in the developed scheme;
- e) The chairperson of water user association in the irrigated scheme or subproject;
- f) A representative of environmental committees at sector level;
- g) The representative of communities in subproject areas;
- h) Representatives of the subcatchment committees;
- i) Representatives of farmers' cooperative operating in watersheds around the developed scheme.

When the scheme is located in more than one sector, the Management committee will elect an Executive Committee made of three people (Chairperson, deputy-chairperson and Secretary).

At the scheme level, the Scheme Steering Committee will be in charge of:

- Approving the action plan of water user association and Cooperative operating in the scheme;
- Following up the use of resources/property of Cooperative and water user association operating on developed land;
- Monitoring the use of infrastructures in the developed schemes;
- Enforcing the laws and regulations governing the management and conservation of natural resources;
- Following up all erosion control activities on watersheds around the developed scheme;
- Following up on implementation of environmental and social management and monitoring plans and climate risk mitigation plans prepared for each site;
- Following up on the implementation and monitoring of the Resettlement Action Plan;
- Preventing and solving conflicts that may rise among land and water users.

2.4.4 Sub-Catchment Level

Sub-catchment Committees will be set up for each selected watershed and will work closely with sector development committees (known as SDCs) and with FOs and various other associations, as shown in Figure 2.2 above. They will be responsible for the implementation of work plans, quality control related to contracted services, and the use of allocated resources. They are the primary decision-makers, as long as their decisions do not conflict with the basic principles, approach and modalities of the Project or the district and sector priorities, as set out in the District Development Plan (DDP). As at the time of design the number of sub-catchment or watersheds was not known.

2.5 Selection of Sites for Intervention under KIIWP

2.5.1 Participatory Approach

The selection of where the investments will be made will be done through participatory assessments in the sub-catchments and potential scheme areas during which the community institutions formed under Sub-component 1.3 (Infrastructure Management Institutions) will be expected to be active participants. The participatory approach involves establishing the types of crops that the smallholder farmers are already growing, and what they would like to produce. They will also be involved in

identifying markets. They must also be consulted in regard to their capacity to contribute to the Project (whether in cash or kind), how they can contribute (for example at what point during the year are they able to contribute, whether they prefer to stagger their contribution over the Project period, etc).

2.5.2 Technical Considerations

The main technical factors affecting site selection are:

- Water availability;
- Availability of land for irrigation and catchment protection activities;
- Climatic factors;
- Soil characteristics, stability and suitability;
- Topography;
- Proximity to settlements; and
- Accessibility of the proposed sites.

2.5.3 Economic Considerations

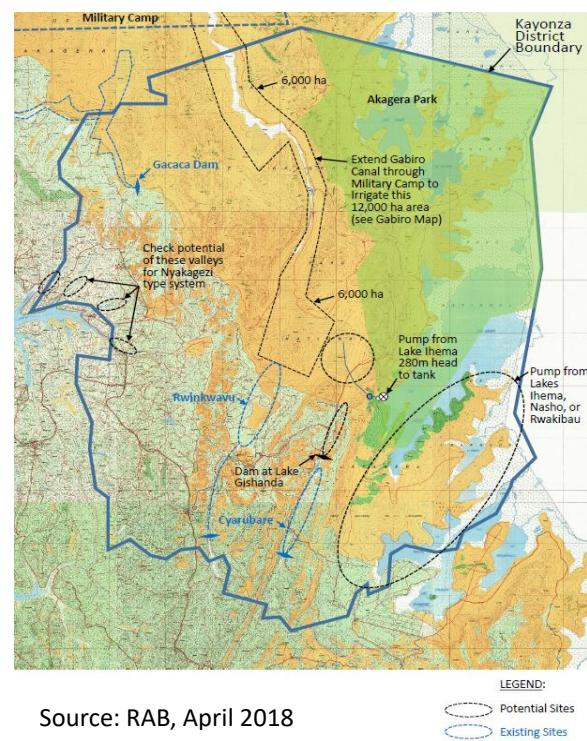
There are two key economic considerations in developing sites for irrigation: investment cost per hectare, and a favourable Financial Internal Rate of Return (FIRR).

2.5.4 Selected Sites

Based on the above, under Sub-components 1.1 and 1.2, four sites have been selected for pumped irrigation in Ndego and Kabare Sectors totaling 2000 ha, about 275 ha of land will be developed for marshland irrigation in Rwinkwavu, Kabare and Kabarondo Sectors; and in Muruma Sector, farm ponds will be constructed for rainwater irrigation of some 10ha of land. Catchment rehabilitation and protection interventions will include terracing and agroforestry and will cover an estimated 1300ha. It is also proposed that in Ndego, Gahini, Murundi and Mwiri Sectors, 7 new valley tanks will be constructed, 15 valley tanks will be rehabilitated, and 20 boreholes will be installed to provide water for livestock and domestic use.

Based on the above, under Sub-components 1.1 and 1.2, four sites have been selected for pumped irrigation in Ndego and Kabare Sectors totaling 2000 ha, about 275 ha of land will be developed for marshland irrigation in Rwinkwavu, Kabare and Kabarondo Sectors; and in Muruma Sector, farm ponds will be constructed for rainwater irrigation of some 10ha of land. Catchment rehabilitation and protection interventions will include terracing and agroforestry and will cover an estimated 1300ha. It is also proposed that in Ndego, Gahini, Murundi and Mwiri Sectors, 7 new valley tanks will be constructed, 15 valley tanks will be rehabilitated, and 20 boreholes will be installed to provide water for livestock and domestic use. The proposed interventions are presented in Table 2.1 below. It should be noted that IFAD will fund the necessary studies as well as the implementation of these interventions, except for the pumped

Map 2.1 Location of Potential Sites



Source: RAB, April 2018

LEGEND:
○ Potential Sites
○ Existing Sites

irrigation schemes in Ndego Sector, where IFAD will fund only implementation, but not the preparatory studies.

Table 2.1 Selected Sites and Respective Interventions

Infrastructure	No.	Unit	Av. Size (ha)	Total area (ha)	Comments
Irrigation					
Pumped irrigation	3	ha	400 600 400	1400	Ndego sector: 3 sites (Kibare, Humure, Byimana) Source: Lakes Kibare, Ihema, Nasho
	1	ha	600	600	Kabare sector: 1 site (Gakoma) Source: Lake Nasho
Small marshlands				275	To irrigate both marshlands and hillsides Sectors: Rwinkwavu, Kabare (River Gishanda) 125 ha Kabarondo (River Kanyeganyege):150 ha
Farm-level ponds	200	ha	0.05	10	Source: rainwater Locations: Murama Selection criteria – a lot of land which has been terraced, but no water Pond size 50-200m3
Catchment Conservation					
Land Husbandry (Terraces + agroforestry, mulching, liming, etc)		ha		7500	Includes 2275 irrigated and rainfed Kabare, Kabarondo, Rwinkwavu: dam or irrigation related Murama (900ha), Kabarondo (190ha): rainfed Criteria for selecting locations: terraced land with water scarcity; non-terraced land Av. Household land holding: 0.3ha
Provision of Water for Livestock and Domestic Use					
Valley tanks new	7	m3	40	280	Ndego, Gahini, Murundi and Mwiri Sectors Locations of new tanks and boreholes not known.
Valley tanks rehab	15	m3	?	?	Borehole capacity not known.
Boreholes	20	-	-	20	No. of people and livestock to be supplied not yet established.



Gahini Sector

3 Policy, Legal and Institutional Framework for Environmental Management in Rwanda

This chapter describes the administrative, policy and regulatory framework relevant to environmental and climate change concerns in Rwanda that may trigger the IFAD SECAP.

3.1 Constitutional Provisions and Vision 2020

The Constitution of the Republic of Rwanda, promulgated in 2003 and revised in December 2015, articulates 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 under Articles 22 and 53 respectively. Guidance of the Constitution on environmental preservation and management as a cross cutting issue is reflected in the National Vision 2020 and the National Policy on Environment of 2003.

The Constitution recognizes ownership of property and every person's right to private property (Article 34). Consequently, private property, whether individually or collectively owned, is inviolable. Exceptionally, the right to property may be overruled in the case of public interest. In these cases, circumstances and procedures are determined by the law and subject to fair and prior compensation (Article 34). 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 Constitutional rights as articulated in Vision 2020 and Environment Policy are given effect by Organic Law No. 4/2005 of 8 April 2005 as amended in 2018. Principle 1 of Article 7 in the Organic Law stipulates precautionary measures that are informed by the results of both environmental assessment of policies, plans, projects, and development activities and the assessment of social well-being. Chapter IV, Articles 67-70, Organic Law sets out specific guidelines for Environmental Impact Assessment (EIA) and stipulates that every project, and those programmes and policies that may affect the environment, shall be subjected to EIA before obtaining authorization for implementation.

3.2 Policies and Strategic Provisions

Rwanda National Environment Policy

The National Environment Policy of 2003 seeks to achieve its overall objective of the improvement of human wellbeing, the judicious utilization of natural resources and the protection and rational management of ecosystems for a sustainable and fair development through improved health and quality of life for every citizen and promotion of sustainable socio-economic development through a rational management and utilization of resources and environment, integrating environmental aspects into all the development policies, planning and in all activities carried out at the national, provincial and local level, with the full participation of the population, conservation, preserve and restoration of ecosystems and maintenance of ecological and systems functions.

The key principles mentioned among others that:

- i. It is every person's right to live in a safe and stable environment, but on the other hand, they must keep it healthy;

- ii. The national economic growth must be based on rational use of resources and take into account environmental dimensions;
- iii. Active and effective participation of the whole population for environment protection and management;
- iv. A special emphasis must be laid on environmental education and sensitization programme at all levels with more involvement of women and the youth;
- v. Environmental impacts are to be analysed while conducting studies of development projects.

Further, the policy proposes the elaboration or updating of master plans and special planning in urban areas with regard to population and land development aspects. In natural resources management (including land and water), the policy proposes:

- i. Ensure the preservation and protection of soils against any form of degradation;
- ii. Ensure that a prior study of environmental impact which underlines costs and benefits from slopes and underlying ecosystems protection is conducted for any development projects and;
- iii. Encourage programmes of rainwater collection, stocking and use.

The policy also proposes the following in regard to biodiversity, forests, wetlands management and other natural reserves and or ecosystems:

- i. Set up protection measures for slopes to avoid degradation of swamps;
- ii. Promote the rehabilitation of ecosystems under degradation and restoring endangered species.

On the issue of environmental education, information and research, the policy proposes among others:

- i. To reinforce the human and institutional capacity building with regard to environment and
- ii. To sensitize the population to protect the environment.

On health and sanitation, the policy proposes among others:

- i. Set up a system of waste collection, transport, disposal and elimination;
- ii. Establish norms of zone protection between dumps, human buildings and water sources;
- iii. Set up an appropriate canal and evacuation system for waste waters and rainwater in towns and resettlement sites/Villages “Imidugudu”.

The Environment Policy harmonizes other policies like on agriculture, energy. The policy further proposes that the Central Government will be concerned with conservation and protection policies while tourism and environmental management will be transferred to the District and Kigali City levels.

Land Policy

The Land Policy of 2004 introduces the consideration of master plans for use and sound management of land resources. 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. The policy promotes irrigating areas that are more or less flat and semi-arid to support agricultural production while discouraging overgrazing and pasture burning. 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.

Agriculture Policy

The objectives of national Agriculture Policy of 2018 are aligned to the Malabo Declaration (2014) under the CAADP framework of the AU and cover increased contribution to wealth creation; economic opportunities and prosperity; improved food security and nutrition; and increased resilience and sustainability. Pillar 3 of the policy stipulates productivity and sustainability through the increase of countering of the adverse effects on land resources and climate change with continued efforts to increase inputs and sustainable climate smart practices. Actions under this pillar for the promotion of irrigation and sustainable water management include the following:

- Increase the area under irrigation;
- Promote private sector-led models of irrigation scheme management and establish maintenance fee collection;
- Attract private sector and external finance for irrigation development;
- Support efforts to increase the capacity of on-farm water harvesting, storage, and use; develop groundwater and improve drainage and flood management.

Fertilizer Policy

The national Fertilizer Policy of 2014 aims to contribute to increased agricultural productivity, economic returns and incomes through increased and sustainable access and use of fertilizers.

The policy's specific objectives are stated as the following:

- Create an enabling environment for the development of a privately driven and liberalized fertilizer importation and distribution system that fosters competition and innovation;
- Promote fertilizer trade by introducing appropriate and effective incentives that encourage investment by the private sector;
- Establish an efficient regulatory and monitoring system that is private sector friendly and ensures the sustainable supply to high quality fertilizer products along the distribution chain in a manner that safeguards human health and the environment;
- Create awareness and improve knowledge of the benefits of fertilizers;
- Promote diverse fertilizer products and technologies (improved seeds, irrigation, soil conservation, lime) that enhance efficient utilization of fertilizers;
- Promote integrated nutrient management and conservation agriculture for environmental sustainability.
- Establish incentives that permit increased access and use of fertilizers at affordable rates by all the farmers. Such incentives shall not be limited to Agriculture Finance, Insurance and Subsidies.
- Support agricultural research and development to improve farmers' returns to investment to fertilizers through establishing crop and area specific soil nutrient requirements and fertility levels to improve the fertilizer use efficiency, higher yields.
- Facilitate the application of balanced fertilizer in line with crop and area specific soil nutrient requirements of the different cropping systems and agro-ecological zones, based on soil testing and fertilizer trials;
- Support the local production of fertilizers through the exploration of local resources (methane and lime) and fertilizer manufacture and blending to ease access and reduce cost of fertilizers;
- Foster institutional linkages and gender issues in implementing the policies; and
- Promote the harmonization of fertilizer policies at regional levels.

The policy provides for the improvement of supply through privatization and liberalization of the fertilizer market. It stipulates that the private sector shall be primarily responsible for fertilizer trade and marketing and that Government shall facilitate the private sector and perform a regulatory role in

implementing the above-listed objectives. The policy stipulates that the distribution of fertilizers in the country shall be informed by district fertilizer requirements in terms of crop requirements and quantities. It also provides the fertilizer distribution channel existing comprising the importer-distributor/agro dealer cooperatives-agro dealers-farmers shall be monitored and fertilizer inspected along the distribution chain to ensure quality is maintained and delivery is timely.

The policy recognizes that inappropriate use of fertilizers could have a negative effect on the environment such as leaching to underground water sources and the emission of “greenhouse gases”, which contributing to global warming and climate change. It provides for mitigation actions for minimizing greenhouse gas emissions from fertilizer application practices as well as environmental safety and sustainability.

The policy stipulates that Government shall be responsible for regulating fertilizers the quality fertilizer products that traded in the country according to the law governing the use of Agrochemicals and the Ministerial Instructions Regulating the control of Agro chemicals, agro dealers and premises. The Ministry of Agriculture and Animal Resources (MINAGRI) is mandated with the implementation of the national fertilizer policy with the support of partner institutions including REMA, Rwanda Inspection and Competition Authority (RICA), the Rwanda Standards Board (RSB) and Private Sector Federation (PSF).

The policy recognizes that women play a very significant contribution to agriculture but often have a lesser role in decision making and are disadvantaged compared to their male counterparts in benefiting from opportunities that arise for the fertilizer sub-sector (in terms of access to and use of fertilizers, and Fertilizer trade). In this regard, the policy stipulates the assurance that women have a fair chance to benefit from opportunities in fertilizer extension, trade, and use.

National Policy for Water Resources Management

The goal of the national Policy for Water Resources Management of 2011 is to manage and develop the water resources of Rwanda in an integrated and sustainable manner, so as to secure and provide water of adequate quantity and quality for all social and economic needs of the present and future generations with the full participation of all stakeholders in decisions affecting water resources management. The policy recognizes the impacts of climate change on the water resources and provides for a comprehensive programme to introduce flow control, irrigation and storage. The policy further recognizes that as climatic variability increases over the medium term, decision-makers will be increasingly challenged to manage the water resource as the objectives of different sectors diverge.

The 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:

- i. Energy security and a low-carbon energy supply that supports the development of Green Industry and Services;
- ii. Sustainable land use and water resource management that results in food security;
- iii. Appropriate urban development and preservation of biodiversity and ecosystem Services; and
- iv. 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.

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 conservation. The strategy focuses on five major aims: improved conservation of protected areas and wetlands; sustainable use of biodiversity in natural ecosystems and agro-ecosystems; 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. However, the plan is not based on the actual status quo of wetlands which is one of the most important ecosystems in Rwanda. There is need to undertake inventory of wetlands in the country which will allow planning of these ecosystems.

Health Sector Policy

The overall objective of the national Health Sector Policy of 2015 is to ensure universal accessibility (in geographical and financial terms) of equitable and affordable quality health services (preventative, curative, rehabilitative and promotional services) for all Rwandans. The policy recognizes the importance of strengthening coordination with several development sectors (agriculture, education, social protection) in the fight against malnutrition.

The National Strategy for Transformation (NST)

Until this year, Rwanda's medium term development implementation framework followed a phase 5-year Economic Development and Poverty reduction Strategy (EDPRS) that started in 2008 -2012 as phase 1 and 2013-2018 as phase 2. The EDPRS framework ran parallel to the 7 Government Programme but was out of phase by 2 years. A new 7-year framework that merges the 2 frameworks known as the National Strategy for Transformation (NST) has been adopted with the phase 1 running

from 2019 to 2024 as NST-1. NST-1 lays out Priority 7 as “Sustainable Management of Natural Resources and Environment to Transition Rwanda towards a Carbon Neutral Economy”. The carbon-neutral transformation priority includes increased sustainability and profitability of forestry management, increased sustainability of land use systems, integrated water resource management and accelerated growth in Green Innovation.

3.3 National Legislation

National Environment Law

Chapter IV of Title III of the Organic Law n° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda regulate the Environmental impact Assessments. In its Article 67, every project shall be subjected to environmental impact assessment, before obtaining authorization for its implementation. This applies to programmes and policies that may affect the environment.

Article 68 specifies the main points that an Environmental Impact Assessment must include. Article 69 stipulates that the environmental impact assessment shall be examined and approved by the Rwanda Environmental Management Authority or any other person given a written authorization by the Authority. The environment impact assessment shall be carried out at the expense of the promoter. Article 70 states that an order of the Minister having environment in his attributions establishes the list of projects for which the public administration shall not warrant any authorization without an Environmental Impact Assessment describing direct and indirect consequences of the project to the environment.

Under Title VI of this Organic Law, Article 81 stipulates that the following activities are prohibited:

- Dumping or disposal of any solid, liquid waste or hazardous gaseous Substances in a stream, river, lake and in their surroundings;
- Damaging the quality of air and of the surface or underground water;
- Non authorized bush burning;
- Smoking in public and in any other place where many people meet;
- Defecating or urinating in an inappropriate place;
- Spitting, discarding mucus and other human waste in any place.

For Article 87, it is prohibited to construct houses in wetlands (rivers, lakes, big or small swamps), in urban or rural areas, to build markets there, a sewage plant, a cemetery and any other buildings that may damage such a place in various ways. All buildings shall be constructed in a distance of at least twenty (20) meters away from the bank of the swamp. If it is considered necessary, construction of buildings intended for the promotion of tourism may be authorized by the Minister having environment in his or her attributions.

It is also prohibited to carry out any activities, except those related to research and science, in reserved swamps. For the purpose of enforcement, Article 95 announces that anyone or association that does not carry out environmental impact assessment prior to launching any project that may have harmful effects on the environment is punished by suspension of his or her activities and closure of his or her association and without prejudice to be ordered to rehabilitate the damaged property, the environment, people and the property. Falsification and alteration of documents of environmental impact assessment is punished in the same manner as what is provided for in paragraph one of this Article.

Law No. 43/2013 Governing Land in Rwanda (2013)

The Land Law has been developed to determine the modalities of allocating, acquiring, transferring, using and managing land in Rwanda. Article 3 of the law reaffirms the States supreme power in management of land and the right to expropriate in the public interest. Under Article 6, any citizen can be granted freehold title, and as per Article 7, for an area up to 5 hectares. The Minister may allow for freehold titles in excess of 5 hectares.

Article 10 notes that private individual land shall comprise land acquired either through customary or written law. Article 17 notes that in addition to freehold title, the right to land may be granted by the State in the form of emphyteutic lease (specifying that the lessee must improve the property with construction), for between 3 and 99 years, which can be renewed. Article 18 states that allocated or leased land shall be evidenced by a certificate of land registration issued by the registrar of land titles. Article 20 notes that registration of land is obligatory.

In terms of land use consolidation, Article 30 notes that it is prohibited to subdivide agricultural land plots if this would result in a plot of less than 1 hectare. Owners of lands which are prohibited from subdivision should co-own and use the land. Article 34 notes that landowners have the right to exploit their land in accordance with the law, and freely own land, except in the case of expropriation in the public interest.

Law No. 32/2015 Relating to Expropriation in the Public Interest

Article 2 defines expropriation in the public interest as, ‘an act based on power of Government, public institutions and local administrative entities with legal personality to remove a person from his/her property in the public interest after fair compensation’. Further, fair compensation is defined as, ‘an indemnity equivalent to the value of land and the activities performed thereon given to the person to be expropriated and calculated in consideration of market prices as well as compensation for disturbance due to expropriation’.

Article 3 notes that, ‘No person shall hinder the implementation of the program of expropriation in the public interest on pretext of self-centred interests.’ Article 17 states that after the publication of a decision on expropriation in the public interest, complete with a list of holders of rights registered on land titles and property incorporated on land, land owners shall not develop any long-term activities on the land, otherwise such activities shall not be compensable during expropriation.

In terms of valuation, Article 22 states that land values and prices for property consistent with the prevailing market rates shall be established by the Institute of Real Property Valuers in Rwanda. Article 23 states that independent valuers certified by the Institute of Real Property Valuers in Rwanda should conduct valuation of land and property. In accordance with Article 25, the valuation of land and property should be conducted in the presence of the landowner/property owner or their lawful representatives, and in the presence of representatives of local administrative entities.

According to Article 26 land titles must be produced as evidence of ownership, and evidence of marital status as applicable. Any persons dispossessed of land, or unlawfully occupying land, or having developed activities prohibited after the enactment of relevant laws shall receive no compensation. Article 27 reaffirms that compensation for land must include any improvements on the land and compensation for disruption associated with expropriation.

Article 28 notes that the value of land and property should be calculated on the basis of size, nature and location and the prevailing market rates. The compensation for disruption caused by expropriation

to be paid to the expropriated person shall be equivalent to five percent (5%) of the total value of his/her property expropriated.

Article 32 refers to sign-off by the owner once he/she is satisfied with the valuation. Article 33 allows for any person not satisfied with the valuation to contest in writing within seven days. Any person contesting the assessed value must engage the services of a valuer or a valuation firm recognized by the Institute of Real Property Valuers in Rwanda, at their own expense, to carry out a counter-assessment of the value. Under Article 34 if unsatisfied the matter may be referred to the courts. However, the compensation will be paid pending the court decision so as not to delay expropriation.

In terms of payment of compensation, Article 35 notes that, 'fair compensation can be paid in monetary form in the Rwandan currency or in any other form mutually agreed upon by the expropriator and the person to be expropriated'. The fair compensation must be paid to the expropriated person before he/she relocates. Article 36 notes that compensation must be paid within 120 days of approval by the Ministry, or otherwise becomes null and void, unless mutually agreed otherwise. After payment, the affected person has a further 120 days to relocate. In this time they should not plant any crops that would take more than 120 days of growth before harvesting.

Article 38 stipulates that compensation shall be deposited into a bank account with a recognized locally-based bank or financial institution. When, in case of joint ownership, compensation must be paid to more than one person, such as family or a legally married spouse, compensation will be deposited into an account which requires co-authorization to withdraw money.

Article 39 allows for payment of compensation in-kind as opposed to cash. During public consultation with PAPs, they confirmed that they need compensation in cash not in kind. KIIWP will trigger this law in case of loss of property of economic benefit resulting project activities.

Law N° 30/2012 of 01/08/23012 On Governing of Agrochemicals

This Law governs the manufacturing, importing, distribution, use, storage, sale and disposal and burial of agrochemicals for the protection of human and animal health and the environment, to avoid injury and contamination which may result from their use. The Ministry of Agriculture and Animal Resources (MINAGRI) has the responsibility for its implementation.

Ministerial Order No. 001/2006 Determining the Structure of Lands (2006)

This ministerial order determines the structure of Land Registers, and the responsibilities and functions of the District Land Bureau. The responsibilities of the land bureau include among others to implement land registration, keep land registers, monitor and approve activities pertaining to valuation of land and property, and demarcate and approve land cadastral maps. Rural populations with customary land rights are being encouraged to register their land through these institutions.

Presidential Order No. 54/01 (2006)

This presidential order determines the structure, the responsibilities, the functioning and the composition of Land Committees. Article 9 of the order gives the office of the land committee independence in the discharge of its daily technical duties. Therefore, it receives no instructions from any other organ.

Ministerial Order No. 002/2008 Determining Modalities of Land Registration (2008)

The Ministerial Order includes dispute resolution procedures in relation to land registration, including the use of a Cell Land Adjudication Committee (LAC). The LACs are comprised of five members, supplemented by five members of the particular village (imidugudu) where demarcation and adjudication is taking place. The cell executive secretary acts as the LAC secretary, although he or she has no voting rights.

Article 17 grants parties to a dispute the right to take that dispute to the LAC. Where disputes are resolved with the assistance of the LAC, the parties are bound by that agreement, and may not later raise the issue. Article 20 provides procedures for the LAC when hearing disputes, including that the hearing is open to the public and announced eight days in advance.

Ministerial order N° 003/2008 of 15/08/2008 relating to the requirements and procedure for environmental impact Assessment (EIA)

Article 1 (1) stipulates that Environmental Impact study is a systematic way of identifying environmental, social and economic impacts of a project before a decision of its acceptance is made. In Article 3, the developer submits an official application which includes a project brief of the proposed project to the authority. Article 4 specifies that within thirty (30) calendar days after receipt of the project brief and after its analysis, the Authority shall submit the Terms of reference to the developer for the Environmental impact study.

Ministerial order N°004/2008 of 15/08/2008 establishing the list of works, activities and projects that have to undertake an environment impact assessment

Article 2 and the appendix of this Order specify the works, activities and projects that have to undertake an environmental impact assessment before being granted permission to commence. The present project is classified under Agriculture and Infrastructure Development.

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.

3.4 Institutional Framework for Environmental Regulation

Ministry of Environment

The Ministry of Environment (MINIRENA) is the ministry responsible for the environment as provided by Prime Minister's Order N° 131/03 of 23/12/2017. Ministry of Environment has the following main responsibilities:

- To develop and disseminate the environment and climate change policies, strategies and programs
- To monitor and evaluate the implementation and mainstreaming of environment and climate change policies, strategies and programs across all sectors, especially productive sector;

- To oversee and evaluate institutions under its supervision by providing guidance on the implementation of specific programs to be realised by the institutions under its supervision and local government;
- To mobilise the necessary resources for the development, protection and conservation of the environment for the climate change adaptation and mitigation.

Rwanda Environment Management Authority (REMA)

The Organic Law No. 04/2005 and its regulations in the form of Ministerial Orders are implemented through Law No. 16/2006 of 2006 as amended in 2013 that established the Rwanda Environmental Management Authority (REMA) as the regulating agency and determined its organization, functions, and responsibilities. The law provides that REMA is the authority in charge of supervising, monitoring and ensuring that issues relating to environment are integrated in all national development programs. Article 3 of the REMA law defines the environmental regulation mandate including Section 6 that stipulates close monitoring and assessment of development programs to ensure compliance with the laws on environment during their preparation and implementation. In this regard, REMA put place environmental management tools and guidelines, including general and sector-specific guidelines for EIA that are available to the public via various media, including internet resources.

REMA is charged with the following functions:

- To implement Government environmental policy and decisions of the Board of Directors.
- To advise the Government on legislative and other measures for the management of the environment or the implementation of relevant international conventions, treaties and agreements in the field of environment, as the case may deem necessary.
- To take stock and conduct comprehensive environmental audits and investigations, to prepare and publish biannual reports on the state of natural resources in Rwanda.
- To undertake research, investigations, surveys and such other relevant studies in the field of environment and disseminate the findings.
- To ensure monitoring and evaluation of development programs in order to control observance of proper safeguards in the planning and execution of all development projects, including those already in existence, that have or are likely to have significant impact on the environment.
- To participate in the setup of procedures and safeguards for the prevention of accidents and phenomena which may cause environmental degradation and propose remedial measures where accidents and those phenomena occur.
- To render advice and technical support, where possible, to entities engaged in natural resource management and environmental protection.
- To provide awards and grants aimed at facilitating research and capacity-building in matters of environmental protection.
- To publish and disseminate manuals, codes or guidelines relating to environmental management and prevention or abatement of environmental degradation.

REMA was initially responsible for reviewing and approving EIA reports. However, this function has been delegated to the Rwanda Development Board (RDB), as discussed below.

Rwanda Development Board

The mandate for implementing Articles 67-70 regarding EIA of development activities is delegated to the One Stop Centre within the Rwanda Development Board¹⁶. The RDB EIA Unit provides certification

¹⁶ <http://rdb.rw/one-stop-centre/#environmental-impact-assessment>

services to developers free of charge for the time being, although a legal instrument it being put in place for developers to pay for the service. The EIA certification procedure involves the provision of a project brief checklist for the developer to ascertain whether or not the development activity required an EIA; a site visit and issuance of terms of reference for carrying out the EIA within a period of 2 weeks, reviewing the EIA report and issuance (or denial) of the EIA Certificate within a period of 20 days.

With regard to environmental safeguards, RDB EIA Unit plays the following roles:

- Reviewing Project Briefs so as to advise on Terms of Reference;
- Providing information or advice to developers and EIA Experts when consulted during EIA process;
- Reviewing EIA reports and provide comments to the developers;
- Organizing public hearings;
- Issuing certificates of approval.

Ministry of Agriculture and Animal Resources

Ministry of Agriculture and Animal Resources (MINAGRI) has a primary mandate for the development, transformation and modernization of agricultural sector in Rwanda in its broadest sense. The task force on Irrigation and Mechanization is the technical agency responsible for the exploitation and management of wetlands for agricultural purposes. It oversees, and implements where necessary, all irrigation and marshland development programs in Rwanda and ensures their sustainability. It also facilitates the implementation of mechanization in agriculture at the village level, improves data collection on irrigation activities to ensure that the monitoring and future policy actions can be effective and ensure capacity building at cooperative and farm level in irrigation and mechanization techniques to ensure sustainability. The Ministry oversees the facilitation of access to agricultural inputs according to the country's regulations including N° 30/2012 of 01/08/2012 Law on governing of agrochemicals.

Rwanda Agriculture and Animal Resources Development Board (RAB)

Rwanda Agriculture and Animal Resources Development Board (RAB) has a mandate to coordinate all activities in relation with agriculture and animal resources development. RAB is an autonomous body established by LAW N°38/2010 OF 25/11/2010. The law specifies that RAB has the general mission of championing the agriculture sector development into a knowledge based, technology driven and market oriented industry, using modern methods in crop, animal, fisheries, forestry and soil and water management in food, fibre and fuel wood production and processing.

Rwanda Water and Forestry Authority (RWFA)

The Rwanda Water and Forestry Authority (RWFA) was established to carry out the following functions:

- Implement policies, laws, strategies and Government decisions related to the management of forests and natural water resources;
- Advise Government, monitor and coordinate the implementation of strategies related to the management of forests and natural water resources;
- Assist public and private institutions in charge of management of forests and natural water resources in a bid to fight erosion;
- Establish programmes and strategies for production of tree seeds;
- Prepare programmes of reforestation, forest promotion and appropriate management and support districts in the management of forests and natural water resources;

- Undertake research, studies and other relevant activities with regard to the importance of forests in the national economy and to the exploitation of trees and wood based products and disseminate the findings;
- Assist in the establishment of standards and regulations relating to the management of forests and natural water resources;
- Receive, check and advise on applications for permission for the use of water resources
- Monitor the respect of conditions to get permission for water use;
- Provide advice on determining fees to be paid for the use of natural water resources;
- Monitor the execution of agreements related to natural water resources management and distribution at the regional and international level; and
- Cooperate with other institutions and international organizations whose mission is related to forests and natural water activities.

Local Governments

Eastern Province and Kayonza District and other local government entities under the General Guidelines and Procedure for EIA are tasked to perform the following functions:

- i. At the request of RDB, review Project Briefs so as to advise on Terms of Reference;
- ii. Provide information or advice to developers and EIA Experts when consulted during the EIA process;
- iii. At the request of RDB, review EIA reports and provide comments to RDB;
- iv. Assist RDB in organizing public hearings;
- v. Host public hearings;
- vi. Host individual consultations;
- vii. Gather written comments from public and transmit them to RDB;
- viii. To be actively involved in the implementation of Environmental Management and Monitoring Plan (EMMP) and work closely with all concerned Stakeholders.

3.5 International Treaties and Conventions

3.5.1 *Environmental Impact Assessment on International Context*

Environmental Impact Assessment (EIA) process operates within and towards the global concept of sustainable development. It is intended to achieve benchmarks and embrace commitment to international environmental conventions agreed upon in Ramsar (1971), Vienna (1985), Montreal (1990), Rio (1992), Kyoto (1998), Stockholm (2001) and Durban (2011) to all of which, Rwanda is a party. EIA as an invaluable tool for environmental management in a trans-boundary context, it provides a framework for promotion of efficient decision-making in project approval; enables implementation of environmental safeguards to mitigate significant negative impacts, avoid ecological damage and large-scale irreversible loss of natural resource; play a role in information dissemination between Rwanda and neighbouring countries and widen the scope of understanding of impacts beyond its borders. EIA process in Rwanda provides a basis for future international cooperation and conflict resolution concerning environmental impacts at a regional level.

3.5.2 *International Conventions*

Rwanda has signed and ratified the following environmental international conventions which are to varying extents relevant to KIIWP and its applicable national policies and laws:

- The international Convention on Biological Diversity and its habitat signed in Rio de Janeiro in Brazil on 5 June 1992, as approved by Presidential Order No 017/01 of 18 March 1995;

- The Cartagena Protocol on biodiversity to the Convention on Biological biodiversity signed in Nairobi from May 15, to 26, 2000 and in New York from June 5th, 2000 to June 4th, 2001 as authorized to be ratified by Law No 38/2003 of 29 December 2003;
- The United Nations Framework Convention on Climate Change, signed in Rio de Janeiro in Brazil on 5th of June 1992, as approved by Presidential Order No 021/01 of 30th May 1995;
- The Kyoto Protocol to the framework on climate change adopted at Kyoto on March 6th, 1998 as authorized to be ratified by Law No36/2003 of December 2003;
- The Ramsar Convention of February 2, 1971 on Wetlands of International Importance, especially as water flows habitats as authorized to be ratified by Law No 37/2003 of 29 December 2003;
- The Stockholm Convention on Persistent Organic Pollutants, signed in Stockholm on 22 May 2001, as approved by Presidential Order No 78/01 of 8 July 2002;
- The Rotterdam Convention on the establishment of the international procedures agreed by states on commercial transactions of agricultural pesticides and other poisonous products, signed in Rotterdam on 11 September 1998 and in New York from 12 November 1998 to 10 September 1999 as approved by Presidential Order No 28/01 of August 2003 approving the membership of Rwanda;
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal as adopted at Basel on 22nd of March 1989, and approved by Presidential Order No 29/01 of 24 August 2003 approving the membership of Rwanda;
- The Montreal Conventional on Substances that Deplete the Ozone Layer, signed in London (1990), Copenhagen (1992), Montreal (1997), Beijing (1999), especially in its Article 2 of London amendments and Article 3 of Copenhagen, Montreal and Beijing amendments as approved by Presidential Order no 30/01 of 24August 2003 related to the membership of Rwanda;
- The Bonn Convention opened for signature on June 23, 1979 on conservation of migratory species of wild animals as authorized to be ratified by Law No 35/2003 of 29 December 2003;
- The Washington agreement of March 3, 1973 on International trade in Endangered Species of Wild Flora and Fauna (CITES) as authorized to be ratified by presidential Order No 211 of 25 June 1980.

GoR has domesticated these treaties and conventions, as reflected in the various policies and laws described. The relevance of these treaties and conventions are summarised in the table below.

Table 3.1 International Treaties and Conventions

International Treaty / Convention	Stipulations/ Requirements	Relevance to KIIWP
Convention on Biological Diversity (CBD, 1992)	Aims to conserve biological diversity, promote the sustainable use of the components of biological diversity, and ensure fair and equitable sharing of the benefits arising out of the utilization of genetic resources.	Schemes may require the clearing of vegetation but also may affect aquatic ecology if environmental flow is not maintained.
Cartagena Protocol on Biosafety to the Convention on Biological Diversity	Aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health.	May be relevant if modified seed is to be used on the schemes.
The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization	A supplementary agreement to the Convention on Biological Diversity which provides a legal framework for the effective implementation of the fair and equitable sharing of benefits arising	May be relevant if traditional legumes are to be replaced by cash crops, and where plants traditionally used for medical or

International Treaty / Convention	Stipulations/ Requirements	Relevance to KIIWP
	out of the utilization of genetic resources. The Protocol addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance. It also addresses genetic resources where indigenous and local communities have the established right to grant access to them.	cultural practices may be destroyed due to conversion of wetlands or rangelands.
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	A framework convention which provides a global platform for the conservation and sustainable use of migratory animals and their habitats.	KIIWP activities will affect marshlands/wetlands where migratory fowl frequent, including the Akagera wetland complex
UN Framework Convention on Climate Change (UNFCCC)	Provides a framework for international cooperation to combat climate change by limiting average global temperature increases and the resulting climate change, and coping with its impacts.	
Kyoto Protocol to the UNFCCC (1997)	Legally binds developed country Parties to emission reduction targets.	KIIWP focusses on climate smart agriculture and requires a climate risk assessment to be undertaken in order to guide Project design in coping with climate-related impacts on livelihoods.
Paris Agreement to the UNFCCC (2015)	Seeks to accelerate and intensify the actions and investment needed for a sustainable low carbon future. Its central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change	
United Nations Convention to Combat Desertification (UNCCD, 1994)	Aims to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements. It specifically addresses the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.	KIIWP focuses on the drought-prone district of Kayonza.
Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention, 1972)	Requires state parties to recognize that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain.	Rwanda has a number of UNESCO World Heritage Sites. However, the Project will have no interaction with these. As such, requirements under the convention will not be triggered
The Rotterdam Convention (formally, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain	Promotes shared responsibilities in relation to importation of hazardous chemicals. The convention promotes open exchange of	Agrochemicals used on the schemes must be those that are registered with, and approved by, the MINAGRI and properly

International Treaty / Convention	Stipulations/ Requirements	Relevance to KIIWP
Hazardous Chemicals and Pesticides in International Trade)	<p>information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans.</p> <p>Signatory nations can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply.</p>	labelled for safe handling, disposal, etc. In addition, farmers must be trained on the hazards of these agrochemicals and how to store, handle and use them.
The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (the Basel Convention, 1989)	<p>Designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries (LDCs). It does not, however, address the movement of radioactive waste. Also intended to minimize the amount and toxicity of wastes generated, to ensure their environmentally sound management as closely as possible to the source of generation, and to assist LDCs in environmentally sound management of the hazardous and other wastes they generate.</p>	Of particular relevance to KIIWP is the provision of assistance in the management of hazardous and other wastes – in this case it applies to the disposal of expired agrochemicals and their containers.
Stockholm Convention on Persistent Organic Pollutants (1992)	Aims to eliminate or restrict the production and use of persistent organic pollutants (POPs).	Agrochemicals used in KIIWP schemes must be those that are registered with and approved by MINAGRI.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Washington Convention, 1975).	<p>Aims to protect endangered plants and animals and to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species in the wild. It accords varying degrees of protection to more than 35,000 species of animals and plants.</p>	KIIWP schemes' proximity to the Akagera National Park may indirectly encourage poaching and trade in endangered species.
The Bamako Convention on the ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (Bamako Convention, 1991).	Prohibits the import of any hazardous (including radioactive) waste into Africa	Relevant in the event that expired agrochemicals and their containers are taken to other countries for disposal.

3.6 IFAD Safeguard Policies

Policy on Improving Access to Land and Tenure Security

The IFAD land policy provides a conceptual framework for the relationship between land issues and rural poverty, and identifies the major implications of this relationship for IFAD's work. The policy acknowledges the complexity and dynamics of evolving rural realities and articulates guiding principles for mainstreaming land issues in the Fund's main operational instruments and processes. It also provides a framework for the subsequent development of operational guidelines and decision tools.

The main principles of the policy are:

- i. Align with national priorities and support to poverty reduction strategies;
- ii. Adhere to the “do-no-harm” principle at all times;

- iii. Appreciate the diversity and dynamic nature of existing agrarian structures and tenure systems;
- iv. Support the centrality of the empowerment of poor rural people and the organizations that represent them;
- vi. Forge complementary partnerships with like-minded actors;
- vii. Focus on the gender dimension of land rights;
- viii. Adhere to the principle of free, prior and informed consent;
- ix. Support to production services and market linkages to maximize the positive effects of access to land and tenure security.

Anchored in this policy are the tenets of Free Prior and Informed Consent (FPIC).

Policy on Disclosure of Documents, 2010

IFAD's Policy on the Disclosure of Documents enables project design documents to be disclosed prior to the Executive Board session at which the project is to be considered. The Consultation also directed the Executive Board to review policy provisions with regard to the disclosure of previously undisclosed documents.

Under IFAD's current disclosure policy, the following documents are disclosed to the public at the same time that they are made available to Executive Board representatives and Governors:

- All documents submitted to the Governing Council (including its Replenishment Consultations);
- All documents submitted to the Executive Board (including the Evaluation Committee);
- Information/status notes on projects being developed for presentation to the Executive Board following internal approval of the inception memorandum;
- Agreements for loans and grants once they are signed and effective;
- Amendments to loan and grant agreements once signed and countersigned;
- Previously undisclosed documents that are eligible for disclosure under the current policy (upon request or as necessary)

All evaluation reports and documentation submitted to the Evaluation Committee are made available to the general public on the website of the IFAD Office of Evaluation (IOE), which is part of IFAD's corporate website. Project/programme design documents are disclosed to the public in their original language prior to the Executive Board session at which the project/programme is to be considered.

The policy also discusses the process for disclosure of previously undisclosed documents, the language of disclosure and appeals.

Climate Change Strategy, 2010

The goal of IFAD's Climate Change Strategy is to maximize IFAD's impact on rural poverty in a changing climate through:

- Supporting innovative approaches to helping smallholder farmers build their resilience to climate change;
- Helping smallholder farmers take advantage of available mitigation incentives and funding;
- Informing a more coherent dialogue on climate change, rural development agriculture and food security.

The strategy aims to empower local communities and their institutions to participate in climate-change related decision-making processes, and to build their capacity to respond using their own and others' experience. IFAD's focus is to develop key partnerships on the ground, such as community-based, farmers' and women's organizations, NGOs, and national and local public institutions, including agriculture ministries. Based on its growing in-country presence, IFAD also engage where appropriate in country-level climate and environment coordination efforts, working closely with bilateral and multilateral donors, and taking advantage where appropriate of the capacity of partner organizations.

Environment and Natural Resources Policy, 2012

IFAD's Environment and Natural Resources Policy aims to enable poor rural people to escape from and remain out of poverty through more-productive and resilient livelihoods and ecosystems, by integrating the sustainable management of natural assets across its activities and its partners' activities.

The Policy sets out 10 core principles to guide its support, namely:

1. Scaled-up investment in multiple benefit approaches for sustainable agricultural intensification;
2. Recognition and greater awareness of the economic, social and cultural value of natural assets;
3. 'Climate-smart' approaches to rural development;
4. Greater attention to risk and resilience in order to manage environment- and natural-resource related shocks;
5. Engagement in value chains to drive green growth;
6. Improved governance of natural assets for poor rural people by strengthening land tenure and community-led empowerment;
7. Livelihood diversification to reduce vulnerability and build resilience for sustainable natural resource management;
8. Equality and empowerment for women and indigenous peoples in managing natural resources;
9. Increased access by poor rural communities to environment and climate finance; and
10. Environmental commitment through changing its own behaviour.

Social, Environment and Climate Assessment Procedures (SECAP), 2017

SECAP endeavours to ensure that IFAD's goal of enabling poor rural people to improve their food and nutrition security, increase their incomes and strengthen their resilience, particularly to climate change, is done in an environmentally and socially responsible manner. The procedures set the minimum standards for the assessment of social, environmental and climate change risks of IFAD projects which apply throughout the project cycle. The procedures aim to:

- i. Analyse potential risks and provide information to strengthen the social, environmental and climate dimensions of programmes and projects;
- ii. Maximize social, environmental and climate change adaptation and mitigation benefits, and avoid or minimize negative impacts; and
- iii. Increase the consistency, transparency and accountability in decision-making concerning these dimensions of IFAD's results-based country strategic opportunities programmes (RB-COSOPs), country strategy notes (CSNs), and programmes and projects in a timely fashion.

SECAP provides a step-wise description of the processes and guidance to assess risk at each phase of a project or programme cycle, as follows:

- Step 1: Project Concept: environmental and social categorisation and criteria, climate risk classification, nature and sensitivity of project location, significance of impacts, cumulative and induced impacts;
- Step 2: Early Design: environmental and social impact assessment, climate risk analysis;
- Step 3: Late Design: Review of ESIA and Climate Risk Analysis reports and incorporation of recommendations into design;
- Step 4: Loan Negotiations: financing agreement, including clauses, covenants, and provisions for environmental, social and climate related actions;
- Step 5: Board Approval: final ESIA/ESMP report disclosed;
- Step 6: Project Implementation: implementation of social, environmental and climate adaptation/mitigation actions/measures contained in the ESMP, RAP, IPP and other relevant loan covenants;
- Step 7: Project completion and ex-post ESIA: analysis of the impact of social, environmental and climate issues arising from project implementation.

With regard to categorisation, Category A projects have significant environmental and social consequences that are sensitive, irreversible or unprecedented, affect an area broader than the sites or facilities subject to physical interventions, and are not readily remedied by preventive actions or mitigation measures. KIIWP is categorised as Category A because the Project's activities may:

- Develop wetlands;
- Result in the loss of natural habitat and loss of biodiversity or environmental services provided by a natural ecosystem in sensitive areas – protected areas (Akagera National Park) and their buffer zones, ecologically sensitive areas such as wetlands, coral reefs, mangroves swamps, small
- Involve the construction of large-scale irrigation schemes rehabilitation/development (above 100 hectares per scheme);
- Require significant abstraction or diversion/containment of surface water leaving the river flow below 20 per cent environmental flow plus downstream user requirements.
- Necessitate economic or physical displacement (ie. land, potable water and water for other uses), or physical resettlement of more than 20 people, or impacting more than 10 per cent of any one community's or individual farmer's or household's assets.

Category A projects require one or combination of a formal Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Framework (ESMF), Resettlement Action Framework (RAF)/ Resettlement Action Plan (RAP), free, prior and informed consent (FPIC)/FPIC implementation plan and Indigenous People Plan.

Category B projects are those that may have some adverse environmental and/or social impacts on human populations or environmentally significant areas but the impacts are less adverse than those for Category A, are site-specific and few are-irreversible in nature, and can be readily remedied by appropriate preventive actions and/or mitigation measures. While no formal ESIA is required for Category B programmes/projects, in many cases further environmental analysis could be undertaken during project preparation or implementation. In some cases, an ESMF is developed during project preparation or implementation. Category B projects require an ESMP.

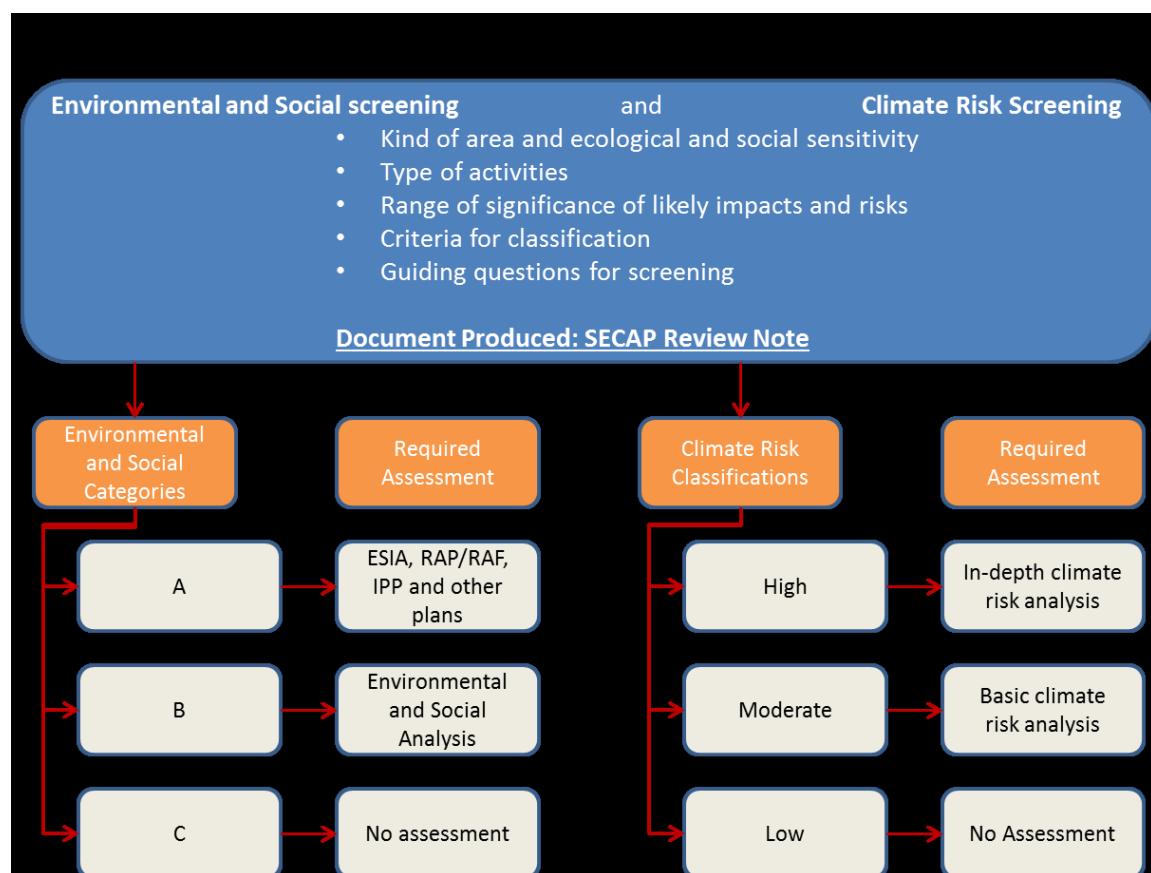
Category C projects generally do not require additional environmental analysis because the activities have positive environmental impacts, or negligible or minimally adverse environmental impacts. They would include, for example, technical assistance grants for agricultural research and training, grants to generate global environmental impacts, research, capacity building and institutional strengthening.

SECAP also provides for climate risk classification based on available information about historic climate hazard occurrences, current climate trends, and future climate change scenarios, as follows:

- High risk programmes or projects can be expected to be highly vulnerable to climate-related hazards and thus would benefit from an in-depth climate risk analysis as part of the design or initial implementation stage. This analysis should include an analysis of GHG emissions and present recommendations for risk management – for example, practical climate risk management measures that can be integrated into the project design and implementation phases and could be used to mobilize climate finance for the co-financing of targeted risk reduction and adaptation/mitigation measures.
- Medium risk programmes or projects can be expected to be moderately sensitive to climate risks and thus requires a basic integration of climate issues to be undertaken during the project design phase. This process should result in practical adjustments under the project to reduce losses and damages from climate hazards to IFAD's client group and capitalize on opportunities to strengthen local risk-management capacities.
- Low risk programmes or projects are unlikely to be vulnerable to climate risks and thus voluntary measures could be incorporated into the detailed design and implementation phases based on the SECAP project assessment recommendations. These projects generally focus on investments which do not have a direct physical or geographical interface with climate hazards.

In this regard, KIIWP has been classed as high risk due to the recent droughts and the vulnerability of the Eastern Province to extreme events. This is discussed in more detail in Chapter 8 of this ESMF.

Figure 3.1 Social Environmental and Climate Screening Flow Diagram



Source: SECAP 2017

Included in SECAP are a series Guidance Statements which are applicable in the context of KWIIP: these include Biodiversity; Agrochemicals; Energy; Fisheries and Aquaculture; Forest Resources; Rangeland-based Livestock Production; Water; Dams, their Safety and SECAP; Physical Cultural Resources; Rural Roads; Development of Value Chains, Microenterprises and Small Enterprises; Rural Finance; and Physical and Economic Resettlement; and Community Health.

Where physical or economic displacement is envisaged affecting access and user rights to land and other resources, SECAP requires that Free, Prior and Informed Consent (FPIC) is obtained from the affected people, the stakeholder engagement and consultation process is documented, and a resettlement action plan (RAP) or resettlement action framework (RAF) is prepared.

Gender Equality and Women's Empowerment Policy, 2012

IFAD's Gender Policy goal is to deepen the impact and strengthen the sustainability of IFAD-supported development initiatives, in order to increase IFAD's impact on gender equality and strengthen women's empowerment in poor rural areas. The Policy has three strategic objectives:

- Strategic objective 1: Promote economic empowerment to enable rural women and men to have equal opportunity to participate in, and benefit from, profitable economic activities.
- Strategic objective 2: Enable women and men to have equal voice and influence in rural institutions and organizations.
- Strategic objective 3: Achieve a more equitable balance in workloads and in the sharing of economic and social benefits between women and men.

To achieve these objectives, the Policy outlines five action areas aiming to:

- i. Systematically address gender equality and women's empowerment issues in IFAD-supported country programmes and projects;
- ii. Improve IFAD contributions to advocacy, partnerships and knowledge management on gender equality;
- iii. Strengthen capacity of partners to address gender issues in agriculture and rural development;
- iv. Develop corporate approaches and procedures with IFAD that support gender and diversity; and
- v. Ensure IFAD's corporate human and financial resources, and monitoring and accountability systems fully support gender equality and women's empowerment.

Targeting Policy

IFAD's mandate defines its "target group" as rural people living in poverty and experiencing food insecurity in developing countries. Within this broad group, IFAD proactively strives to reach extremely poor people (as defined by MDG 1) who have the potential to take advantage of improved access to assets and opportunities for agricultural production and rural income-generating activities. IFAD's Targeting Policy focuses on improving livelihoods through: ensuring national and international resources are used effectively, policy support is dedicated to rural and agricultural development; encouraging local and national governments to focus on enabling the rural poor to improve their livelihoods; economically and socially empowering rural poor; and encouraging national ownership of interventions.

The Policy's guiding principles are to:

- Focus on rural people who are living in poverty and experiencing food insecurity, and who are able to take advantage of the opportunities to be offered;
- Expand outreach to proactively include those who have fewer assets and opportunities, in particular extremely poor people;

- Include marginalized groups, such as minorities and indigenous peoples, and address their specific needs;
- Address gender differences and have a special focus on women within all identified target groups – for reasons of equity, effectiveness and impact – with particular attention to women heads of household, who are often especially disadvantaged;
- Recognize that relative wealth or poverty can change rapidly due to external shocks and that this vulnerability needs to be addressed;
- Clearly identify at the programme or project design stage who the intended target groups are and why, and consistently apply these categories, during implementation, in monitoring and evaluation (internal and external) of targeting performance;
- Identify and work with like-minded partners at local, country, regional and international levels to develop a shared understanding of both the dynamics of rural poverty in different contexts and successful targeted approaches;
- Pilot and share learning on successful approaches to targeting hard-to-reach groups; and
- Build innovative and complementary partnerships with actors that can reach target groups that IFAD cannot reach with the instruments at its disposal.

3.7 Differences in GoR and IFAD Policy Requirements

Table 3.2 below summarises the differences in the Rwanda Government policies and IFAD policies.

Table 3.2 Comparison of Government of Rwanda and IFAD Requirements

Requirement	GoR Policy Requirements	IFAD SECAP and Other Policies
Environmental and Social Screening and Categorisation	<p>Rwanda EIA guidelines define 3 Impact Level (IL) categories that are determined through the screening process:</p> <p>IL1: Projects believed to have minimal adverse impacts, that can easily be identified through a Project Brief and not requiring further environmental analysis. IL1 project are exempt;</p> <p>IL2: Projects believed to have adverse, but not irreversible environmental impacts and for which mitigation and management measures can be readily designed and incorporated into the project.</p> <p>IL 3: Projects for which it is evident that there will be significant and adverse environmental impacts whose mitigation measures cannot readily be prescribed, and thus, must undergo through a complete EIA process.</p> <p>The guidelines do not provide quantitative parameters for IL categorization of irrigation schemes. However, the guidelines indicate that proposed projects will not be exempted if among other criteria, the project will result in and/or “Changes in water use through irrigation, drainage promotion or dams, changes in fishing practices”. It is therefore</p>	<p>SECAP assigns Category A to projects located in, or proximate to, ecologically sensitive areas such as wetlands, national parks, buffer zones, areas of global/national biodiversity significance; projects that will require significant use of agrochemicals; water based development where it is believed that significant depletion and/or reduce flow may have occurred from the effects of climate change or from overutilization; risk of project-induced pollution on sensitive ecosystems; dam construction more than 15m high wall or more than 500m crest or with a reservoir exceeding 3million m³; construction of irrigation schemes above 100 ha per scheme in area; affecting more than 20 people or impacting more than 10% of a community's or individual farmer's assets. For Category A projects a formal ESIA, RAP and/or IPP, as applicable, are required with ESMP elaboration.</p> <p>Category B projects include irrigation below 100 ha of land per scheme; dam projects with capacity less than 3million m³; natural resource-based value chain development; watershed management</p>

Requirement	GoR Policy Requirements	IFAD SECAP and Other Policies
	expected that the KIIWP irrigation projects will require a full EIA.	or rehabilitation; those physically or economically displacing fewer than 20 people. Category B projects do not require formal ESIA, but in many cases further environmental analysis is requested during project preparation or implementation in the form of an ESMP which may be a stand-alone document or an output from environmental analysis.
Climate Risk Classification	The Rwanda EIA guidelines do not have a climate risk classification methodology. However, Rwanda's guidelines for Strategic Environmental Assessment suggests climate risk analysis during the analytical development of qualitative profile of areas affected by a policy, programme or plan.	SECAP provides a Climate Risk Classification methodology which specifies that projects that have high vulnerability to climate risk are for example: those that promote agricultural activity on marginal and/or highly degraded areas; projects that establish infrastructure in areas with a track record of extreme weather events; and projects in areas in which rural development projects have experienced weather-related losses and damages in the past. IFAD requires that projects classified as high risk undertake an in-depth climate risk analysis. Examples of medium risk projects include projects that make use of climate-sensitive resources, but do not focus on these resources as a main commodity (such as irrigation projects); projects which invest in infrastructure not directly exposed to extreme weather events but have potential to become more resilient through adaptation of green technologies; and projects which focus on institutional development and capacity building for rural institutions in climatically heterogeneous areas, where opportunities exist to strengthen indigenous climate risk management capabilities. Low risk projects are those that are not likely to be vulnerable to climate risks (eg.development of a micro-finance institution). Projects under KIIWP are therefore considered to lie within the high and medium climate risk category.
Consultations and FPIC	The environmental regulation framework is provided for in the 2008 Ministerial Order relating to the requirements and procedure for Environmental Impact Assessment. Article 6 of the Ministerial Order stipulates that the EIA shall be done with due consideration of the opinion of all the relevant stakeholders. This provision is elaborated the Country's EIA guidelines that	SECAP emphasises the need for greater consultation by communities (especially the marginalized poor) and stakeholders that are likely to be affected by IFAD's operations during the respective programme/project cycle, in order to provide input to the project design, receive feedback on the draft ESIA report, ensure broad community support to the

Requirement	GoR Policy Requirements	IFAD SECAP and Other Policies
	<p>emphasise public participation as a valuable source of information on potential impacts, mitigation measures and viable alternatives. Public participation aims at improving project design, environmental soundness and social acceptability.</p> <p>EIA guidelines recommend that consultations involve a minimum of government ministries and local government bodies relevant to the proposed development, private sector organizations, local communities, the general public and NGOs.</p> <p>EIA experts are required to conduct local community consultations during the EIA study, particularly during the scoping process.</p>	<p>project, and to ensure that affected people endorse the proposed mitigation/risk reduction and management measures.</p> <p>In addition to public consultations, SECAP requires FPIC for all projects that are likely to affect land or user rights to land, whether or not the affected people belong to historically underserved groups or minorities. Some schemes being considered under KIIWP may therefore require FPIC.</p>
Public Disclosure	<p>REMA, in consultation with the lead agency determines whether or not a public hearing is necessary based on the submitted project brief of the proposed development. REMA arranges and facilitates at least 3 public consultations on the final report from which justified objections may result in the refusal to proceed.</p>	<p>IFAD's Policy on the Disclosure of Documents (2010) requires full disclosure to the public, and includes information notes on projects being developed for Board presentation, agreements for approved loans and grants, and project/programme design documents which include ESIA, ESMFs, RAPs and RAFs.</p>
Compensation and Resettlement	<p>Rwanda's National Land Policy of 2004 in reference to the constitutional principle of equality of all citizens, states that all Rwandans enjoy the same rights of access to land without any discrimination whatsoever. The policy elaborates the principle by stipulating that women, married or not, should not be excluded from the process of land access, land acquisition and land control, and female descendants should not be excluded from the process of family land inheritance.</p> <p>However, Article 3 of Organic Law No. 08/2005 of 2005 determining the use and management of land in Rwanda stipulates that state also has rights to expropriation due to public interest, settlement and general land management through procedures provided by law and prior to appropriate compensation.</p> <p>Expropriation is implemented under Law No. 32-2015 of Relating to Expropriation in the Public Interest. Rwandan laws provide for fair compensation only for legal land property owners and land tenants in recognition of existing written and unwritten rights and civil</p>	<p>IFAD's Policy on Improving Access to Land Tenure Security stresses the need for Free Prior Informed Consent and the "Do no Harm" Principles. These principles are also reflected in other IFAD policies including the Targeting Policy, Engagement with Indigenous Peoples Policy and Gender Equality and Women's Empowerment Policy. The core tenets of IFAD's principles on compensation and resettlement are that wherever possible, any physical or economic resettlement that could negatively impact affected people should be avoided or minimised; that all land and natural resource users with a legitimate claim will be recognised including people having informal/customary rights; and that no affected person should be left worse off, and preferably in a better position through proper and timely compensation and other mitigation measures.</p>

Requirement	GoR Policy Requirements	IFAD SECAP and Other Policies
	<p>and original customary rights. However, registration of these ownership rights is now mandatory under Section 4 of Article 29 of the Organic Land Law.</p>	
Grievance Mechanisms	<p>Article 19 of the national Expropriation Law provides for an application to revoke a public interest expropriation within 15 days of publication and that a decision must be provided within 30 days of receipt of the application. Further, Articles 33 and 34 provide for contestation of valuation results for land and property by the person to be expropriated with 7 days of the approval of a valuation report at own cost and that the contestant should provide a counter valuation report within 10 days of application.</p> <p>The Government of Rwanda as the borrower has indicated that the KIIWP will be implemented for target community beneficiaries in cooperative frameworks. Target community consultations indicated that grievance addressing mechanism were integral in cooperative governance framework such as cooperative constitutions. Consensus was apparent that the cooperative grievance mechanisms worked well and that escalation mechanisms were also provided for through local government structures and court systems. It is also common practice in development projects that grievance mechanisms are formulated during project design for all stages of the project in order that affected parties present grievances to the project authorities without cost and with assurance of satisfactory and timely solutions. They commonly include institution of a grievance resolution committee and its working procedures as well as grievance logging and monitoring systems.</p>	<p>IFAD has developed a Complaints Procedure for "Alleged Non-Compliance with its Social and Environmental Policies and Mandatory Aspects of Its Social Environmental and Climate Assessment Procedures". Parties adversely or potentially adversely affected by IFAD-funded projects and programmes may bring issues to the Fund's attention using SECAPcomplaints@ifad.org. Complaints must be put forward by at least two people who are both nationals of the country concerned and/or living in the project area. Complaints from foreign locations or anonymous complaints will not be taken into account. Complaints must concern projects/programmes currently under design or implementation. Complaints concerning closed projects, or those that are more than 95 per cent disbursed, will not be considered. IFAD does not provide monetary compensation to resolve complaints. The IFAD website provides a clear summary of the steps involved and guidance on how to report issues.</p>
Physical Cultural Resources	<p>EIA guidelines indicate criteria for EIA compliance requirements to include location and potential to affect environmentally sensitive areas including National Parks and Protected Areas, wetlands, productive agricultural land, important archaeological, historical and cultural site and areas containing rare or endangered flora or fauna.</p>	<p>In cases where physical cultural resources are found, IFAD assists borrowers in avoiding, minimising or mitigating adverse impacts on PCR in the development programmes/ projects that it finances. Due diligence is carried out through applying SECAP to ensure that PCR are properly identified and adequately addressed and that any measures to protect PCR comply with the borrower's national legislation as well as with its obligations under relevant international treaties and agreements.</p>

Requirement	GoR Policy Requirements	IFAD SECAP and Other Policies
		SECAP prescribes general steps for programmes/ projects that apply in cases involving PCR: screening; collecting data; assessing impacts; and formulating mitigating measures.
Safety of Dams	<p>Small Dams Safety Guidelines of 2012 developed by MINAGRI to provide owners of small dams with the requirements that they must meet to construct and operate a small dam. The guidelines utilize the World Bank distinction between small and large dams for application of its policy on safety of dams, OP 4.37, that states that small dams are normally less than 15 meters in height that include farm ponds, local silt retention dams, and low embankment tanks. The guidelines provide dam safety principles on responsibility for dam safety; role of government; leadership and management for safety; justification for dams and reservoirs; optimization of protection; limitation of risk to individuals; protection of present and future generations, prevention of accidents; and emergency preparedness and response.</p>	<p>SECAP's Guidance Statement #8 on Dams categorises dam sizes in relation to the level of environmental investigation required (see above). Since the risk of small dams failing is higher than that for large dams, the Guidance Statement recommends following international best practices based on the World Commission on Dams recommended procedures (including gaining public acceptance, an options assessment, ensuring sustainability of rivers and livelihoods), as well as ensuring adequate planning, quality of the design and construction, optimum use of storage infrastructure after construction, and safety monitoring.</p>

In general, there are no great deviations between the two policy streams. The main differences are that the GoR policies do not specifically provide for climate risk categorisation, and FPIC and livelihood restoration where physical and economic displacement may occur.



4 Lessons Learnt

The GoR has requested that KIIWP takes note of experiences from other past and ongoing projects such as PAPSTA, KWAMP, PASP and LWH, and incorporates good practices on water harvesting, irrigation infrastructure development, natural resource management, food crop and livestock fodder production, borehole domestic water supply systems, post-harvest management and access to backward and forward markets. Specific considerations applicable to KIIWP from these projects are described below.

4.1 IFAD-Supported Projects

4.1.1 Support Project to the Strategic Plan for the Agriculture Transformation (PAPSTA)¹⁷

PAPSTA was implemented by MINAGRI between 2006-2013 with the overall goal being to contribute to achieving EDPRS through support to the implementation of PSTA I&II in-order to improve income and nutrition of the poor rural population. The project's purpose was to improve the institutional, professional, and technical capacities of central, provincial and district level institutions, including farmers' groups and their umbrella organizations, and ensure the coordination, efficiency and effectiveness in the implementation and delivery of PSTA priority programmes.

Key lessons from the PAPSTA approach were:

- Community ownership was the key to ensure the success and sustainability of projects, specifically the need to make these communities aware of the impact of erosion on their production levels and of the interrelatedness between the two;
- Farmers being able to decide on options appropriate to their farms;
- A growing acknowledgment of the watershed as a unit of planning in SWC to ensure optimum use and preservation of soil and water resources.

4.1.2 Kirehe Community-Based Watershed Management Project (KWAMP)¹⁸

KWAMP operated in Kirehe District between 2009 and 2016 as an agricultural investment project implemented by MINAGRI, co-financed by IFAD and the GoR. Its development goal was the reduction of rural poverty in Kirehe District, to be evidenced by a step improvement in household food and nutrition security, asset ownership and quality of life indicators among vulnerable groups, including woman- headed households, orphans and those living with HIV/AIDS.

Key lessons from KWAMP are:

- MINAGRI staff were seconded to the project to support implementation of its activities. While this arrangement had its benefits in terms of providing the project with highly skilled and technical staff when required, these staff had other responsibilities within the Ministry, and therefore could not dedicate sufficient full time to the project.
- As a result of the low capacity at District level and under-staffing, many of the project activities were not implemented or seen through, particularly livestock, soil and water conservation and value chain initiatives.

¹⁷

https://www.ifad.org/documents/38714182/39732735/Rwanda+PPA+Executive+Summary_2015.pdf/0e39a6f9-49c1-4ed2-a2e2-6b12cf892c52?version=2.0

¹⁸ IFAD (2017). Kirehe Community-based Watershed Management Project (KWAMP), Project Completion Report: Main report and appendices.

- The early formation of IWUOs, and building capacity and empowering in the earliest stages of the project (ie. during planning and construction) have lent to them taking over responsibility for Operation and Maintenance of irrigation schemes. Capacity building and empowerment of IWUOs needs a scheme-based approach.
- During the initial capacity building of IWUOs, academic workshop approaches were applied with minimal results. Subsequently the approach changed to onsite coaching and mentoring, and also involved a wider range of stakeholders (as opposed to the IWUO committees only). Local leaders were taken on as trainers for the on-site training. This proved very effective.
- Several cooperatives were operating in the project area, and although they were receiving support, they faced organizational and governance issues. Comprehensive and tailored capacity building is therefore required for these cooperatives and farmers' organisations.
- It is important to engage technically competent service providers (SPs) for the preparation of the technical designs of irrigation infrastructure. KWAMP experienced cost variations for hillside irrigation infrastructure mainly due to underestimated foundation depth during design, and inadequate water for one particular dam as a result of poor runoff estimates at design. Changes in design must also be well-scrutinised.
- Accessible feeder roads are crucial for marketing produce from the irrigation schemes. KWAMP initiated the formation of 'road brigades' to undertake regular road maintenance. Kirehe District now formally recognizes their role, and transfers funds from the road maintenance budget to enable the brigades to undertake the work.
- KWAMP introduced the Peruvian Community Competitions and Innovations model which had a high level of success, but it was realized that for any innovations or new ideas from other countries or projects to be adapted or replicated effectively, they should be introduced early in the design stages in order for the communities and farmers to fully understand the processes involved.
- Feasibility studies and EIAs were carried out for hillside and marshland schemes. KWAMP collaborated with REMA from the design stage to the validation of ESIsAs and watershed management plans. Mitigation measures such as the protection of buffer zones by planting grasses, agroforestry trees, forestry and soil erosion control measures were implemented based on advice provided by REMA. KWAMP worked closely with Ministry of Natural Resources (MINIRENA) which was involved in the capacity building of hydrographic committee members. The collaboration between KWAMP and these agencies served to bridge communication between different Ministries but also contributed to the wider GoR commitment to address climate change, biodiversity and land degradation issues.
- The project introduced biogas systems aimed at reducing the consumption of firewood to reduce deforestation and protect catchments. However, low-cost biogas technologies were not considered early enough in the design stage to enable monitoring of performance and assessing the contribution by this intervention to watershed and natural resource management.

4.1.3 Post-harvest and Agribusiness Support Programme (PASP)¹⁹

PASP is a partnership between the Government of Rwanda and IFAD to support agriculture production processing operations to help developing an efficient post-harvest system driven by the private sector to reduce post-harvest losses and ensure food security of staple crops in Rwanda. PASP facilitates and supports organized smallholders and SMEs to set up and manage aggregation and post-harvest market chain businesses (eg. grain drying and handling facilities, potato cleaning/packaging, cassava preparation or milk collection centres) and partnerships with private sector, MFIs and other service providers in the priority CIP crops and dairy development.

¹⁹ IFAD (2017). PASP Mid Term Review, April 2017. <https://operations.ifad.org/documents/654016/052e9c5b-8048-446f-8863-0356d242571d>

Lessons learnt to date are:

- Trust between farmers and buyers in forming commercial linkages is essential for off-takers to become co-investors with farmers and instrumental in helping farmers access financial services and other market and product quality information that are needed to add value and grow their businesses to scale.
- PASP hubs provide training and business advisory services, advancement of farmer cooperatives, construction/rehabilitation of post-harvest infrastructures, creation of market linkages, engagement of private sector and access to financial services. In order to ensure sustainability, capacity building and hub development need to systematically involve District and sector level staff and local leaders, who should be provided with ToT on hub development, business development and 4P arrangements.
- Horticulture is a labour-intensive industry characterized by high incomes per square meter and quick returns on investments. This is likely to attract youth who typically cannot access much land and are particularly interested in quick wins.

4.1.4 Project for Rural Income through Exports (PRICE)²⁰

PRICE's goal is to raise smallholder farmers' income through promoting sustainable increased returns to farmers from key export-driven agricultural value chains through increased volumes and quality of production, improved marketing and effective farmer organizations. An important take-away from PRICE experiences is that:

- Limited access to financial services is a key bottleneck for smallholder farmers to graduate from subsistence farming to commercial farming. PRICE-supported performance-based grant scheme proved that horticulture is a bankable sector and it attracted 35 Financial Institutions (FIs) including Microfinance Institutions, Savings and Credit Cooperatives (SACCOs), Microfinance banks, Commercial Banks and the Rwanda Development Bank.

4.2 Other DP-supported Projects

4.2.1 *Rural Sector Support Program (RSSP)²¹ and Land Husbandry, Water Harvesting and Hillside Irrigation Project (LWH)²²*

The World Bank-supported RSSP began in 2001, and is now in its third phase. The objectives of the Program are to increase the agricultural productivity of organized farmers in the marshlands and hillsides of sub-watersheds targeted for development in an environmentally sustainable manner, and to strengthen the participation of women and men beneficiaries in market-based value chains. There are three components to the project.

The LWH commenced in 2009 and complements RSSP activities. It aims to increase the productivity and commercialization of hillside agriculture in target areas by increasing productivity of targeted irrigated command areas, increasing productivity of targeted non-irrigated command areas, and increasing the share in commercialized products from targeted areas.

Key following lessons are learned from the RSSP and the parent LWH project:

²⁰ IFAD (2015). PRICE Mid Term Review. <https://operations.ifad.org/documents/654016/1bec6b12-b16d-4206-982c-640757fa7e7a>

²¹ <http://projects.worldbank.org/p126440/third-rural-sector-support-project?lang=en&tab=overview>

²² <http://documents.worldbank.org/curated/en/178141468307134222/pdf/LWOAF00P14754300PID0VM0140Oct2013.pdf>

- It is important to have clearly defined criteria to guide the selection of sites, otherwise project priorities may not always be well reflected, and opportunities may be missed to develop irrigation in a participatory, cost effective and sustainable way.
- Capacity building among project beneficiaries is necessary to ensure maximum benefit from project activities, as is the need for buy-in and ownership by the communities which is gained through consultation and technical empowerment of the farmers.
- In order to ensure the effective implementation of the safeguards policies triggered by the project, there is a need to enhance capacity at MINAGRI. Active capacity building measures for RSSP2 led to successful preparation and implementation of Resettlement Action Plans (RAPs). This is important as lessons from RSSP2 showed that national capacity of consulting services in this regard were scarce.
- Supply side efforts need to be balanced with demand considerations and value chain development.
- The watershed approach needs to incorporate land, soil, water, vegetation and topography, and in particular, the human watershed community.

During discussions with the LWH-RSSP SPIU, the need for involvement by the communities at the earliest stages was further emphasised, particularly as many of the farmers had not worked together as farmers organisations or cooperatives. This required a good deal of sensitisation to change their mindsets.



5 Environmental and Social Profile of the Project Area

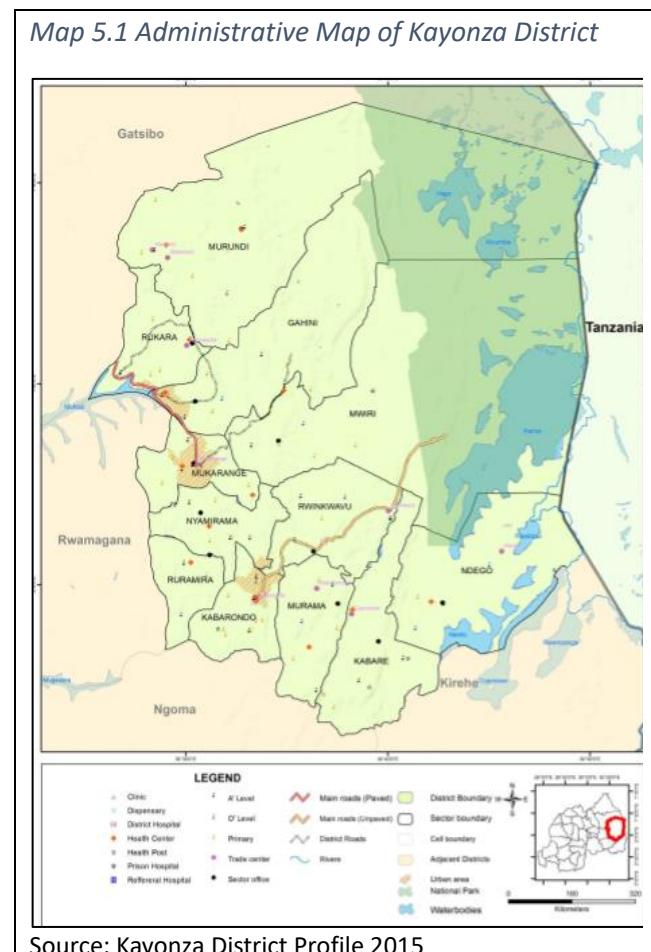
5.1 Administrative Structure

In Rwanda, the District is the basic political-administrative unit of the country. Kayonza is one of the 30 districts of the Country. Districts are administratively divided into sectors and cells. Kayonza District is made up of 12 Sectors of Murundi, Kabare, Gahini, Rukara, Nyamirama, Mukarange, Kabarondo, Rwinkwavu, Mwiri, Ndego, Murama and Ruramira. The district has 50 cells and 421 villages.

Kayonza District is headed by a Mayor and 2 Vice Mayors who make the Executive Committee that is governed by a 22-member District Advisory Council that includes a Chairperson and 2 deputies. Below the Council and Executive Committee in the administrative hierarchy is the District Executive Secretary and Corporate Services Division Manager and Directors of Human Resources and Administration, Planning and M&E, Agriculture, Good Governance, Social Development, Health, Business Development, Construction Permitting, Education, Finance and an Advisor to the Executive Committee.

The District services are provided under administrative and operational units including the following:

- Office of the District Executive Secretary;
- One Stop Centre: land administration, infrastructure and property management, maintenance engineering; building inspection, water and sanitation, ICT and GIS;
- Social Development Unit: Social affairs, disability support, trauma counselling;
- Health Promotion and Disease Promotion Unit: Hygiene and sanitation, M&E, Fortified Blended Food (FBF);
- Education Unit;
- Business Development Unit: Investment promotion, SMEs and Cooperatives Development
- Human Resources Unit;
- Finance Unit;
- Agriculture and Livestock and Forestry;
- Good Governance Unit.



Sector Administration is made up of the Sector Council as political organ elected from the Cells to approval of sector action plans and programmes and to ensure follow-up of their implementation.

Sector services are provided through a Sector Executive committee composed of 10 members and monitors, elected by the Sector Council. The Sector Executive Committee is supported by the Political and Administrative (PAC) and the Community Development technical sub-committees.

Cell administration is made up of a Cell Council that is composed of all citizens of the cell who are over 18 years of age. The CEC executes functions related to administration and community development including the policy orientation and technical advisory for the implementation of the decisions taken by the Cell Council. The Cell Executive Committee works through its technical committee (the Community Development Committee) to identify and prioritize needs, design development plans, mobilize development resources and implement the plans.

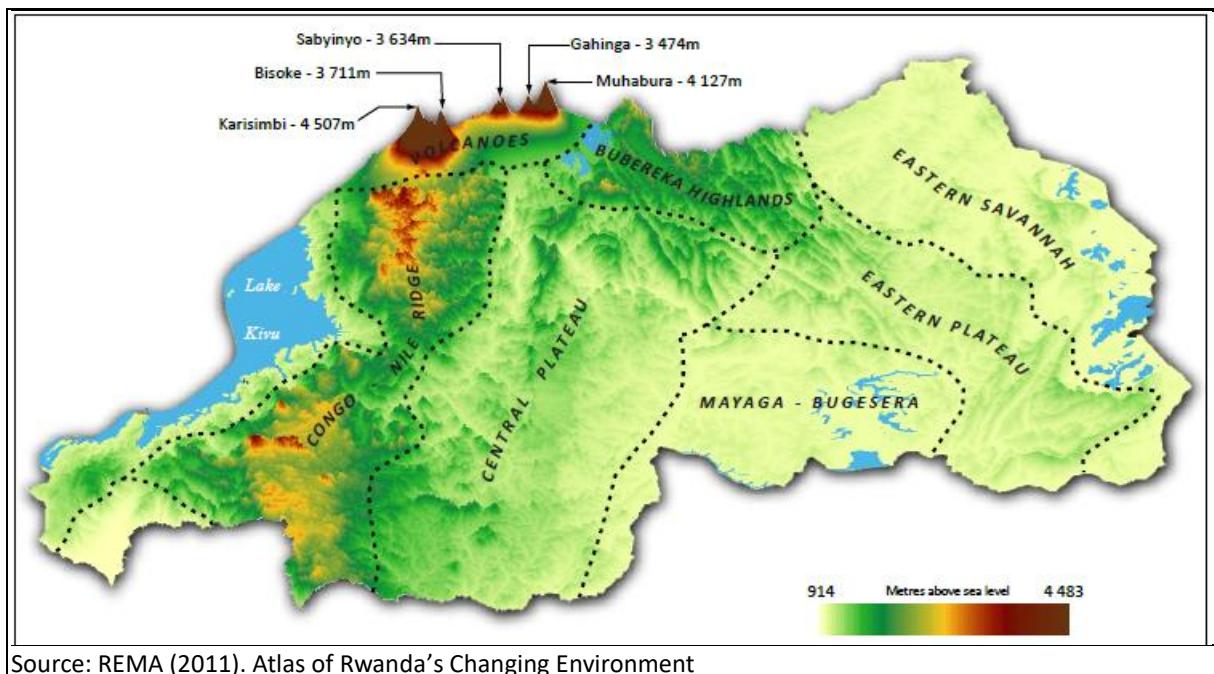
5.2 Bio-Physical Environment

5.2.1 Topography

Kayonza District covers an average area of 1,954 sq km. It lies in what is described as the Eastern Plain. The altitude of the District varies between around 1,700m and 1,200m above sea level, generally decreasing towards the east. The Project area is characterised by a series of hills that run roughly north to south through the middle of the district (the Eastern Plateau). The hills give way to valleys where floodplains and wetlands are found. To the east of this line of hills is a large gently undulating expanse – the Eastern Savannah – which slopes towards the Akagera wetlands system.

The map below illustrates Rwanda's topography.

Map 5.2 Topography of Rwanda

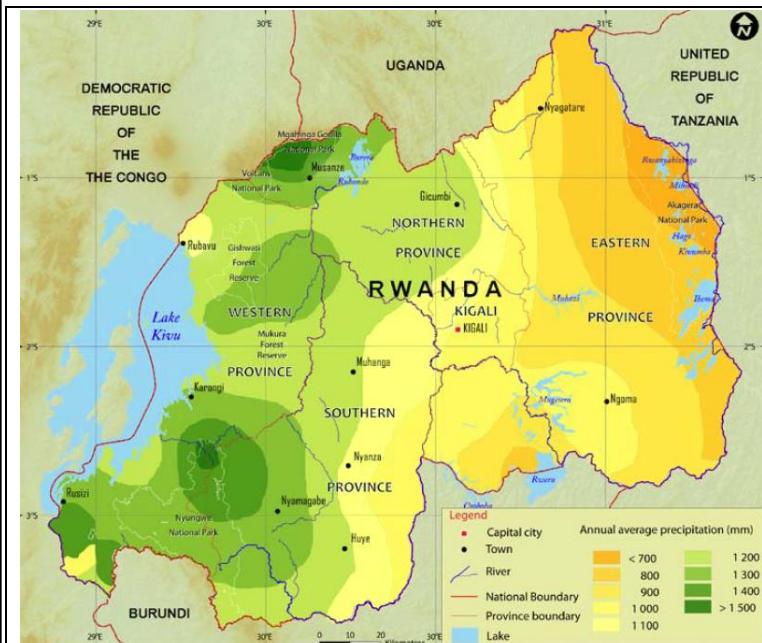


5.2.2 Climate

Kayonza District has wet tropical bimodal climate: the rainy seasons typically being March/April and October/November. The District's annual average rainfall is around 900mm, with greater precipitation during the March/April rains. Annual average temperatures range between 18°C and 26°C. The Project area, however, has an average rainfall below 700mm, and higher temperatures, frequently exceeding 30°C in February and July-August. The Project area is therefore subject to prolonged periods of drought. This is illustrated in Map 5.3.

The Baseline Climate Change Vulnerability Index²³ for Rwanda indicates that Eastern Province is most vulnerable in terms of exposure, sensitivity and adaptive capacity to climate change. Climate change impacts are predicted to be due to change in the temperature and heat episodes, shift in rainfall start dates and changes in the amount of rainfall. A discussion on climate risk is presented in Chapter 8.

Map 5.3 Average Annual Precipitation in Rwanda



Source: REMA (2011)

5.2.3 Geology, Soils and Mineral Resources

Geology

The geology of Rwanda generally comprises metamorphic rocks and granitic rocks of the Precambrian Period. Metamorphic rocks are mostly schists produced by low to medium pressure metamorphic actions of sandy to muddy sediments, while the granitic rocks are intrusive rocks originating from metamorphic actions. Metamorphic rocks of quartzite and schist and sedimentary rocks of mudstone and sandstone run in a north-south direction through the middle of Kayonza District (see Map 5.4). The lakes and marshes have sedimented alluviums, and alluvial layers composed of clay, sand and gravel layers are distributed along rivers and valley floors.²⁴

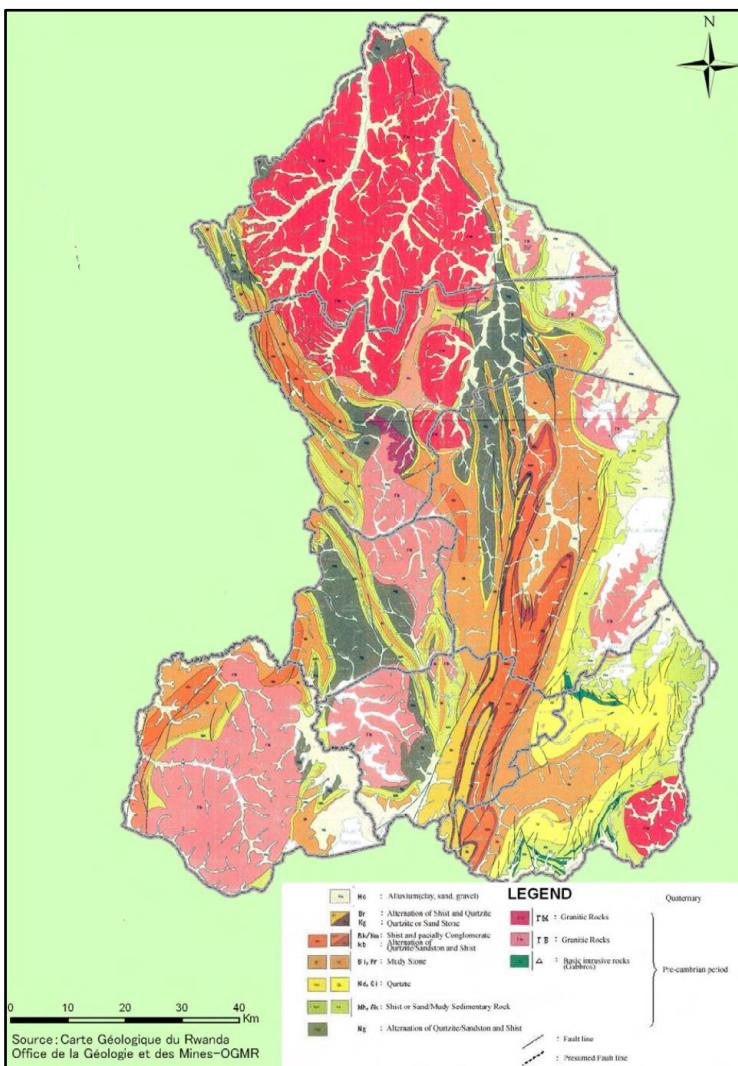
Soils

The soils in the Project area are mainly oxisols particularly around the lakes and water bodies, vertisols where the wetlands are found, inceptisols in the lowland areas between the wetlands and the Akagera National Park, and small occurrences of entisols. Most of the Project sites lies in relatively flat or gently undulating terrain, and soil loss is considered to be low.

²³ REMA (2015). Baseline Climate Change Vulnerability Index.

²⁴ MININFRA (2010). The Study of Improvement of Rural Water Supply in Eastern Province. Prepared by Japan Techno Co Ltd And Nippon Koei Co Ltd with support from JICA.

Map 5.4 Geological Map of Eastern Province



Source: MININFRA, 2010.

Mineral Resources

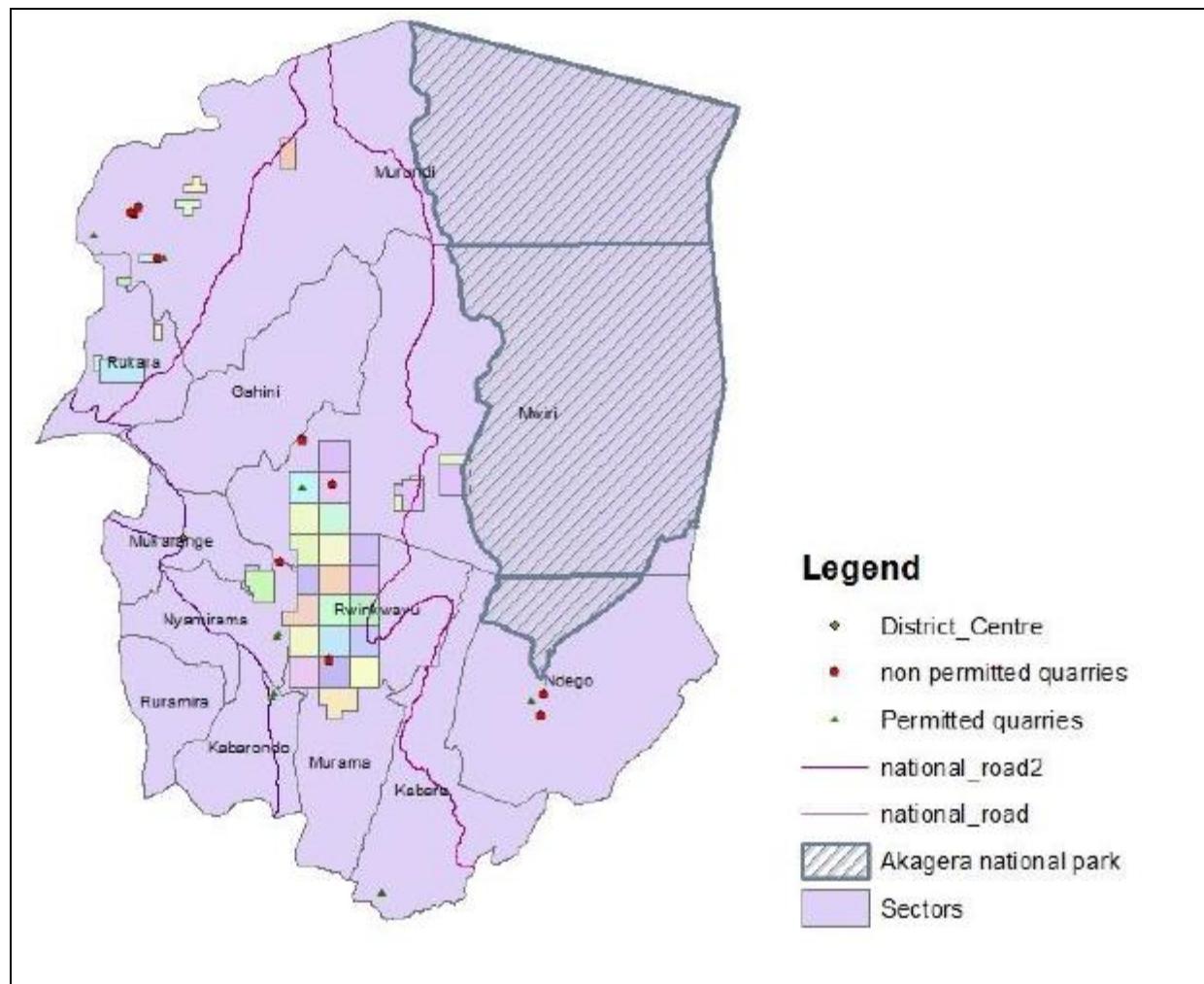
Mineral resources found in Kayonza District are wolfram (tungsten), cassiterite (tin) and coltan in Rwinkwavu, Murundi, Ruramira, Mwili, Rukara, Ndego and Kabarondo Sectors. At present there are 15 mining concessions, of which 7 are currently active²⁵. Within the Project sectors there are five active companies all of which mine only cassiterite. The Wolfram Mining and Processing Company Ltd in Rwinkwavu has the largest concession area (8250ha) and mines about 5 tonnes of cassiterite per month. The others are: MUNSAD in Mwiri Sector (401ha), and Alfa Minerals (400ha), KOPAMU (100ha) and Real Brothers (193.3ha) in Murundi Sector. Generally only water is used to remove the cassiterite from its ore, but in some cases, chlorine is also used. According to the Kayonza District Minerals Field Officer, the Wolfram Mining and Processing Company have high effluent management standards and water is treated before discharge. The others simply use water which is disposed of into the environment. Monitoring of effluent/tailrace discharge quality is done visually, not quantitatively. A major impact from mining operations is soil erosion and landslides. In addition, discussions with

²⁵ Rwanda Mines, Petroleum and Gas Board (May 2018?); Mineral Field Officer's Annual Report 2017-2018, Kayonza District.

the LWH/RSSP SPIU revealed that terraces have been undermined due to members of the local communities digging them up to look for cassiterite.

There are also a number of legal and illegal quarries (gravel, aggregate) in Ndego, Rwinkwavu, Kabare and Murundi Sectors. The location of mines and quarries are illustrated in Map 5.5 below.

Map 5.5 Mines and Quarries in Kayonza District



Source: Minerals Officer, Kayonza District, September 2018.

5.2.4 Hydrology and Water Resources

Hydrology

Rwanda has two drainage basins: the Congo Basin which drains west towards the Atlantic Ocean, and the Nile Basin which flows through Tanzania into Lake Victoria (see Map 5.6). The Nile Basin covers some 67% of the total land area of the country.

Map 5.6 Rwanda Hydrological Drainage Basins



Source: REMA (2011)

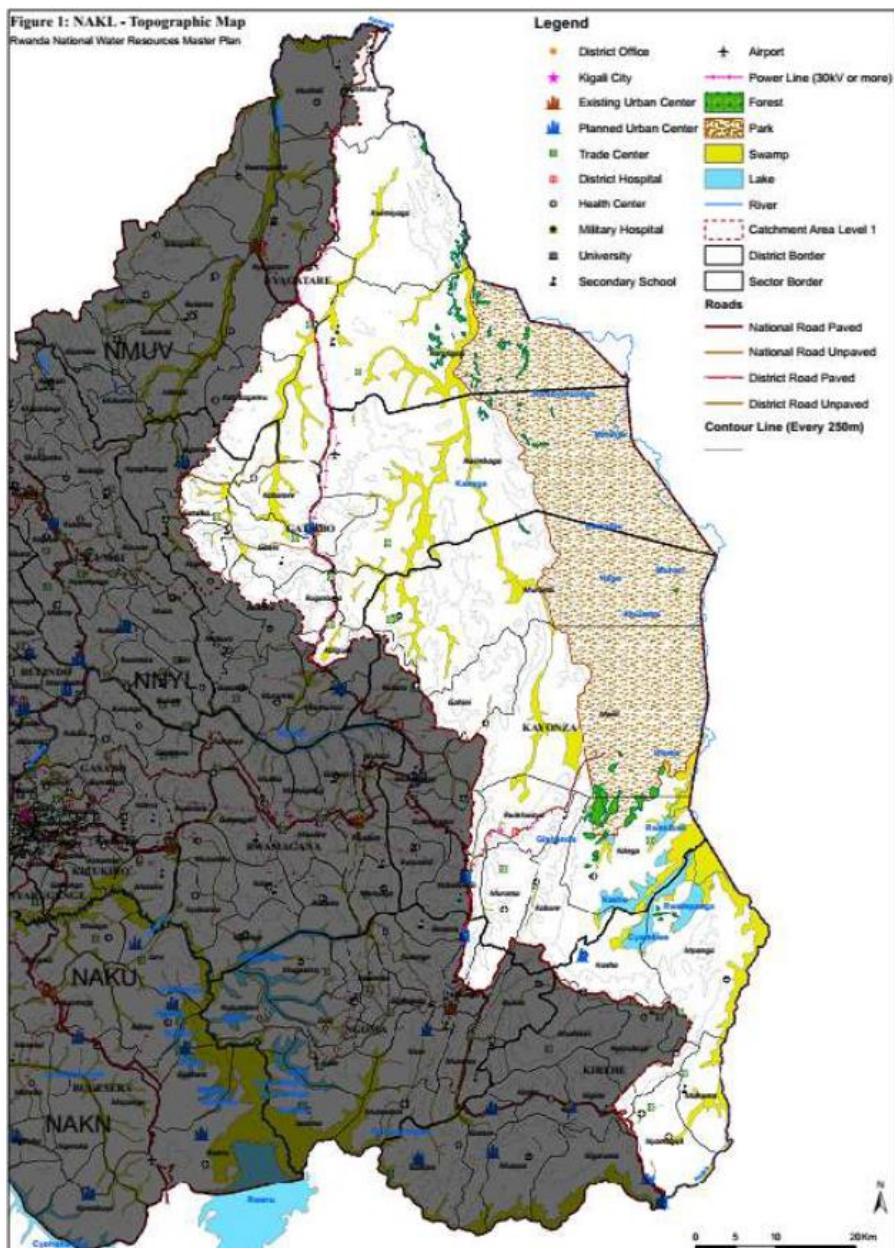
Kayonza District falls within two major catchments: the Upper Agakera Catchment and the Lower Akagera Catchment. According to the National Water Resources Master Plan²⁶, approximately 77% of Kayonza District falls within the Lower Akagera Catchment, and this comprises 32 % of the total catchment area. This catchment straddles the boundary with Tanzania. It drains the area downstream of Rusumo Falls up to the confluence of the Akagera with the Muvumba River²⁷. Average rainfall in the Lower Akagera Catchment is 835 mm, of which 624 mm (75%) is lost through evaporation and plant transpiration processes. The remaining 211 mm (25%) contributes to the catchment hydrological flow. Of this, 125 mm (15% of rainfall or 59% of flow) is base flow supplied from groundwater recharge²⁸. The Project area falls entirely within the Lower Akagera Catchment as shown in Map 5.7 below.

²⁶ Sher Ingénieurs-Conseils s.a. (May 2014). Rwanda National Water Resources Master Plan; Master Plan Report, Main Volume; Final Version. Rwanda Natural Resources Authority.

²⁷ REMA (2015). State of the Environment and Outlook Report.

²⁸ Sher Ingénieurs-Conseils s.a. (February 2014). Rwanda National Water Resources Master Plan; Master Plan Report – Appendix 08NAKL. Catchment Master Plan – NAKL; Final Version. Rwanda Natural Resources Authority.

Map 5.7 The Lower Akagera Catchment



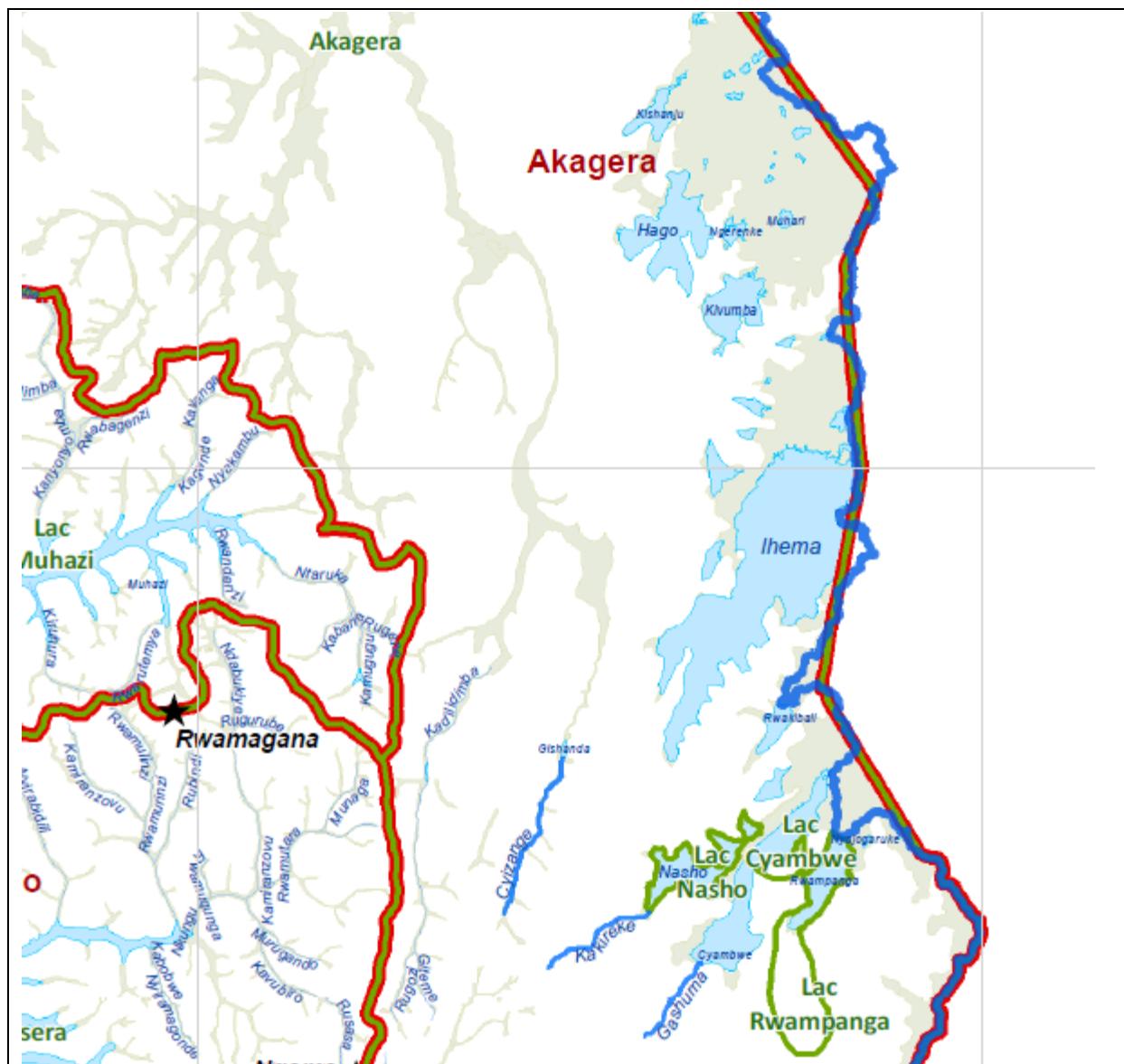
Source: Rwanda National Water Resources Masterplan (2014)

Surface Water

The eastern part of Kayonza District has abundant lakes and rivers. The Akagera River flows along the District's eastern border with Tanzania. The River has several small tributaries, such as the Kadridimba River and Cyizange River, that originate to the south west of the District, and flow north through the Project area to join the Akagera River to the north of the national park. In addition, there are a number of lakes in the Project area, namely Lakes Nasho, Chyambwe, Gishanda and a small section in the southern part of Lake Ihema. The rest of Lake Ihema lies in Mwiri Sector within the Akagera National Park, together with Lakes Hago, Kivumba, Ngerenke, Kihari and the southern tip of Lake Kisanju. (See Map 5.8 below). The lakes in the Akagera/Nasho complex shallow (less than 10 m in depth). They have high nutrient values, species diversity and productivity.²⁹

²⁹ Op. cit. REMA (2015). State of the Environment and Outlook Report

Map 5.8 Surface Water Resources in the Project Area



Source: REMA (2015)

The Lower Akagera Catchment Master Plan notes that the Akagera River shows bidirectional flow patterns which depend on the sequence, magnitude and duration of hydrological events in upstream catchments and within the lower Akagera catchment itself. “Reverse flow” occurs when the Akagera River is in flood as a result of rainfall in the upstream catchments (Akagera and Ruvubu) filling up the lakes. The Master Plan states that the width and depth of the channels between Akagera River and lakes are a crucial factor for maintaining the hydrological functionality, and warns that any tampering with these channels may have serious consequences, particularly for the lakes. If substantial water is abstracted from the lakes for irrigation, the deficit will be filled from the river. Thus, it has been recommended that abstraction of water for agricultural use between the Akagera River and its lakes should be avoided³⁰.

³⁰ Op. cit. Rwanda National Water Resources Master Plan; Master Plan Report – Appendix 08NAKL. Catchment Master Plan – NAKL

The adjusted water balance for the Lower Akagera Catchment as presented in the Master Plan indicates that at catchment level the renewable resources are sufficient to cater for demand until 2030, after which resources will be stressed during the twenty-year dry year. However, by 2040, water resources during the dry season will be stressed for most years, except when exceptionally wet years are experienced. The Master Plan suggests that inter-basin transfers from the upstream catchments could make up the deficit in these cases, but this would have international implications, since the upstream catchments extend across a number of countries – namely Burundi, Tanzania and Rwanda. Moreover, the ecological impacts of inter-basin transfers are complex and would have to be thoroughly assessed. This then highlights the need for water conservation and efficient use of water resources, particularly in irrigation schemes.

The table below summarises projected annual demand distribution as described in the Lower Akagera Master Plan.

Table 5.1 Projected Annual Demand Distribution

Year	Percentage of Use of Renewable Resources	Use	Comment
2012	2%	Rural water supply, surface water irrigation, irrigation from dams and for livestock	The distribution of demand over the year is somewhat uneven with an increase during the dry season months and a slight decrease in April.
2020	14%	Surface water irrigation, groundwater irrigation, marshland irrigation, rural water supply and irrigation from dams.	There is a marked difference of demand during the season with over half the demand required during the dry season and a significant decrease in April; both are related to the importance of the irrigation sector.
2030	30%	Mainly surface water irrigation, groundwater irrigation, marshland irrigation and irrigation from dams, and some rural water supply	The skewed distribution of demand (more than double during the dry season months) over the year continues over this time span with a large decrease in April which highlights the relative insignificance of the non-irrigation demand.
2040	43%	All irrigation categories (except rainwater harvesting). Small increase in demand for rural, urban, industrial water supply and fisheries.	The skewed distribution of demand remains due to the irrigation sector dominance.

Source: Adapted from Sher Ingénieurs-Conseils s.a. (February 2014)

The above water balances are based on catchment-wide data. For KIIWP, the hydrological studies to be carried out for the selected schemes will need to establish water balances for each scheme at the micro-catchment level, taking into consideration aspects such as water source, scheme size, crop water requirements, and soil conditions.

Groundwater

The Rwanda Irrigation Master Plan (RIMP, 2010)³¹ indicates that in terms of groundwater exploitation, the highest potential would be in volcanic soils, followed by alluvial beds and then areas having altered quartzites. Areas having granites, schists and overlying sands show the least potential. The RIMP notes that the greatest need for groundwater exploitation is in the eastern part of the country where water is needed for cattle and human consumption. In these areas the only existing aquifers are granitic, characterised by very low transmissivities and yields in the 1–5 m³/h range.

The map below shows that the Project area is dominated by permeable fractured aquifers (quartzites on schist base) and low permeable fractured aquifers (schist and micaschist) and thus likely to have low suitability for groundwater.

Water for Growth, in collaboration with RWFA, has recently commissioned a study to carry out a groundwater, recharge and storage enhancement investigation in the Eastern Province and to identify/confirm main aquifers, understand their hydrodynamic behaviour, potentiality and recharge mechanisms. The study is ongoing at the moment, and the final report is expected to be submitted at the end of September. This study will be important in informing the KIIWP design regarding the use of groundwater as a source for irrigation and/or for provision of water for livestock and for communities.

The Lower Akagera Master Plan recommends that if and when groundwater aquifers are exploited in Murundi, Gahini and Mwiri, they should be closely monitored for diminishing water tables.

Environmental Flow

The Brisbane Declaration on Environmental Flows (2007)³² definition of environmental flow (EF) was revised in 2017 as being "... the quantity, timing, and quality of freshwater flows and levels necessary to sustain aquatic ecosystems which, in turn, support human cultures, economies, sustainable livelihoods, and well-being". This is now the accepted definition of environmental flow. Discussions with the Rwanda Water and Forest Authority (RWFA) revealed that there is no set standard for environmental flow, and the Water Resources Management Authority determines EF on a case by case basis, although the Lower Akagera Catchment Master Plan proposes an EF of 33% of the average monthly flow. The Master Plan purports that water balance of the lower Akagera shows sufficient resources up till 2030, although environmental flow may be somewhat compromised during dryer years (1 in 20 dry year).

5.2.5 Wetlands

Wetlands provide crucial ecosystem services such as storing and purifying water, controlling flooding by acting as a natural sponge, releasing water gradually to allow year-round stream flow, absorbing sediments and pollutants such as heavy metals, and regulating climate by recirculating moisture that cools the surroundings. They also provide important habitats for fauna and flora.

RIMP classifies the wetlands in the Project area as being low altitude marshes. In 2010, REMA listed and mapped all wetlands in the country and assigned them various protection levels: i) total protection where no activities are allowed to take place; ii) conditional exploitation which requires a basic environmental and social impact assessment to be carried out, and for which the EIA licence issued by

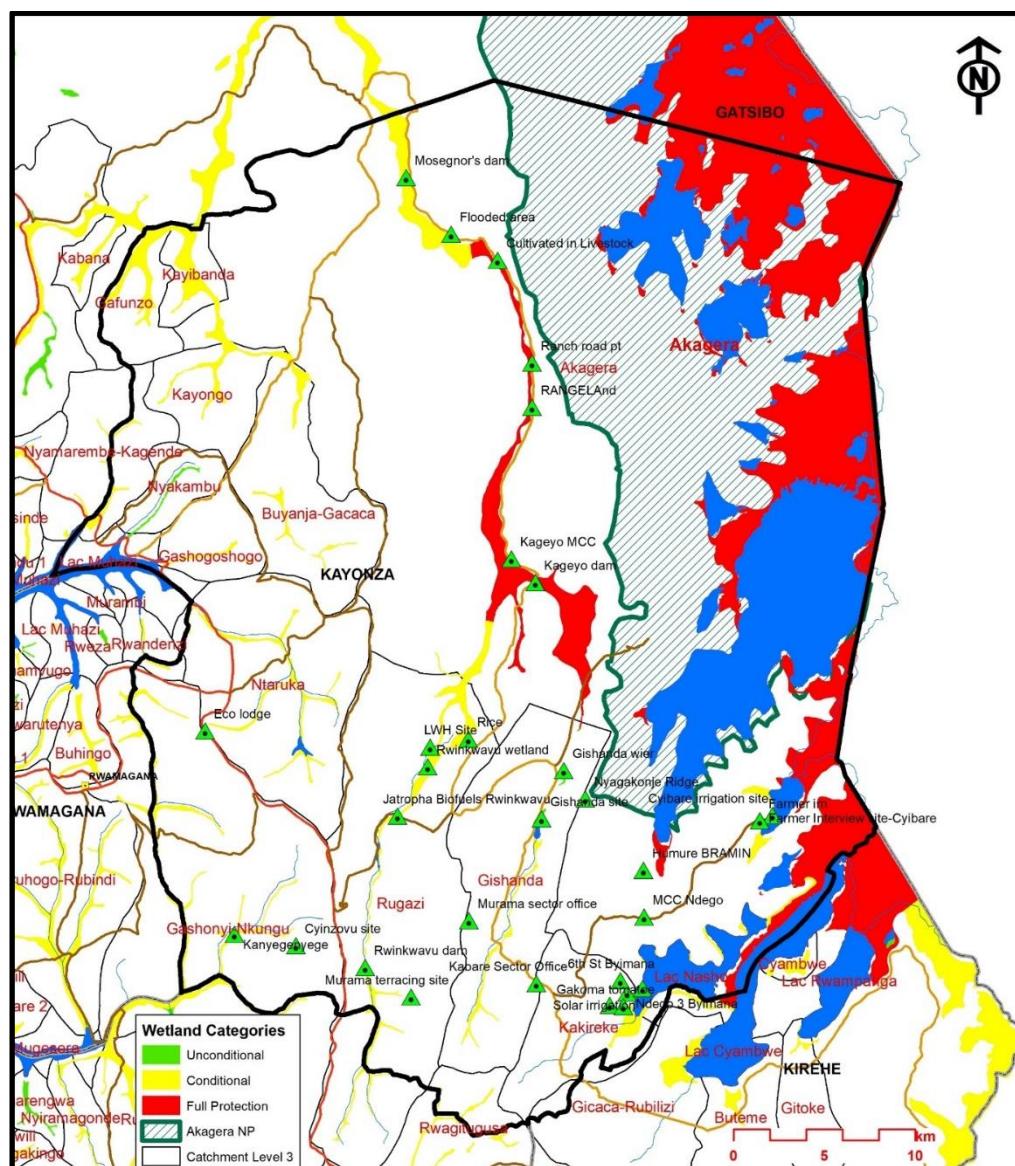
³¹ MINAGRI (2010). Rwanda Irrigation Master Plan (RIMP). Ebony Enterprises Ltd and the World Agroforestry Centre (ICRAF).

³² <http://riversymposium.com/about/brisbane-declaration/>

the Rwanda Development Board stipulates the conditions and types of activities that are permitted to be conducted in those wetlands; and iii) unconditional exploitation which allows use under given conditions.

The map below shows the wetlands in the Project area and their categorisation, together with the potential subproject sites in the eight Project sectors. It is seen that most of the proposed irrigation schemes will draw water from conditional wetlands. One site - Humure in Ndego Sector – will draw its water from Lake Ihema, but the shoreline bordering the proposed scheme is under total protection. The scheme design will therefore have to consider an alternative site for abstraction and pumping of water to the scheme.

Map 5.9 Wetlands in the Project Area and their Categorisation



Source: REMA (2015)

5.2.6 Vegetation/Flora

The savannah vegetation in the Project area comprises a mosaic of grassland, broadleaved and/or deciduous shrubland and forest. The grass savannah is dominated by *Themeda triandra*, *Hyparrhenia*

sp., with *Sporobolus pyramidalis* and *Botriochloa insculpta*. Acacia species are the most common trees found in the forest savannah; these include *Acacia senegal*, *A. Sieberiana*, *A. polyacantha campylacantha*, *A. gerardii* and *A. brevispica*. *Combretum* sp are also found.³³

Fischer (2011) prepared a biodiversity inventory for various important wetlands in Rwanda.³⁴ He notes that within the Akagera wetland complex south of the Akagera National Park, there are a total of 77 vascular plants of which two are endangered orchid species (*Eulophia angolensis* and *Eulophia guineensis*). The wetland vegetation is dominated by Papyrus reed (*Cyperus papyrus*) and Phragmites (*Phragmites Mauritianus*), and reeds such as *Echinochloetum pyramidalis* and *Cyperetum latifolii*. Shrubs along the swamp edges are characterised by *Syzygium cordatum* and *Myrica kandtiana*, while along the lake and river edges, *Sesbania sesban* and *Phoenix reclinata*, *Aeschynomene elaphroxylon* and *Mimosa pigra* are dominant. Aquatic plants occurring in the open water surfaces are *Nymphaea* sp, *Ceratophyllum Demersi*, *Azolla nilotica* and *Eichhornia crassipes* (Water Hyacinth).

One the major threats to the water bodies in the Project area is the invasion of lakes by Water Hyacinth including Lakes Ihema and Nasho, and other water bodies, especially in the Nyabarongo-Akagera river system and the Akagera wetland complex³⁵.

5.2.7 Forests

There were three types of forests in Kayonza District: natural, agroforestry and forest lots (woodlots). The only natural forests left in the District are those in the Akagera National Park (see Section 5.2.9 below). Outside the park, all the natural forests have now been converted to pasture. The District is now trying to rehabilitate some of these areas, and plans to plant 7000 ha with agroforestry species such as *Grevillea* spp and *Senna* spp, and about 1511 ha has already been planted with *Eucalyptus* spp on the hilltops. The main threats to forests are the cutting down of trees for fuelwood (about 80% of the District's population uses wood for fuel), and clearing for agriculture. Other challenges include fire, low sapling survival rates, quality of seeds for tree nurseries, and lack of personnel at the district level - there is only one forester for the entire district (pers. Comm. District Forest Officer, Kayonza District, August 2018).

5.2.8 Fauna

Human activity throughout much of the District has disturbed faunal habitats, and there is a paucity of large mammals in the Project area, apart from Hippo (*Hippopotamus amphibious*) which can be found in a number of dams/valley tanks in the Project area, Baboon (*Papio anubis*), Vervet Monkey (*Chlorocebus pygerythrusantelope*), and perhaps some smaller species of antelope. Otherwise, wildlife in the Project area is largely confined to the Akagera National Park (see Section 5.2.9 below).

However, the wetlands provide unique habitats for a number of faunal species. In the Akagera Complex south of the Akagera National Park, Fischer (2011) recorded 16 amphibian species, of which two species of frogs (*Phrynomantis bifasciatus* and *Hylarana albolabris*) do not occur elsewhere in Rwanda, and a newly identified frog species (*Phrynobatrachus* spp) is possibly endemic to the Albertine Rift; 13 reptiles; 54 bird species of which the Papyrus Yellow Warbler (*Chloropeta gracilirostris*) is vulnerable and the Papyrus Gonolek (*Laniarius mufumbiri*) is near threatened; 11 mammal species, of which the Hippo (*Hippopotamus amphibious*) is vulnerable³⁶.

³³ REMA (2009). State of the Environment Report 2009.

³⁴ Fischer, E (2011). Biodiversity Inventory of Key Wetlands in Rwanda. Final Report. REMA.

³⁵ <https://www.cbd.int/countries/profile/default.shtml?country=rw>

³⁶ Op. cit. Fischer (2011).

Threats to aquatic fauna in the Project area include the decrease or extirpation of native fish species in the lakes of the Nyabarongo-Akagera river system due to the invasion and increase of predator species, among which are *Protopterus aethiopicus* and *Clarias gariepinus*, with the most threatened species being *Barbus kerstenii*, *Clarias liocephalus*, *Mastacembelus frenatus* and *Oreochromis macrochir*.³⁷

While no extensive faunal surveys have been carried out in the Project area, based on the foregoing, it is likely that the wetlands to be utilised for Project activities may be inhabited by some of the species listed here. The environmental impact studies carried out for the proposed sites must therefore take this into consideration.

5.2.9 Protected Areas: the Akagera National Park

The Akagera National Park (ANP) was established in 1934. It lies between the eastern border of the Project area, and the western border of Tanzania with Rwanda which is demarcated by the Akagera River. The park has a rich biodiversity due to its varied ecosystems: it contains six forest fringed lakes, the largest protected wetland in Central Africa, savannah plains, the Akagera River and the Mutumba Hills reaching an altitude of nearly 2,000 m asl.

The ANP originally covered an area of more than 2,500 sq km. However, following the civil strife, a number of refugees settled around the park, and as a result the wildlife populations were severely affected by poaching for meat, and due to clearing for cultivation. In 1997 the park area was reduced by about 50% of its total area (it is now 1,200 sq km in area) to provide land to returning refugees and to ensure protection of wildlife in the remaining area. In 2009, Rwanda Development Board and Africa Parks (a conservation organisation) signed a joint management agreement in which the Akagera management company was established to help both bodies manage the park.³⁸

The ANP is home to 12 species of antelope including Eland (*Tragelaphus oryx*), Impala (*Aepyceros melampus*), Oribi (*Ourebia ourebi*) and the aquatic Sitatunga (*Tragelaphus spekii*), Spotted Hyena (*Crocuta crocuta*), Elephant (*Loxodonta africana* - Vulnerable), Burchell's Zebra (*Equus quagga burchellii* - Near Threatened), African Buffalo (*Syncerus caffer*) and Masai Giraffe (*Giraffa camelopardalis tippelskirchi* – Vulnerable) and recently introduced Lion (*Panthera leo* - Vulnerable).

Tree species found in the gallery forest around the ANP lakes and other water bodies including *Acacia polycantha*, *Acacia sieberana*, *Albizia gummiifera*, *Cordia Africana*, *Crotonmacrostachis*, *Dombeya burgessia*, *Dombeta kirkii*, *Erythria absynniica*, *Newtonia buchananii* and *Techlea nobilis*. There are also some rare or threatened species can also be found, such as *Acacia kirkii*, *Impantiens irvingii*, *Markhamia lutea*, *Eulophia guineensis* and *Pterygota mildbraedii*.³⁹

5.3 Socio-Economic Environment

5.3.1 Demographic Characteristics of the Scheme Areas

Kayonza District with 350,211 individuals contributes 3% of the current resident population of Rwanda of 12,089,721m⁴⁰ according to the National Institute of Statistics of Rwanda (NISR) and is the least

³⁷ Op.cit. www.cbd.int

³⁸ <https://www.akageranationalpark.org/>

³⁹ Op. cit. REMA (2009).

⁴⁰ <http://www.statistics.gov.rw/publication/size-resident-population>

densely populated at 178 inhabitants per square km according to the 2012 National Population Census. About 55% of the population of Kayonza District are aged 19 years or younger. People aged 65 years and above make up 3%. About 52% of the population is female and the majority of this population group is young, with about 83% still under 40 years of age.

The selected KIIWP intervention sectors make up 67% of the district's population with Murundi (37,738); Kabare (36,365); Gahini (33,590); Kabarondo (30,811); Rwinkwavu (29,420); Mwiri (25,156); Ndego (20,900) and Murama (20,180).

5.3.2 Land Tenure

The 2004 National Land Policy provides general guidance on a rational and planned use of land while ensuring sound land management and efficient land administration. The policy was developed to address land-related challenges, including a land tenure that was dominated by customary law, resulting in land fragmentation, a practice that reduces further the size of family farms below the threshold of the average surface area that is economically viable.

Law no 43/2013 of 16/06/2013 governing land in Rwanda determines land allocation modalities, acquisition, transfer, use and management. The law clearly stipulates private or individual land ownership in Article 10, the certificate of land allocation in Article 18 and the transfer of land rights upon prior consent by all registered rights holders on the land title in Articles 21 and 22. The law maintains the supreme powers of the State to manage all national land in the interest of Rwandans, for sustainable economic development and to ensure social welfare. The law substantiates how land will remain a domain of the past, present and the future. Furthermore, the 2015 expropriation law determines the procedures for land expropriation in the public interest.

Law No 43/2013, currently governing land in Rwanda, provides equal access to land without discrimination based on sex or origin. It is mandatory to register land property to both spouses married in a community and spousal consent is now required for transfer of the property. The law provides further guidance on land access through emphyteutic leases. Owners of agricultural land in rural areas may be granted 99 year renewable leasehold and shorter leases of up to 49 years for foreigners.

5.3.3 Land Use

The 4th phase of Rwanda's Strategic Plan for the Transformation of Agriculture (PSTA 4) for 2018-2024⁴¹ indicates that 96% of rural households rely directly or indirectly on agriculture for their livelihoods. PSTA 4 observes that 30% of the households cultivate less than 0.2 ha (accounting for about five per cent of total arable land), while about 25% cultivate more than 0.7 ha (accounting for 65 per cent of the national farm-land). It further states that the remaining 15% of rural household farm less than 0.1ha many of whom are female-headed households, cultivating only 1.32% of national cultivable land.

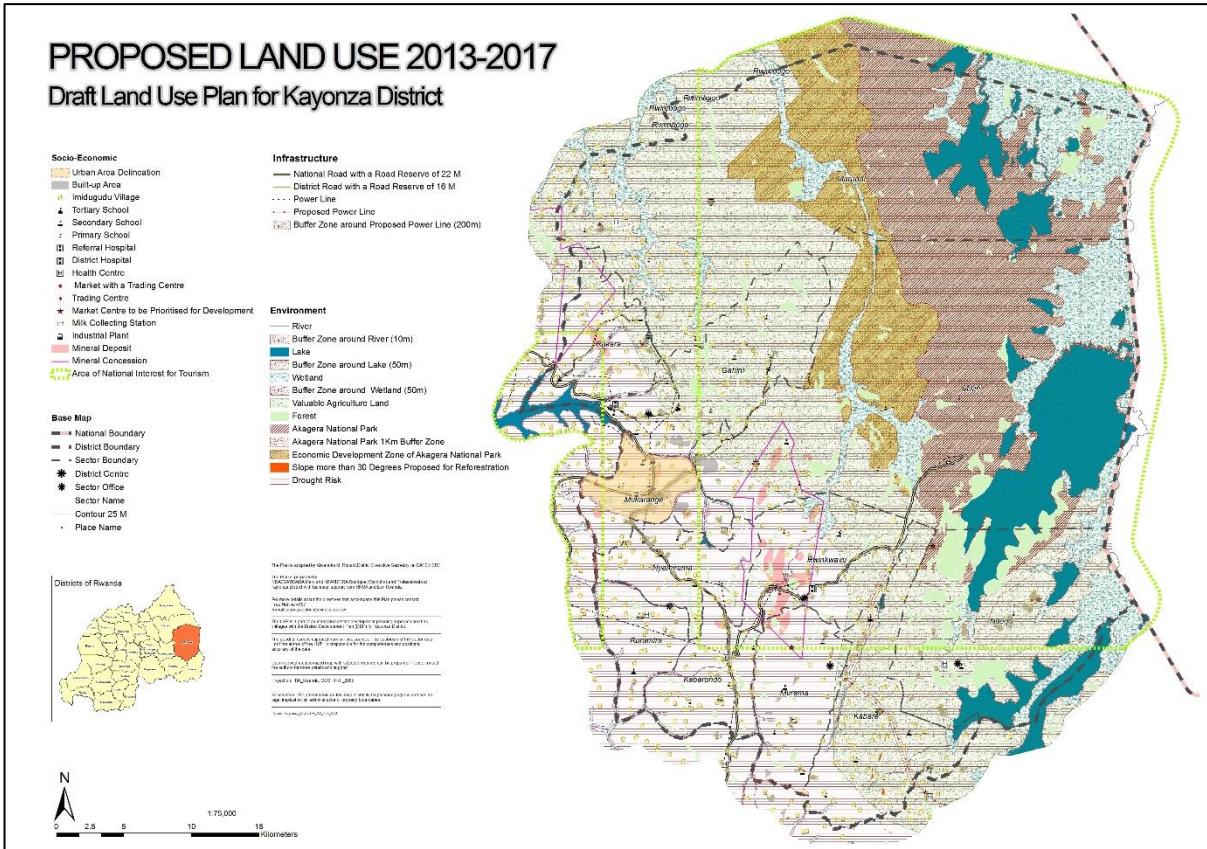
The Integrated Household Living Conditions Survey (EICV 3) of 2013⁴² reported that the proportion of households cultivating the smallest areas, with under 0.3 ha of land represent 46.4% in Kayonza District; slightly higher than the national level average (46%). Figure 4 displays a proposed land use map of Kayonza District featuring land use socio-economic, infrastructure and environment land use classes. Socio-economic classes of land use include urban areas, built up areas, *imidugudu* (villages),

⁴¹ http://www.minagri.gov.rw/fileadmin/user_upload/documents/AJSR/PSTA_4_Approved_by_the_Cabinet.pdf

⁴² <http://www.statistics.gov.rw/survey-period/integrated-household-living-conditions-survey-3-eicv-3>

educational facilities, health facilities, markets and trading centres, milk collection stations, industrial plants, mineral deposits and mining concessions and areas of national interest for tourism. The infrastructure land use class features national roads with 22m road reserves, district roads with 16m road reserves, power lines with 200m buffer areas around them.

Map 5.10 Proposed Land Use in Kayonza District



Source: Kayonza District One Stop Centre, September 2018.

The National Land Use and Development Master Plan (NLUDMP) of 2013⁴³ establishes environment land use buffer zones as follows:

- Hydrological lines - 10m
- Lakes - 50m
- Wetlands - 20m,
- Valuable agriculture land, forest, Akagera National Park, economic zones of Akagera National Park, slopes of more than 30 degrees proposed for reforestation and drought risk area - 1km.

However, the enforcement of the 1 km buffer zone remains a challenge, as people are already inhabiting and cultivating within the buffer zones, and moreover, the GoR has also given concessions for development within 1km of the parks, for example for the Bramin and Buffet schemes. REMA has recently commissioned a revision of the National Land Use and Development Master Plan specifically to review the 50m buffer zone and land use within the buffers by the lakes, as well as for steep slopes. The same with the slope. It should also be noted that the Master Plan remains a plan, is not yet supported by any legal instrument (such as a Presidential or Ministerial Order).

⁴³ http://www.minirena.gov.rw/index.php?id=61&tx_ttnews%5Btt_news%5D=182&cHash=83e58f1a5f0daba584733e8d69be3182

5.3.4 Agriculture in Kayonza District

A different land use categorization is used by the district for current land use categories land consolidation, marshland development, hillside irrigation development and mechanization and use of machinery. Land consolidation is described in PSTA 4 as an arrangement in which farmers voluntarily put together their plots in cooperative organizations and produce crops and are facilitated in post-harvest value chain including being linked with agro-processors and markets under contract arrangements. PSTA 4 articulates the role of the government that ensures conducive policies, strengthening farmers to make good choices, and making sure contract farming agreements are respected. It is also confirmed in the strategy that farmers continue to have rights on their lands and that they are not forced to consolidate their plots.

The Imihigo (Key Performance Indicators) report for agricultural land use in Kayonza

Table 5.2 Yields as Percentages of Targets set as KPIs by Sector

District for the year 2017-2018 highlighted the problem of crop failures due climate related problems including drought and flooding. The District reported that although 13,040ha of land was consolidated achieving 93% of the set target, drought in 8 sectors out of 12 caused failure of the maize crop in Season 2018 A with the KIIWP target intervention sectors of Ndego, Rwinkwavu and Kabare being worst hit (see Table 5-2). Season 2018 B was constrained by the pest attack of the Fall Army Worm (FAW) on 1,865ha.

No	Sector	Performance Contract Year: 2017-2018				
		Maize yield as % of target	Beans yield as % of target	Cassava yield as % of target	Soya yield as % of target	Rice yield as % of target
1	Kabarondo	59.6	54.6		66.9	48.0
2	Ruramira	91.1	38.9		25.3	46.4
3	Nyamirama	92.0	72.3		0.0	
4	Gahini	52.7	28.8		29.3	
5	Ndego	0.8	38.6	95.0	1.0	
6	Rwinkwavu	1.7	9.5		17.1	88.2
7	Mwili	43.3	31.9		15.0	51.7
8	Murama	29.8	51.3			46.6
9	Rukara					
10	Kabare	9.5	15.5		0.0	0.0
11	Mukarange	76.9	59.7		80.0	45.0
12	Murundi	48.3	38.5	32.3	36.4	38.6
Average yield as% of target		46.0	40.0	63.7	27.1	45.6

Observations provided by the District

Agricultural Officer on the performance of the maize, beans, cassava, soya and rice included the following:

- Planted area of beans increased because the soya seed was not available for the first growing season (Season 2018 A). In the second season (2018 B) the late maturing Safari Soya seed that is suitable for wetland areas that enabled the increase of total planted area.
- RAB provided 85,000 cuttings to farmers to complement seed sharing among the communities. However, most of the cassava that was available for propagation through community sharing were infected with the Kabore disease.
- Soya seed was not available in Season 2018 A from RAB. Farmers therefore used the seeds they had among themselves. In Season 2018 B the Safari Soya variety that requires long rains became available and was therefore planted in wetland areas as it would not be successful on hillside areas with the short rains of season B.
- Rice provided comparatively good yield levels among other crops during the drought conditions. However, flooding caused losses of rice due for harvest in Kabare sector, and in Gacaca village in Rwinkwavu sector.

It was also reported that almost 100% of the 2000 ha targeted area covered for hillside irrigation was achieved. Machine-cultivated irrigated area exceeded the target of 1,200ha by 82ha.

The Imihigo report also included information on the number of Twigire associations in the district growing maize, beans and cassava by sector. PSTA 4 explains that Twigire-Muhinzi (for crop farmers) and Twigire Mworozi (for livestock producers) are extension models that give farmers access to

advisory services, appropriate agricultural technologies, and knowledge. It further explains that Twigire complements the services delivered by public extension officers.

As reported in Table 5.3 below, 3,323 Twigire associations were created in the 12 sectors of Kayonza District with 19,016 members growing maize, beans and cassava on 206 sites and over total area of 19,562ha. Farmer organization initiatives will be relevant to the design, development and implementation of KIIWP in view of considerations of intervention delivery through cooperative and/or other farmers' organizations.

Table 5.3 Twigire Association Information by Crop Site and by Sector, Kayonza District

No.	Sector	Twigire Associations		Maize		Beans		Cassava	
		No. Associations	No. of Association Members	No. of Sites	Area (ha)	No. of Sites	Area (ha)	No. of Sites	Area (ha)
1	Kabare	2,108	190	-	-	-	-	-	-
2	Murundi	174	3,480	-	-	-	-	-	-
3	Ruramira	43	683	8	106	3	48	1	6
4	Kabarondo	149	1,696	-	-	-	-	-	-
5	Murama	151	1,827	13	650	16	903	6	597
6	Mukarange	77	1,542	4	480	3	2,500	-	80
7	Gahini	33	442	8	703	8	703	-	-
8	Ndego	96	1,625	7	735	15	735	8	2,069
9	Rwinkwavu	165	2,624	21	2,167	21	2,167	4	427
10	Mwili	121	1,876	8	1,051	8	1,051	4	402
11	Rukara	136	1,981	-	-	-	-	-	-
12	Nyamirama	70	1,050	20	946	20	946	2	90
Total		3,323	19,016	89	6,838	94	9,053	25	3,671

Source: Kayonza District Agriculture Office, August 2018

According to EICV3, the mean share of harvest sold for fruit and vegetables was lower (9.9%) than for staple crops (28.5%) in Kayonza District; this follows the pattern at national level and in urban and rural areas.

5.3.5 Livestock

Livestock is another important source of income and food for households in Kayonza District. Data obtained from the District indicated that 51,084 households (58%) own domestic animals. Cows are very important in Kayonza, with 23 % (20,406 households) owning 53,051 cows. Murundi has the highest number of households that own cows with the highest number of cows, followed by Gahini and Mukarange as shown in Table 5.4 below.

Table 5.4 Kayonza District Livestock Ownership by Sector

No.	Sector	No. of HHs	HHs with Livestock	HHs without Livestock	HHs with Cows	No. of Cows	HHs with other Livestock	HHs with Improved Cows	Cows provided in Girinka Programme
1	Murama	5,155	3,849	178	886	2,303	2,963	174	456
2	Murundi	9,057	5,094	586	3,272	8,507	1,610	659	196
3	Rukara	7,698	4,183	1,351	597	1,552	213	159	336
4	Rwinkwavu	7,399	5,052	664	1,405	3,653	3,506	710	505
5	Kabarondo	7,450	2,951	3,436	1,142	2,969	1,809	927	301
6	Gahini	8,319	4,064	1,363	2,779	7,225	1,361	422	654
7	Ndego	5,422	2,675	750	1,263	3,283	1,257	515	382
8	Ruramira	4,951	2,974	1,291	1,370	3,562	1,328	320	423
9	Kabare	9,135	6,883	662	1,858	4,830	5,025	335	388
10	Mukarange	8,779	4,889	971	2,998	7,794	1,891	1,878	547
11	Mwiri	6,289	2,956	2,114	1,647	4,282	1,309	323	381
12	Nyamirama	8,427	5,514	1,089	1,189	3,091	2,499	627	981
TOTAL		88,081	51,084	14,455	20,406	53,051	24,771	7,049	5,550

Source: Kayonza District Livestock Office, August 2018

Kayonza livestock district statistics also reported small stock comprising 54,661 goats, 4,089 sheep, 7,266 pigs and 43,729 poultry.

Water availability and access to water is a critical problem for livestock as they are equally affected by drought. KIWP interventions are planned to, among others, rehabilitate and construct additional valley tanks as well as drill boreholes where feasible to increase availability of, and access to, water for livestock. Table 5.5 below shows the existing valley dams in the District, the livestock numbers they cater for and beneficiary details.

Table 5.5 Valley Dams in Kayonza District

Sector	Cell	Valley Dam	Cows	Beneficiaries	
				Male	Female
Mukarange	Buhabwa	Kinyamusenye	2014	130	20
		Karamba	1112	70	15
		Sekimondo	1504	90	9
		Makanika	1497	94	13
		Karugenge	993	81	22
Mwiri	Kageyo	Ndago	2615	84	11
Total			9143	531	90

Source: Kayonza District Agriculture Office, August 2018

5.3.6 Health Status in the Project District

Information from the District indicated that 72.8% of the population have medical insurance cover (known in French as Mutuelle des Santé). In regard to child health, under five-year mortality rate is at 129 per 1000 born, infant mortality is 66 per 1000, proportion of 1-year old children immunized against measles are 89.1% and 68.4% of children born are delivered at health facilities. 39% of the population practise family planning is at 39%. The five top causes of morbidity are: malaria (46.3% of cases, and causes 7.7% of all deaths), respiratory diseases, enterological illnesses (diarrhea, intestinal parasites, etc), dental infections and ophthalmic problems. HIV/AIDS prevalence rate is 3.8%. Malnutrition is low at 0.6%. The population is served by 2 district hospitals in Gahini and Rwinkwavu, 15 health centres and 16 health posts and 6 private clinics. There are 8 ambulances to facilitate access to health services. The district has challenges of inadequate health facilities especially in Gahini hospital, and Rutare and Mukarange health centres.

The District has put in place a strategy to convene rice farmers and miners to train them in malaria prevention, and providing with basic prevention knowledge. This began in early 2018 in Rwinkwavu, Kabare, Muruma, Ndego, and targets members of cooperatives. The responsibility for training / sensitisation has been delegated to the health centres. In addition, since May 2018 the District Health Office has begun a campaign to plant mosquito repelling plants/trees such as artemisia, geranium, neem around homesteads and fields. Have already started up a nursery with 100 altenesia. MINAGRI also have a malaria contingency plan, which proposes the introduction of fish to eat mosquito larvae, and to distribute nets for people in *Ubudehe* categories 1 and 2.

Kayonza District is intending to put much emphasis to eradication of malnutrition from 0.6% to 0.0% through improved accessibility to nutrition education and promotion of kitchen gardens. Improve family planning from 39% (EICV3) to 70% in order to reduce fertility rate by increasing availability of contraceptives and collaborating with private sector to provide family planning services. The district also will put much emphasis on sensitization on delivery in health facilities to reduce maternal and child mortality rate, increase population access to medical facilities like VCT and reduce HIV/AIDS prevalence rate from 3.7% to 2.0% and reduce death caused by malaria from 7.7% to 0.0% will be achieved through mass mobilization on use of mosquito nets and to have improved sanitation most especially to pregnant mothers. This will demand measures to ensure community participation and improved quality service delivery to achieve high population coverage.

Behavioural change and education communication will be emphasized to promote appropriate reproductive health behaviour to reduce maternal and new born and child deaths. Involving males in all issues relating to female and child health will be strengthened. Conduct orientation workshops for community leaders and use mass media campaigns to curb Gender Based Violence. The district will endeavour to sensitize population on the dangers of non-communicable diseases and use of training as the remedy. Prenatal and post-natal education to married couples will be strengthened for better child development and care. The district will put emphasis on issues of hygiene and environment protection to minimize communicable diseases. Emphasis on improved sanitation facilities at schools, health centres, hospitals, markets and all public places. (Source: Kayonza DDP 2013-2018).

5.3.7 Social Protection

A big challenge in the district on social issues is the large number of vulnerable households where by 41,634 people from 11,196 households are under support of *Ubudehe* program. 0.7% of households are headed by persons under 21years of age and 4.2% of households are headed by disabled people and women. The District provides social protection to historically marginalised persons (by for example paying for school fees and short courses), and to genocide survivors, where 5,313 houses of the vulnerable were constructed and 4,213 cows were distributed through the Girinka program to vulnerable groups. The social protection system in the district also covers persons with disabilities: there are 3,426 disabled people in Kayonza District total, 1,198 of them are children, 442 are in schools, 109 dropped out due to lack of support and the remaining 604 were not able to join formal education.

The District provides monthly support of RWF 7500 for an individual, RWF 14000 for a couple, RWF 21000 for families of 3 or more people. Those who are poor but have other means of support get work through the Ministry of Works for 20 days per month.

Key challenges are that only 20% of the District's population is covered by the social protection system, and VUP programs are only implemented in 4 sectors. Government resources are limited so focus is on most vulnerable people and can only employ them for 20 days in a month. People with disabilities

are still stigmatised, and there are no special needs schools (although Gahini has a school for the blind). Many of the youth suffer from drug addiction.

5.3.8 Education Status of Subproject Communities

In education, the literacy and secondary school attainment rates are lower than the national averages. Literacy rate for 15yrs and older is 67.1%. Secondary school attainment is at 34.4%. Net enrolment rates at secondary and primary schools are 19.1% and 92.9%, while gross secondary and primary school enrolment rates are 38.4% and 150.9%. Computer literacy for persons 15 years and older is at 2.5%. 351 classrooms for the 9 YBE and 12 YBE were constructed, 88% of adults have been trained in adult literacy, 5 Technical and Vocational Education and Training (TVET) institutions were constructed. The qualified teachers are 65% in primary and 52% in secondary, 20 teachers' houses constructed to motivate teacher, 5 laboratories are available which were constructed to encourage the study of science subject. The district is still having some social challenges like inadequate classrooms and latrines both in primary, lower and upper secondary schools.

High repetition and drop-out rates have negative impact on human capital capacity and skills development hence the District education system should take appropriate measures to address the issues. National repetition rates are 12.7% in primary, 5.8% in secondary and 1.6% in upper secondary. The drop-out rates are 10.9% in primary, 13.1% in secondary and 2.4% in upper secondary.

Availability of primary, secondary and tertiary schools and facilities

None of the 31 registered higher learning institutions with branches in 17 districts of Rwanda is operating in Kayonza District. Pupil-teacher ratio in primary is 68 pupils to one teacher, and 22 pupils to one teacher in secondary schools. These figures are respectively 62 and 29 pupils for one teacher at national level.

Classroom ratio is now 91 students per classroom in primary schools and 39 students per classroom in secondary schools in Kayonza District. At national level these figures are respectively 83 and 40 students per classroom. The average walking distance to a primary school in Kayonza is 29.7 minutes and 88.2% of households being between 0 and 59 minutes walking distance to a primary school. EICV3 results show that this walking distance to a primary school in Kayonza District is almost the same as the national average (27.2 minutes). It is generally accepted that professional skills are acquired in post primary education and training; hence over 90.8% female and 88.6% male in Kayonza District are unskilled.

Technical and Vocational Education and Training (TVET)

TVET institutions in Kayonza District are comprised of 5 Vocational Training Centres (VTC) and 1 Technical Secondary School (TSS) offering programmes that include electricity, automobile, tailoring and accountancy, secretarial, computer science, tourism, carpentry, hotel management, welding, plumbing and masonry. TSS schools offer various programmes that include accountancy, secretarial, computer science, electricity and tourism.

5.3.9 Access to Services

Energy

Energy use for lighting is summarized in the Table 5.6. It can be seen that kerosene lanterns are the most commonly used source of lighting, followed by battery power. Of note is the relatively low use of fuelwood compared with the national average.

The most dominant mean used for cooking in Kayonza District is firewood which is at 92.7% which is higher than the national average of 86.3%, charcoal is used at 6.7% compared to 10.6% of national average and 0.5% use other means apart from those mentioned above.

Table 5.6 Sources of Lighting

Source of Lighting	% District Population	% National Population
Electricity	7.5	10.8
Oil lamp	7.5	9.7
Firewood	2.3	8.8
Candle	1.7	5.9
Kerosene	69.8	34.7
Battery power	10.5	28.6
Other	0.7	1.5

Source: Kayonza DDP (2013-2018)

Hygiene and sanitation

According to the current data published by National Institute of Statistics, 66.4% of population in Kayonza District have access to improved sanitation facilities namely toilets and 72% have access to an improved water sources. 67.1% of the households walk less than 30 minutes to an improved water source and 44.3% walk less than 15 minutes. The average time to an improved water source in Kayonza District is 16.1 minutes, which is higher than the national average (14.4 minutes).

Telecommunication

EICV3 report revealed that, mobile phone ownership at 50.1% compared to 45.2% at national level; landline phone was at 0.8% which is equivalent to the national level also at 0.8%, computer ownership was at 0.3% which is below national average of 1.7%, radio ownership was at 65.0% compared to 60.3% of the national average, TV set at 3.9% against 6.4% at national level and video/DVD player ownership at 0.3% compared to 1.7% of the national average. EICV3 information showed that 96.4% of the population aged 6 years and above never used a computer before compared to 93.5% at national level, 1.8% used computer before but not confident to use it again compared to 2.6% of national average and 1.7% used computer before and confident to use it again compared to 3.9% of national average. The usage rate for internet services facility is also low where 0.2% use internet regularly, 3.1% use internet often, 1.8% sometimes use internet, 14.9% not at all and 79.9% do not know about internet service.

5.3.10 Water Sources

The EICV3 results showed that 72% of Kayonza District households use an improved drinking water source. Improved drinking water sources include protected springs, public standpipes, water piped into dwelling/yard, boreholes, protected wells and rainwater collection, as defined by the World Health Organisation (WHO). The majority of households use a public standpipe (37%), followed by a protected spring (27%). More than a quarter (28%) of households in Kayonza District still use unimproved drinking water; 22% of these use surface water (from lakes and rivers).

5.3.11 Household Income and Expenditure

Household income in Kayonza District is based on agricultural production, wages, business, rent and transfers including remittances. Household agricultural income comes from land cultivated on and from livestock. Wage income includes cash and in-kind payments received from farm and non-farm work. In-kind payments include food and other agricultural products, provision of shelter and other benefits received for the work. Non-farm self-employment (business) includes income received net of labour and other inputs whereas from rent includes actual rent received from renting out livestock,

agricultural equipment and land. The EICV3 results shows that at the national level agriculture contributes the largest share of a household's income (46%), followed by wage income (25%), business income (i.e. self-employment), transfers, and rents.

The improvement and increase of agricultural productivity in Kayonza District remain hampered by the low use of agricultural inputs as confirmed by the data in EICV3, revealing that the percent of households spending on chemical fertilizers is 13.0% compared to 30% of the national average; organic fertilizers are at 2.4% compared to 9.7% of the national average. Households that purchase seeds were at 15.5% compared to 19.5% of national average and purchase of pesticides at 0.5% compared to 31.2% of national average. Households with irrigation expenditures were at 0.7% with an average of expenditure on terracing of 0.4%.

5.3.12 *Tourism*

Tourism has great socio-economic development potential for Kayonza District. The District has a great advantage as the host of the Akagera National Park, the Akagera River and a multitude of scenic inland lakes where several tourist projects and activities could be undertaken. However, with the exception of one game lodge within the Park and a few motels and small restaurants in the town of Kayonza, accommodation and catering facilities are almost non-existent. Challenges are linked to the investment support for the sector, the lack of basic infrastructure such as good quality transportation, electrical energy, water, hotels, and competent labour force. There is also inadequate knowledge about the added value of touristic economy.

5.3.13 *Gender*

25% of households in Kayonza District are headed by females and 5% are de facto female-headed households', i.e. those headed by females during the absence of a male head who is ordinarily present. The percentage distribution of employment by gender in Kayonza District, shows that the majority of females in Kayonza District are small-scale farmer workers (78%), followed by wage farmer and independent non-farmer workers (both at 6%). 5% of females are wage non-farmer workers. Males are also involved in small-scale farm work at a lower percentage than females (61%). Males are wage non-farm workers and independent non-farmers in greater proportions than females, however (18% and 13% respectively). Consultations with the Kayonza District gender monitoring offer highlighted achievements in gender equality in the districts with examples on belonging to producer organizations; shared family responsibilities; personal financial management. Female owned producer cooperatives were sited that include a coffee processing plant and an irrigated maize and vegetables scheme. It was mentioned that previously women worked on the fields but that currently both men and women participate in organized agriculture. It was also highlighted that the government campaign aimed at promoting financial independence between men and women through bank account transfer payments for services rendered was very successful and that most women had own bank accounts. It was also indicated that government efforts were now focused on gender equity at family level, educating families about shared family responsibility.

Youth are defined as people between the years of 16 and 30 years. Apart from the issue of drugs mentioned above, youth face several challenges which preclude them from being involved in agriculture including: they do not own land, and therefore do not have access to finance/investment, nor can they lease land; agriculture is practised by youth who did not go to school - educated youth do not want to work in the fields, and wait for other jobs; intellectual property is not valued as a contribution in agricultural projects, so youth do not feel there are opportunities in the sector in which they can excel.

6 Stakeholder Consultations

6.1 Background and Rationale

Stakeholder consultations were carried in order to obtain first-hand information on concerns, perceptions and opinions on the proposed KIIWP Project. Both institutional, local governance and target beneficiary stakeholder views are critical for confirming relevance of proposed interventions, for effectiveness and efficiency of proposed approaches and for impact and sustainability of the intended positive changes. In this regard, national policies, regulatory and procedural imperatives and concerns needed to be established upfront and assessed in terms of alignment with IFAD's policy requirements, and mitigation strategies considered where significant discrepancies became apparent. Beneficiary perceptions and opinions were also sought to confirm that planned interventions were understood and acceptable as effective and sustainable solutions to their problems and challenges.



Consultation processes started with stakeholder identification for the KIIWP Project through briefings with relevant IFAD and MINAGRI officials including RAB, SPIU staff involved in similar projects. Office visits involving discussions and interviews were carried out with officials of MINAGRI, REMA, MINIRENA (Water Resources Management Department), and the Kayonza District Mayor with the heads of respective district service units. Identified potential beneficiary stakeholders were consulted at proposed Project sites within the targeted drought prone intervention sectors of Ndego, Kabare, Murama, Kabarondo, Rwinkwavu, Mwiri, Gahini and Murundi. These consultations involved focus group discussions, discussions with individuals, members and leaders of crop and livestock producer cooperatives and sector-level opinion leaders⁴⁴.

6.2 Consultation Locations

Consultations were initiated in Kigali with stakeholder institutions for identification of other stakeholders but also in their regulatory and lead institution capacities in the cases of MINAGRI (RAB, Climate Change Mainstreaming and SPIU), Water Resources Management Department and REMA. Other stakeholder institutions consulted include in Kigali include the Agriculture Technical Assistance Facility (Agri-TAF) that is supporting MINAGRI to piloting climate mainstreaming in sector development and investment planning.

Initial discussions were held with the Mayor and the Vice Mayor of Kayonza District at their offices together with the various heads of district service delivery units.

⁴⁴ The Kayonza District sector-level opinion leaders comprise farmers, entrepreneurs, community development associations and interest groups who act as development change agents.

Beneficiary focus group discussions were held in the 8 target sectors. In Ndego sector, focus group discussion were held with target beneficiaries at the Kibare irrigation site in Insangano cell and at the Humure irrigation site in Kiyovu cell that both lie in the Akagera Level 3 Catchment of the Rwanda's hydrological system; and at the Byimana irrigation site in Byimana Cell that lies in the Kakireke Level 3 Catachment. A focus group discussion was also held with opinion leaders at the Ndego sector office, facilitated by the Sector Executive Secretary. The stakeholder consultations team also visited the Ndego Milk Collection Centre (MCC) operated by a cooperative where it obtained opinions of the MMC management as well as technical staff. In all, 212 persons participated in the consultations. Table 6.1 below summarises the consultation locations and the number of people participating at each location.



Kibare Irrigation Scheme

In Kabare sector focus groups discussion with target beneficiaries at Gakoma irrigation site in the Rubumba cell that lies in the Kakireke Level 3 Catchment and with opinion leaders at the Kabare sector office. The potential dam site on Gishanda stream within the Gishanda Level 3 Catchment at Cyambare village in Kabare sector and Mukoyoyo village in Rwinkwavu sector within the Rugazi Level 3 Catchment.



Gakoma Irrigation Scheme

In Kabarondo sector, a potential dam site was visited at Rwigikeri in Cyinzovu cell and at Kanyegenyege rice scheme within the Gashonyi-Nkungu Level 3 Catchment and a focus group discussion held with opinion leaders at the Kabarondo sector office.

In Murama sector, land husbandry site was visited at Ngoma in Muko cell within the Rugazi Level 3 Catchment and a focus group discussion held with opinion leaders at the Murama sector office.



Mwiri, Kageyo MCC

In Mwiri sector, a focus group discussion was held with pastoral farmers at the Kageyo MCC in the



Murama Sector

intervention site for valley dam rehabilitation and borehole development withing the Akagera Level 3 Catchment. The valley dams and borehole development sites were visited at Nyabombe in Juru cell and at Rukore in Kahi cell within Gahini sector and at Gakoma in Buhabwa cell and Rwakabanda in Ryamanyoni cell within Murundi cell. A

50km-drive rapid appraisal stretching north from Mwiri through Gahini to Murundi sectors along on the edges of a complex of wetlands of Migera (World Bank supported rice schemes), Nyamwashama

wetland of Kageyo with rice schemes and the wetland of Kizi and Nyamashuri in the livestock land use zone. A short meeting was also held with the Executive Secretary of the Murundi sector.

Table 6.1 Sites Visited for Stakeholder Consultations

Date	Sector	Site	Site Name	Village/Cell	No. of persons consulted	Planned Area (ha)
27/08/2018	Kayonza District Mayor and Staff				8	N/A
28/08/2018	Ndego	Milk Collection Centre staff			5	N/A
28/08/2018	Ndego	Ndego Sector Opinion Leaders			20	N/A
28/08/2018		Site 1	Kibare	Isangano	28	
28/08/2018	Ndego	Site 2	Humure	Kiyovu	20	1,400
29/08/2018		Site 3	Byimana	Byimana	38	
29/08/2018	Kabare	Site 1	Gakoma	Rubumba	6	600
29/08/2018	Kabare	Site 2	Gishanda	Cyambare	Site appraisal only	150
	Rwinkwavu			Mukoyoyo		
30/08/2018	Kabarondo	Site 1	Rwakigeri	Rwakigeri	10	125
		Site 2	Kayeganyege	Kanyeganyege		
30/08/2018	Murama	Site 1	Ngoma	Muko	11	Farm level ponds
30/08/2018	Gahini	Site 1	Nyabombe	Juru		
		Site 2	Rukore	Kahi		
04/09/2018	Rwinkwavu	Site 1	Rwinkwavu	Muko	Site appraisal only	7 new valley dams; 15 valley dams for rehabilitation; 20 boreholes;
05/09/2018	Murundi	Site 1	Gakoma	Buhabwa		Agroforestry (fruit trees; coffee)
		Site 2	Rwakabanda	Ryamanyoni		
05/09/2018	Mwiri	Site 1	Kageyo	Kageyo	29	
05/09/2018	Kayonza CBD	Livestock farmers meeting			37	
		Total			212	

Source: ESMF Study Consultations, August 2018.

6.3 Issues Discussed during Consultations

Target beneficiaries were consulted on KIIWP interventions of pumped irrigation, land husbandry, valley dam rehabilitation and maintenance and ground water exploitation. Beneficiary stakeholders were consulted on their crop priorities in view of the proposed interventions by KIIWP. Opinions and perceptions were also sought on the cooperative approach for delivering the interventions as well as beneficiary ability and willingness to invest in the necessary inputs including operational requirements as well as maintenance of infrastructure and equipment. Grievance resolution frameworks and practices were also discussed with the target beneficiaries as well as with opinion leaders in separate focus group discussions. Stakeholders were asked to share lessons from past experiences that may be relevant and beneficial to KIIWP implementation. All issues discussed with KIIWP target beneficiary communities trigger SECAP's FPIC procedures, for which an FPIC Implementation Plan is proposed in Annex 5 of this ESMF.

6.4 Summary of Outcomes of Consultations

6.4.1 Cooperative Approach for Delivery of KIIWP

Target beneficiary stakeholders and opinion leaders generally demonstrated awareness of, and experience in, cooperative frameworks and expressed support for the plans to deliver KIIWP interventions in this modality. Most of the residents of the proposed Kibare pumped irrigation site indicated that they had not worked in cooperative arrangements and sought clarifications during the focus group discussion. The Kibare residents expressed support after the clarifications were provided by the local agronomist and the RAB official that were present at the forum.

6.4.2 Target Beneficiary Crop Priorities for KIIWP

Focus group discussions with target beneficiaries and opinion leaders in the proposed pumped irrigation sites at Kibare, Humure and Byimana in the Ndego sector and at Gakoma in Kabare sector were unanimous in indicating maize, beans and soya as priority crops. In addition, rice, banana, sugarcane as well as vegetable crops such as tomato and beetroot were also preferred.

In the land husbandry support intervention areas coffee was indicated as the highest priority mainly because of its resistance to drought. Other priority crops indicated included pineapple, avocado and other fruit trees that include mango, orange, lemon, tree-tomato and passion fruit. Banana and cassava were popular crops but the stakeholders lamented the widespread problem of disease infestations that destroy both these crops.

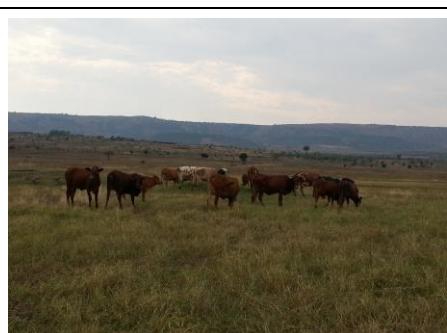
6.4.3 Target Beneficiary Willingness to Invest in KIIWP

Focus group discussions indicated a willingness to invest in the necessary maintenance infrastructure for irrigation including pumping systems, dams and boreholes. Target beneficiary stakeholders indicated that they already invest resources and cash in growing crops every season for the required inputs, although the crops fail in most seasons due to drought. Willingness to invest more and to seek commercial credit with the assurance of irrigation. Some focus group discussions indicated a need for capacity development in business skills and financial management. Others also mentioned that they should be consulted on how they may (or are able to) invest, since access to cash may not be easy for all beneficiaries at any given time.

6.4.4 Land Use Competition and Conflicts

Potential conflicts were flagged in some focus group discussions and discussions with individuals. In Kageyo, it was indicated that farmers compete among themselves to irrigate rice and to water cattle in the dry season when water availability is reduced.

Stakeholders indicated a need to rehabilitate valley tanks that were silted and to construct more valley tanks as well as boreholes for livestock water and human domestic requirements. Similarly, potential for conflict was observed in Humure and Kibare where cattle graze and drink on the targeted sites for the proposed pump irrigation schemes. Human/wildlife conflict was also reported, especially with hippo and baboons. Hippos were particularly problematic at many of the intervention sites (lakes and valley tanks), as was also observed by the study team.



Humure, Ndego Sector

There was a general feeling of frustration among the stakeholders in regard to the need for assistance to mitigate the effects of persistent drought. At Humure, the community gave an account of crop failures season after season while they see the neighbouring Bramin farm prospering with bumper harvests as a result of irrigation. They expressed disappointment that the GoR must often provide them with food relief purchased from neighbouring Tanzania, whereas they would be capable of feeding themselves by irrigating their crops from the same source that Bramin draws its water from. The same frustration was expressed by residents of Byimana and Gakoma in reference to the Buffet irrigation scheme located within a few kilometres of their fields.

6.4.5 Target beneficiary grievance resolution views for KIIWP

Stakeholders were confident that conflicts arising during the development and implementation of KIIWP interventions would be readily resolved. Focus group discussions demonstrated a good understanding of conflict resolution mechanisms within cooperative rules as laid out in corporate constitutions as well as national laws and regulations on cooperatives. They explained that any conflicts that develop within a cooperative are resolved by a grievance/conflict resolution committee. Complaints are escalated to local governance structures when settlement is not reached within the cooperative, starting with sector level and then escalated to district level if still not resolved. Court systems are available to complainants if conflicts remain unresolved through the resolution mechanisms and local governance structures.

6.5 Priorities for Interventions

A key observation from the focus group discussions was that consultations with the beneficiaries and other stakeholders need to be undertaken continuously at all stages of Project development, from the feasibility to design, and then implementation of subprojects in order that benefits are sustainable. It was also observed that stakeholders had expectations from the GoR for assistance with irrigation infrastructure for them to reach the potential demonstrated by neighbouring irrigation schemes.



Murundi Sector

7 Potential Environmental, Social and Climate-Related Impacts of KIIWP Interventions and their Mitigation

7.1 Benefits of KIIWP

KIIWP's development objective is to improve food security and incomes of rural households on a sustainable basis. The proposed interventions to achieve this objective are: development of water infrastructure; promotion of climate smart agriculture practices; building capacity for farmers to access markets for agricultural inputs, finance and outputs; and promoting sustainable land and water management practices. These interventions and associated activities are expected to result in a number of quantifiable benefits including:

- i. Crop diversification and increased value of production in hillside areas;
- ii. Increased value of agricultural production in marshlands;
- iii. Reduced post-harvest losses and increased sales in output markets;
- iv. Increased value of livestock production;
- v. Improved access to water for livestock and for humans.

KIIWP will target 50,000 rural households, directly and indirectly. Most of KIIWP's target group will comprise men and women farmers and livestock keepers, as well as men, women, youth and the physically challenged in wage labour and off-farm activities along the target value chains. Overall, it is expected that women will account for at least 50% of total beneficiaries. Some 28,000 households are expected to benefit from the Project in various ways: over 50 farmer cooperatives growing rice, maize and beans or horticulture in the Project area will be supported through Farming as a Business (FaaB) skills, cooperative strengthening, and backward/forward linkages. Households in the Project's target area will directly benefit from terracing and agro-forestry; pumped irrigation schemes; marshland irrigation interventions; water harvesting infrastructure and the provision of livestock water sources. Women, youth and the physically challenged will be encouraged to participate as smallholder farmers or in other activities in and around value chains. Men and women from poorer households will be engaged as labourers in the infrastructure construction activities.

Indirectly, catchment rehabilitation and protection interventions in the watershed areas will contribute to improved water retention and improved soil fertility, as a result of which another 22,000 households farming in the watersheds are expected to gain from increased agricultural productivity.

7.2 Potential Environmental, Social and Climate-Related Consequences

The Project components have been described in detail earlier in this report (Section 2.3). All the Project components will, to some extent, have implications on environmental, social and/or climate-related aspects. In this regard, the main risks apply to Component 1 (Strengthening Resilience to Droughts) which involves with the construction of irrigation infrastructure, landscaping and associated activities for soil and water conservation in the catchment areas and the provision of water to livestock. In addition, after the aforementioned infrastructure is in place, there will be environmental, social and climate-related risks and impacts from the resulting agricultural activities. Component 2 (Support to Farm Business Development) focusses on training and application of climate smart agriculture, as well as good nutrition practices, and as such will have minimal risks, but is expected to realise positive socio-economic outcomes. While KIIWP is expected to support the development of values chains for both provision of staple food and income generation, the types of value chain activities have not been identified as yet. Once these have been determined, they will have to be screened, and ESIAs or ESMPs

prepared as appropriate, together other safeguards documents where required. Component 3 (Institutional Development and Project Coordination) is not expected to have any direct environmental, social or climate-related risks, but management and maintenance are key aspects in ensuring environmental and social sustainability, as well as climate resilience. Thus, the description of risks and impacts in this chapter focuses mainly on Component 1, while institutional capacity building to ensure Project sustainability is discussed in Chapter 11.

Irrigation Infrastructure

At this stage, the actual infrastructure for the proposed schemes has not been confirmed. But it is likely that the irrigation schemes will have one or more of the following elements:

- Irrigation infrastructure: Diversion weirs/intakes; headworks; dams, dam walls/embankments; conveyance canals, secondary, tertiary and field canals; pumps and pump houses; water storage facilities; distribution pipes; and drainage lines;
- Ancillary facilities: depending on the scheme size, this could include workshops, sheds, offices and fuel storage;
- Access infrastructure: access roads, bridges and footpaths. However, these will not be implemented through KIIWP.

Catchment Rehabilitation and Protection

Interventions for catchment rehabilitation and protection essentially focus on soil and water conservation activities, as follows:

- Soil conservation: contour bunds, terraces, and biological measures (planting of appropriate plant materials such as trees, including fruit trees, and different types of grasses); production techniques such as conservation agriculture for rainfed cropping, and fodder production and conservation, possibly using exotic species;
- Water conservation: water harvesting using contour bunds / benches, micro-catchments; water storage facilities, such as valley tanks.

Provision of Water for Livestock and Domestic Use

Interventions for the provision of water for livestock and domestic use will take place in the driest parts of the Project area, where livestock keeping is predominant. These will be:

- New valley tanks: construction of 7 small valley tanks, which are effectively depressions where rainwater runoff collects. Here water troughs will be provided for livestock.
- Rehabilitation of existing valley tanks: rehabilitation activities, such as fixing the tank walls, fencing the tanks, provision of troughs for watering livestock, controlling access to the tanks to prevent erosion and degradation around the tank sites.
- Boreholes: provided hydrogeological studies confirm viable groundwater sources, about 20 boreholes will be drilled to supply both domestic water for livestock and communities; construction of standpipes, and livestock watering troughs.

7.3 Anticipated Adverse Environmental and Social Impacts of KIIWP

7.3.1 Irrigation

Typical environmental and social impacts that may be expected from the construction of the proposed irrigation schemes and their operation – or conditions which could affect the schemes - are tabulated

in Table 7.1 below, together with some typical measures for mitigation. The most significant adverse ones are:

- Reduction in downstream flow as a result of diversion of water, which could compromise water availability downstream to satisfy human and livestock demand, and affect aquatic habitats and biodiversity (ie. environmental flow);
- Inundation of the river upstream, caused by damming or access roads, which could result in physical and economic displacement, hinder access to grazing and water sources for livestock, and destroy vegetation and natural habitats;
- Soil erosion caused by scheme excavation works (including access/scheme roads, dams) and poorly managed upper catchment areas, leading to loss of cultivable land and/or siltation of canals;
- Soil degradation and salinization due to improper application of agrochemicals, overwatering and poor drainage;
- Reduction in water quality due to application of agrochemicals or oil spills, affecting water potability for domestic and livestock use downstream, as well as causing poisoning of aquatic fauna;
- Loss of biodiversity and ecological imbalances caused by: clearing land for agriculture, installing irrigation infrastructure (eg. intakes in wetlands or lakes), poaching as a result of the schemes' proximity to the Akagera National Park, and from pesticides poisoning of non-target species, particularly bees and other beneficial insects;
- Denied or hindered access for livestock to water sources and/or pasture;
- Resistance to pesticides and pest resurgence due to poor application of pesticides;
- Temporary and permanent land take for construction sites and irrigation infrastructure leading to loss of land and assets;
- Community health and safety risks from: construction activities; storage, handling, use and disposal of agrochemicals; failure of dam structures; increase prevalence of water-borne diseases such as malaria;
- Human/wildlife conflict as a result of wildlife raiding farms and destroying crops;
- Reduction in water availability due to climatic events, such as prolonged dry seasons and subsequent drought, or due to diversion of water upstream for water supplies or irrigation subprojects;
- Flooding due to climatic events resulting in loss of soil and crop damage.

Well-designed schemes, diligent supervision during construction and proper management during operation will ensure that many of these adverse impacts are avoided or substantially mitigated. KIIWP focusses on climate resilience as climate-related impacts are unpredictable in terms of type of impact, timing and significance, and by incorporating climate resilient approaches into scheme designs, it is anticipated that the impact of these event(s) will be diminished.

In addition, the Programme Implementation Manual (PIM) will provide guidance for incorporating environmental mitigation measures at the various stages of the subprojects, as well as contractual clauses that will ensure necessary mitigation measures are included in scheme design and during construction.

Table 7.1 Typical Environmental and Social Impacts of Irrigation and their Mitigation

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
ENVIRONMENTAL ISSUES		
Over-abstraction of water from sources (rivers, lakes, groundwater)	<p>Unavailability or reduction of water for downstream use in the case of river source, particularly in the dry season.</p> <p>Changes in hydrological regime of micro-catchment</p>	<ul style="list-style-type: none"> - Install water abstraction monitoring infrastructure (gauges) - Install infrastructure to measure flow levels in rivers - Train IWUOs in keeping monitoring records for abstraction and river flow, and to manage use of irrigation water requirements, particularly during dry seasons. - Determine and maintain environmental flow requirements for rivers taking into account human, livestock and ecological needs.
	<p>Threats to aquatic and terrestrial biodiversity in lake systems and rivers, particularly in the dry seasons</p>	<ul style="list-style-type: none"> - Assess impacts of over-abstraction on biodiversity and ecosystem services in lakes and rivers, and propose necessary mitigation - Maintain environmental flow.
	Aquifer depletion.	<ul style="list-style-type: none"> - Install water abstraction monitoring gauges - Install infrastructure to measure discharge rates for groundwater sources (boreholes, wells, springs) - Train IWUOs in keeping monitoring records for abstraction, and to manage use of irrigation water requirements, particularly during dry seasons.
	Reduced availability of water for other planned developments.	<ul style="list-style-type: none"> - Train IWUOs to monitor abstraction so as to ensure compliance with specified abstraction rates through.
Degradation of catchment areas due to poor agricultural practices, overgrazing	Unavailability of water for irrigation, particularly in the dry season	<ul style="list-style-type: none"> - Implement catchment rehabilitation/protection interventions under KIWP
Damming of rivers	<p>Unavailability or reduction of water downstream</p> <p>Loss of biodiversity due to inundation upstream</p>	<ul style="list-style-type: none"> - Determine and maintain environmental flow requirements for rivers taking into account human, livestock and ecological needs. - Assess impacts of inundation on biodiversity and ecosystem services, and propose necessary mitigation
Soil erosion due to excavation and clearing activities for roads, canals, workshops.	Deterioration of water quality	<ul style="list-style-type: none"> - Minimise/prevent soil erosion by controlling earthworks, installing and maintaining drainage structures and erosion control measure; use zero-till/reduce till methods of land preparation.
Removal of vegetation (including riparian vegetation) for clearing land		
Pollution of water due to foulwater leaching into water sources (from pit latrines provided on schemes)		<ul style="list-style-type: none"> - Establish 50 m buffer zone along river bank and 20 m buffer zone around dam sites, in accordance with REMA regulations;
Pollution due to leaching, seepage or transmission of agrochemicals through the soil into water sources		<ul style="list-style-type: none"> - Existing riparian vegetation should be maintained (not cleared) - Careful supervision of clearing activities so that only areas required for infrastructure and agricultural infrastructure are cleared.

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
		<ul style="list-style-type: none"> - Drains from the fields should lead to a collection pond where the water can be tested and treated before discharge to a river
		<ul style="list-style-type: none"> - Install proper sanitation facilities which include a form of treatment (eg.2-chamber latrines).
		<ul style="list-style-type: none"> - Latrine location and design should take into consideration distance from water sources, soil types, and estimated usage.
		<ul style="list-style-type: none"> - Minimise use of agrochemicals through adopting conservation agriculture techniques, explore organic/natural fertilizers, agrochemicals
		<ul style="list-style-type: none"> - Manual removal of weeds
Excavation and clearing activities during construction of dams, roads, canals, workshops, etc	Air pollution – dust	<ul style="list-style-type: none"> - If water is available, keep dust down by watering exposed/ worked surfaces
Speeding construction vehicles		<ul style="list-style-type: none"> - If possible, schedule earthworks such that they avoid the height of the dry seasons.
		<ul style="list-style-type: none"> - Controlling the speed of construction vehicles
Oil spills from storing, handling and disposal of fuel, oils and lubricants	Oil pollution	<ul style="list-style-type: none"> - Where fuel is stored in bulk, the fuel tank should be contained in a bund of 110% tank capacity
		<ul style="list-style-type: none"> - Where fuel drums are used these should be stored on sump pallets.
		<ul style="list-style-type: none"> - Establish procedures for fuel delivery; decanting/draining; use, storage; spill response; disposal of waste oil; handling of oil products.
		<ul style="list-style-type: none"> - Minimise need for having fuel oil on site – explore options for solar powered pumps or connect to national grid.
Construction traffic, construction works.	Excessive noise levels	<ul style="list-style-type: none"> - Provide PPE to personnel working in areas exposed to excessive noise levels
Pump houses where water from the river is being pumped to the schemes.		
Generation of waste during construction, including debris and packaging.	Proliferation of pests and vermin (snakes, rats, mosquitoes) posing health risks to communities	<ul style="list-style-type: none"> - Dispose of construction waste and solid waste as per REMA's Solid Waste Guidelines
Waste generated during operation, eg. food waste, packaging, scrap metal, etc.		<ul style="list-style-type: none"> - Sensitise farmers on waste management practices
		<ul style="list-style-type: none"> - Recycle, reuse, recover and reduce waste
Over-watering of fields	Water logging, poor drainage, salinization	<ul style="list-style-type: none"> - Provide drainage for access roads
		<ul style="list-style-type: none"> - Fields should have slight gradients so as to allow drainage of excess water
		<ul style="list-style-type: none"> - Maintain drainage canals and other drainage structures

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
Excavation and clearing activities, including removal of vegetation during construction. Clearing for planting new crops. Erosion caused by rain, runoff and wind.	Soil erosion	<ul style="list-style-type: none"> - Control earthworks - Install and maintain drainage structures to regulate stormwater and runoff/run on - Install and maintain erosion control measures - Use zero-till/reduce till methods for land preparation
Excavation and clearing activities along the edge of riverbanks Removal of riparian vegetation during clearing	Riverbank erosion	<ul style="list-style-type: none"> - Establish 50 m buffer zone along river bank in accordance with REMA regulations; existing riparian vegetation should be maintained (not cleared)
Poor cultivation practices, eg. tilling, excessive use of chemical inputs, mono-cropping for long periods of time	Soil degradation	<ul style="list-style-type: none"> - Use best practices for growing crops recommended conservation agriculture techniques, such as zero tillage or reduced tillage, - Intercropping to strengthen soil structure; - Green fertilization and green harvesting to cover soil with crop residue. - Implement Integrated Soil Conservation and Nutrient Management systems
Poor application of, and/or excessive use of agrochemical inputs	Chemical pollution of soils, groundwater and surface water	<ul style="list-style-type: none"> - Minimise use of agrochemicals through adopting conservation agriculture techniques, select natural organic alternatives - Careful supervision of application of agrochemicals - Use agrochemicals approved by MOA, WHO and FAO
	Resistance to pesticides	<ul style="list-style-type: none"> - Train farmers in proper use, handling, storage, and disposal of agrochemicals. - Ensure chemical containers are disposed of as hazardous waste - Keep records of chemicals used, application amounts.
	Loss of biodiversity, ecological imbalances, caused by poisoning of non-target species, particularly bees and other beneficial insects	<ul style="list-style-type: none"> - Set up an Agrochemical Management system and draw up a Pest Management Plan
	Pest resurgence	
Clearing of vegetation during scheme construction, including dam construction, and for cultivation of crops	Soil erosion	<ul style="list-style-type: none"> - Careful supervision of clearing activities so that only areas required for infrastructure and agricultural infrastructure are cleared. - Assess impacts of land inundated by dams on vegetation - Conserve/maintain woodlands or forest areas within schemes to preserve biodiversity
	Loss of biodiversity	

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
Installing scheme intakes in wetlands or lakes	Loss of biodiversity and ecosystem services	<ul style="list-style-type: none"> - Assess impacts of locating intake works in wetlands or lakes on biodiversity and ecosystem services, and propose necessary mitigation
Conversion of wetlands for marshland irrigation	Loss of biodiversity and ecosystem services	<ul style="list-style-type: none"> - Assess impacts of draining wetlands on biodiversity and ecosystem services, and propose necessary mitigation
Pollution of river water due leaching of agrochemicals into river	Threat to aquatic ecology, including bio-magnification of toxins in tissues of aquatic fauna, and/or species die off	<ul style="list-style-type: none"> - Careful application of agrochemicals – develop agrochemical management plan - Monitor water quality in rivers, downstream of diversion weirs and abstraction points. - Monitor aquatic ecology periodically for signs of poisoning
Proximity of schemes to national park, woodlands/forests - leading to illegal felling of trees for charcoal production	Loss of biodiversity and ecosystem services	<ul style="list-style-type: none"> - Establish community fuelwood plantations - Conserve/maintain existing forest stands to preserve biodiversity - Provide buffer zone between scheme and national park, wetlands, woodland/ forest based on discussions with ANP and on REMA regulations, applying precautionary principle for maximum buffer width for ANP and wetlands
Sourcing of construction materials, excavation of borrow pits, quarries, sand	Destruction of environment, changes in landscape and land use.	<ul style="list-style-type: none"> - Assess environmental impacts due to materials for construction - Restoration/ rehabilitation of land disturbed for purposes of acquiring materials. Requires proper management of quarries and borrow pits, and sand mining. - In some cases, communities may request that quarries or borrow pits are left open to serve as water pans. In these cases, the excavated areas should be landscaped in order to facilitate safe access to the water pans.
Setting up Workman's / Contractor's camp	Generation of solid and liquid waste	<ul style="list-style-type: none"> - Solid and liquid waste management plans to be developed for construction and operation phases. - Provide proper sanitation facilities to workforce
SOCIAL/SOCIO-ECONOMIC ISSUES		
Grazing land being taken for agriculture, consequently less land available and large numbers of livestock.	Land use conflicts arising between livestock keepers and farmers	<ul style="list-style-type: none"> - Develop land use plans that provide land for livestock grazing and watering points - Allow livestock access routes to water sources and grazing pastures.
Access to water and pasture for livestock blocked (eg. by cultivated fields, canals, or dams).		<ul style="list-style-type: none"> - Alternatively provide watering points for livestock located along on existing livestock routes to water and pasture, and through consultations with the communities
Livestock drinking water from canals damaging structures		<ul style="list-style-type: none"> - Sensitise communities on preventing livestock from drinking from canals and damaging irrigation infrastructure

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
		<ul style="list-style-type: none"> - Establish local monitoring system to reduce conflicts and manage them at early stage
Abstraction upstream of river source resulting in insufficient flow left in rivers downstream	Conflicts between upstream and downstream farmers	<ul style="list-style-type: none"> - Install water abstraction monitoring infrastructure (gauges) - Install infrastructure to measure flow levels in the river. - Determine and maintain environmental flow requirements taking into account human, livestock and ecological needs. - Train IWUOs in keeping monitoring records for abstraction and river flow, and manage use of irrigation water requirements during dry seasons
In-migration due to potential job opportunities, and spin off employment activities.	Growth of settlements due to induced in-migration	<ul style="list-style-type: none"> - Plan for population increase and consequent demand on public utilities - Dialogue between local leadership, farmers and immigrants - Initiate educational campaigns for HIV/AIDS awareness, drug abuse prevention, security, etc - Give employment preference to members of local communities
	Insecurity concerns among host communities	<ul style="list-style-type: none"> - Dialogue between local leadership, farmers and immigrants - Give employment preference to members of local communities
Setting up Workman's / Contractor's camp	Pressure on water sources, fuelwood /energy sources and other public services.	<ul style="list-style-type: none"> - Consult cell authorities to identify camp location. - Develop clear specifications for camps with regard to sanitation facilities, accommodation, provision of water, health and safety, etc.
	Competition for local food	<ul style="list-style-type: none"> - Contractor to supply workforce with food ensuring that local food supplies are not compromised in times of food shortages.
	Risks of increased rates of STIs, including HIV/AIDS	<ul style="list-style-type: none"> - Contractor to conduct HIV/AIDS prevention and awareness campaign targeting his workforce as well as local communities.
Permanent acquisition of land for scheme infrastructure including dams, canals, roads	Loss of land, (including agricultural land), structures, trees and crops	<ul style="list-style-type: none"> - Avoid physical or economic displacement if possible, or minimise as much as possible by changing siting of infrastructure - Develop land use plans to identify location of infrastructure and affected persons. - Verify identity of project affected people, particularly vulnerable people - Prepare RAP
		<ul style="list-style-type: none"> - Implement RAP. - Where land is available within the cell, land for land to be given. Otherwise compensation

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
		<p>to be paid for loss of crop production, in accordance with the national laws.</p> <ul style="list-style-type: none"> - Livelihood restoration activities to be implemented for severely affected PAPs
Temporary acquisition of land for construction camps	Loss of land, (including agricultural land), structures, trees and crops	<ul style="list-style-type: none"> - Compensation to be paid for all property on land to temporarily acquired for scheme works, including road construction and dam construction - Restoration/ rehabilitation of land acquired temporarily for construction purpose
Insufficient flow left in rivers downstream of schemes and dams Pollution of river water due leaching of agrochemicals into river	Threat to fisheries: loss of aquatic habitats, bio-magnification of toxins in tissues of aquatic fauna, and/or species die off	<ul style="list-style-type: none"> - Establish and maintain environmental flows - Careful application of agrochemicals, guided by an agrochemical management plan - Establish aquatic ecological baseline - Monitor water quality in rivers, downstream of diversion weirs and abstraction points.
Cash crops grown in preference to food crops – no provision made for growing food crops on schemes.	Food insecurity	<ul style="list-style-type: none"> - Promote production of food crops in parallel with cash crops - Provide support to farmers to improve food crop production - Introduce cash savings from crop sales for purchasing food especially during times of food shortages
Poor application and handling of agrochemicals resulting in farmers touching, inhaling or ingesting toxic chemicals	Health effects: respiratory, dermatological or gastric ailments, poisoning.	<ul style="list-style-type: none"> - Develop agrochemical management plan describing handling, storage, use and disposal of all agrochemicals used on the schemes. - Train farmers in the handling, storage, application and disposal of all agrochemicals.
Construction activities posing danger to site personnel (eg. working at heights, lifting, handling machinery, etc)	Occupational health and safety risks	<ul style="list-style-type: none"> - Contractor to ensure compliance with national OHS requirements and best practice - Site personnel to be properly trained in relevant OHS requirements to ensure their safety - Provide appropriate PPE to all construction workers and enforce use
Construction activities eg. excavation, heavy vehicle movement) posing danger to neighbouring communities	Health and safety risks (including accidents) to community as well as labour force	<ul style="list-style-type: none"> - Contractor and his labour force to be sensitised in regard to community health and safety, including safe driving, signage and cordoning off working areas. - Contractor to conduct sensitisation of communities in regard to hazards from construction activities.
Presence of a large permanent water body (dam)	Community health and safety risks eg. waterborne diseases such as malaria; incidences of drowning	<ul style="list-style-type: none"> - Conduct awareness campaigns on prevention and cure of waterborne diseases - Plant mosquito repelling plant species such as Artemisia, Neem and Geranium, around dams and schemes. Communities should also be encouraged to grow these species around their homes.

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
Excavation of borrow pits and quarries, in which may water accumulate	Community health and safety risks eg. waterborne diseases, danger of children/livestock falling into borrow pits/quarries	<ul style="list-style-type: none"> - Erect warning signs at possible entry/access points to dam
Failure of dam structures due to poor design and/or construction, excessive quantities of water stored behind them as a result of extreme rainfall events, or seismic movement	Community health and safety risks – loss of life, damage to property	<ul style="list-style-type: none"> - Cordon off all borrow pits/quarries to prevent children/livestock falling in - Materials sites should be excavated with specified entry and egress routes - Borrow pits and quarries should be excavated so that water drains out of them - Conduct awareness campaigns on prevention and cure of waterborne diseases - Plant mosquito repelling plant species such as Artemisia, Neem and Geranium, around dams and schemes. Communities should also be encouraged to grow these species around their homes.
Transient and immigrant labour for construction and spin off employment opportunities. Increased incomes in local communities leading to promiscuity.	Increase in the prevalence of HIV/AIDS and other STIs	<ul style="list-style-type: none"> - Ensure sound dam design, taking into account climatic, geological/seismic aspects. - Ensure dam maintenance – checking structures, desilting, etc - Prepare dam break analysis and emergency response plan
Children working on the schemes or associated spin off activities - for money (and in violation of national labour laws).	Children dropping out of school as employment is more attractive than school or because their families need the money	<ul style="list-style-type: none"> - Carry out situational analysis of HIV/AIDS in Project area - Workplace HIV/AIDS prevention and awareness programme
Construction traffic, excavation activities, immigrant labour with surplus cash.	Disturbance to the public, disruption of livelihoods and routines, dust emissions, nuisance	<ul style="list-style-type: none"> - Sensitise parents - If possible, introduce / strengthen provision of food in schools through KIIWP. - IWUOs should develop a labour policy prohibiting child labour
Construction traffic, and during operation tractors or carts for collection. More vehicular traffic due to improved roads/better access in the Project area.	Increased number of road accidents causing injury or loss of live	<ul style="list-style-type: none"> - Sensitisation / awareness raising among communities on Project details, timing etc. - Diligence on the part of contractor/ construction workers to minimise disturbance to communities
Proximity of schemes to national parks, or wildlife habitats (including wetlands)	Human-wildlife conflicts, including crop raiding	<ul style="list-style-type: none"> - Prepare and implement road safety programme - Construct diversions road to reduce inconvenience to road users - Improve footpaths along construction traffic routes so that pedestrians need not use the roads
		<ul style="list-style-type: none"> - Provide buffer zone between scheme and national park, wetlands, woodland/ forest based on discussions with ANP and on REMA regulations, applying precautionary principle for maximum buffer width for ANP and wetlands

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
		<ul style="list-style-type: none"> - Where possible, fence off schemes from wildlife habitats
	Poaching	<ul style="list-style-type: none"> - Raise awareness raising among scheme communities. - IWUOs to assist in monitoring poaching
Disturbance of graves within scheme areas.	Personal / emotional stress to relatives of the deceased if graves are to be relocated	<ul style="list-style-type: none"> - As far as possible avoid disturbing graves. - Identification and relocation of graves as per local customs and national laws
Destruction of, or damage to, physical cultural resources near or within scheme areas	Loss of cultural heritage or item of traditional value	<ul style="list-style-type: none"> - As far as possible avoid disturbing physical cultural resources - Develop a procedure to manage “chance finds” of cultural and traditional significance.
Clearing of, or inundation of, vegetation/woodlands and forest stands, resulting in destruction/loss of traditional plants, trees.	Loss of indigenous knowledge and cultural heritage	<ul style="list-style-type: none"> - Develop a procedure to manage culturally / traditionally important plants. - Identify and preserve traditional plants and trees having cultural/traditional value - Allocate special areas within the catchment conservation areas to grow and preserve indigenous tree/plant species of cultural value
CLIMATE-RELATED ISSUES		
Climate change resulting in reduced rainfall.	Unavailability of water for irrigation and downstream use, particularly in the dry season	<ul style="list-style-type: none"> - If feasible, design and install off river storage facilities to capture spate water. - Design and install water harvesting techniques to capture run off and run on. - Train IWUOs to manage use of irrigation water requirements during dry seasons. - Implement catchment rehabilitation/ protection interventions as proposed under KIIWP
Excessive rain, floods	Water logging, poor drainage, eventually causing salinization	<ul style="list-style-type: none"> - Provide drainage for access roads - Fields should have slight gradients so as to allow drainage of excess water - Maintain drainage canals and other drainage structures to regulate stormwater and runoff
	Soil erosion	<ul style="list-style-type: none"> - Control earthworks during construction. - Use zero-till/reduce till methods for land preparation - Install and maintain drainage structures to regulate stormwater and runoff/run on - Install and maintain erosion control measures
	Damage to crops, and therefore loss of income	<ul style="list-style-type: none"> - IWUOs to establish early warning systems - Develop alternative livelihood means through safety nets

Aspects/Causes of Impact	Environmental/ Social/Climate Impact	Mitigation Measures
Extreme climatic events such as excessive rain or prolonged drought	Pestilence	<ul style="list-style-type: none"> - IWUOs to establish early warning systems - Develop alternative livelihood means through safety nets
Clearing of vegetation for land preparation for cultivation, and other scheme infrastructure (including canals, roads, market sheds)	GHG emissions	<ul style="list-style-type: none"> - Adopt zero tillage so carbon is stored in soils, and less carbon released to the air - Adopt best practices for soil management (aeration, careful application of inputs) to minimise emissions of ammonia and nitrates.
Tilling land releases carbon stored in soil.		
Excessive use of fertilizers where unabsorbed ammonia and nitrates may subsequently be released into the air.		
Clearing of vegetation during scheme construction and for cultivation of crops	Carbon releases	<ul style="list-style-type: none"> - Green crop production including adopting conservation agriculture techniques - Woodlot afforestation - Implement a re-afforestation programme

7.3.2 Catchment Rehabilitation and Protection

Table 7.2 presents typical impacts resulting from interventions for catchment rehabilitation and protection. Although catchment rehabilitation and protection are intended to improve environmental conditions in catchment areas, some interventions could have adverse impacts. The most significant ones relate to:

- Denied or hindered access to natural resources or grazing areas;
- Failure of structures due to poor design and/or construction, mining;
- Use of exotic species for slope protection.
- Soil erosion caused by excavation works;
- Loss of biodiversity due to clearing of vegetation;
- Loss of land, crops or assets due to land take for catchment protection sites;
- Destruction of physical cultural resources due to land take.
- Climatic events resulting in soil erosion, failure of structures;
- Impacts on community health and safety from possible failure of structures.

Table 7.2 Typical Impacts from Catchment Rehabilitation and Protection Interventions

Aspects/Causes of Impact	Environmental / Social Impact	Mitigation Measures
ENVIRONMENTAL ISSUES		
Failure of structures due to poor design and/or construction (eg. check dams, catchwater drains).	Soil erosion, gully formation	<ul style="list-style-type: none"> - Ensure sound design of all structures, considering soil susceptibility to erosion - Ensure structures are continuously and routinely maintained – checking structures soundness (erosion around edges), desilting, etc
Failure of structures due to mining of terraces for minerals		<ul style="list-style-type: none"> - Sensitise communities on the importance of maintaining and need for protecting structures

Aspects/Causes of Impact	Environmental / Social Impact	Mitigation Measures
Soil erosion due to clearing activities before replanting for conservation.	Deterioration of water quality	<ul style="list-style-type: none"> - Minimise/prevent soil erosion by controlling earthworks, installing and maintaining drainage structures and erosion control measures
Erosion caused by rain, runoff and wind.		
Clearing activities before replanting	Loss of native/endemic species	<ul style="list-style-type: none"> - Identify and preserve endemic plants and trees - Allocate special areas within catchment conservation areas to grow and preserve native/endemic tree and plant species
Use of exotic plant species in catchment rehabilitation/protection and soil conservation activities	Spread of invasive species	<ul style="list-style-type: none"> - Use only exotic species that are already commonly found and used in the Project area, and approved by district environmental authority - Manage the growth of exotic species so that they do not spread beyond the desired area and do not threaten native/endemic species - Avoid use of genetically modified forage crops
SOCIAL/SOCIO-ECONOMIC ISSUES		
Grazing land being taken for catchment protection activities	Land use conflicts arising between livestock keepers and farmers	<ul style="list-style-type: none"> - Develop land use plans that demarcates land for livestock grazing and land for agriculture and catchment protection - Grow fodder as part of catchment rehabilitation and protection activities which can be sold or given to the livestock owners - Make provision for livestock access routes to other grazing areas. - LWUOs to establish local monitoring system to pre-empt and reduce conflicts and manage them at the earliest stages
Permanent acquisition of land for catchment rehabilitation and protection	Loss of land, (including agricultural land), structures, trees and crops	<ul style="list-style-type: none"> - Avoid physical or economic displacement if possible, or minimise as much as possible by changing siting of proposed catchment protection area - Develop land use plans to identify location of catchment areas and affected persons within these areas. - Verify identity of project affected people, particularly vulnerable people - Prepare RAP - Implement RAP. - Where land is available within the cell, land for land to be given. Otherwise compensation to be paid for loss of crop production, in accordance with the national laws. - Implement livelihood restoration activities for severely affected PAPs
Failure of structures due to poor design and/or construction	Community health and safety risks	<ul style="list-style-type: none"> - Ensure sound design of all structures, taking into account soil susceptibility to erosion

Aspects/Causes of Impact	Environmental / Social Impact	Mitigation Measures
		<ul style="list-style-type: none"> - Ensure structures are continuously and routinely maintained – checking structures for soundness (cracks, erosion around edges), desilting, etc
Disturbance of graves within catchment protection areas	Personal / emotional stress to relatives of the deceased if graves are to be relocated	<ul style="list-style-type: none"> - As far as possible avoid disturbing graves. - Identification and relocation of graves as per local customs and national laws
Destruction of, or damage to, physical cultural resources near or within areas where catchment rehabilitation and protection activities take place	Loss of cultural heritage or item of traditional value	<ul style="list-style-type: none"> - As far as possible avoid disturbing physical cultural resources - Develop a procedure to manage “chance finds” of cultural and traditional significance.
Destruction/loss of plants or trees of cultural or traditional significance	Loss of indigenous knowledge and cultural heritage	<ul style="list-style-type: none"> - Develop a procedure to manage culturally / traditionally important plants. - Identify and preserve traditional plants and trees having cultural/traditional value - Allocate special areas within the catchment conservation areas to grow and preserve indigenous tree/plant species of cultural value
CLIMATE-RELATED ISSUES		
Failure of structures due to excessive rain	Soil erosion, gully formation, downstream flooding	<ul style="list-style-type: none"> - Ensure sound design of all structures which must consider resilience to severe climatic events - Ensure structures are continuously and routinely maintenance – checking structures soundness (cracks, erosion around edges), desilting, etc - Sensitise communities on the importance of maintaining and need for protecting structures
Prolonged dry season or drought	Poor survival rate of saplings	<ul style="list-style-type: none"> - Establish nurseries to replace dead trees

7.3.3 Provision of Water for Livestock and Domestic Use

Typical impacts resulting from construction and rehabilitation of valley tanks, and from the drilling of boreholes are summarised in Table 7.3 below. The most significant adverse impacts are likely to be:

- Soil erosion caused by excavation works and concentration of livestock around valley tanks and boreholes;
- Poorly managed upper catchment area leading to siltation of valley tanks;
- Loss of biodiversity due to flooding of land for valley tanks;
- Loss of land, crops or assets due to land inundated by new valley tanks;
- Destruction of physical cultural resources due to land take for valley tanks.
- Impacts on groundwater aquifers from over-abstraction of water at boreholes;
- Reduction in water availability in tanks and lowering of aquifer levels due to climatic events, such as prolonged dry seasons;
- Flooding due to climatic events resulting in soil erosion, siltation of tanks, overflowing or failure of tank structure, or damage to borehole infrastructure;
- Impacts on community health and safety from construction activities, or as a result of tank structure failure;

- Human/wildlife conflict due to hippos inhabiting valley dams.

Table 7.3 Typical Impacts from Interventions to Provide Water for Livestock and Domestic Use

Aspects/Causes of Impact	Environmental / Social Impact	Possible Mitigation Measures
ENVIRONMENTAL ISSUES		
Excavation and clearing activities, including removal of vegetation for construction of new valley tanks and rehabilitation of existing ones. Rain, runoff and wind.	Soil erosion	<ul style="list-style-type: none"> - Control earthworks - Install and maintain drainage structures to regulate stormwater and runoff/run on - Install and maintain erosion control measures
Failure of valley tank structures due to poor design and/or construction	Soil erosion, gully formation due to large amounts of water being released from tank	<ul style="list-style-type: none"> - Ensure sound design of all structures, taking into account soil susceptibility to erosion - Ensure structures are continuously and routinely maintained – checking structures soundness (cracks, erosion around edges), desilting, etc - Establish buffer zone requirement taking into consideration climatic conditions and land status (in terms of degradation), runoff volumes, but also applying precautionary principle where maximum width is 50m where information is not available - Prepare analysis of risks of tank structure failing, and emergency response plans
Concentration of livestock around valley tanks and boreholes	Soil erosion, soil compaction, overgrazing	<ul style="list-style-type: none"> - Control access to water sources by livestock. - Rehabilitate degraded areas
Livestock watering directly in valley tanks	Deterioration of water quality in valley tanks (due to eutrophication)	<ul style="list-style-type: none"> - Fence off valley tanks - Provide watering point/trough outside fenced area with controlled access
Clearing activities for new valley tanks	<p>Deterioration of water quality in downstream water sources due to soil erosion</p> <p>Loss of native/endemic species</p>	<ul style="list-style-type: none"> - Minimise/prevent soil erosion by controlling earthworks, installing and maintaining drainage structures and erosion control measures - Identify and preserve endemic plants and trees, assess impacts of clearing on native/endemic species - Allocate special areas to grow and preserve native/endemic tree/plant species
Inundation of land for valley tanks	Loss of biodiversity and ecosystem services	<ul style="list-style-type: none"> - Assess impacts of land inundation on biodiversity and ecosystem services, and propose necessary mitigation
Degradation of catchment areas due to poor agricultural practices, overgrazing	<p>Unavailability/reduction of water supply, particularly in the dry season</p> <p>Siltation of valley tanks</p>	<ul style="list-style-type: none"> - Implement catchment rehabilitation/protection interventions under KIWP - Minimise/prevent soil erosion by controlling earthworks, installing and maintaining drainage structures and erosion control measures
Over-abstraction of water from boreholes	Unavailability of water for livestock and domestic supply	<ul style="list-style-type: none"> - Install water abstraction monitoring infrastructure

Aspects/Causes of Impact	Environmental / Social Impact	Possible Mitigation Measures
		<ul style="list-style-type: none"> - Install infrastructure to measure flow levels in the river or discharge rates for groundwater - Train IWUOs in keeping monitoring records for abstraction
SOCIAL/SOCIO-ECONOMIC ISSUES		
Acquisition of land for new valley tanks including inundated land and buffer zone	Loss of land, physical and economic displacement, including land take for agricultural land, structures, trees and crops, and buffer zones.	<ul style="list-style-type: none"> - Verify identity of project affected people, particularly vulnerable people - Establish land area, assets and crops lost/affected - Prepare RAP
Grazing land being taken new valley tanks	Land use conflicts arising between livestock keepers, farmers and other water users	<ul style="list-style-type: none"> - Implement RAP. - Where land is available within the cell, land for land to be given. Otherwise compensation to be paid for production, in accordance with the national laws. - Livelihood restoration activities to be implemented for severely affected PAPs
Dangerous wildlife (eg. hippopotamus) inhabiting valley tanks	Danger to livestock keepers and community	<ul style="list-style-type: none"> - Develop land use plans that provide land for livestock grazing and watering points - Locate site of valley tank based on discussions with livestock keepers and farmers and other water users
Failure of structures due to poor design and/or construction	Community health and safety risks	<ul style="list-style-type: none"> - Fence off tanks - Ensure that a watchman is on duty at all times to warn tank users.
Disturbance of graves within valley tank area to be inundated	Personal / emotional stress to relatives of the deceased if graves are to be relocated	<ul style="list-style-type: none"> - Ensure sound design of all structures, taking into account soil susceptibility to erosion - Ensure structures are continuously and routinely maintained – checking structures soundness (cracks, erosion around edges), desilting, etc - Prepare analysis of risks of tank structure failing, and emergency response plans
Destruction of, or damage to, physical cultural resources within valley tank land to be inundated or acquired for buffer zones	Loss of cultural heritage or item of traditional value	<ul style="list-style-type: none"> - As far as possible avoid disturbing graves. - Identification and relocation of graves as per local customs and national laws
Destruction/loss of traditional plants, trees due to clearing for valley tank or inundation	Loss of indigenous knowledge and cultural heritage	<ul style="list-style-type: none"> - As far as possible avoid disturbing physical cultural resources - Develop a procedure to manage “chance finds” of cultural and traditional significance.
		<ul style="list-style-type: none"> - Identify and preserve traditional plants and trees having indigenous value - Develop a procedure to manage “chance finds” of cultural and traditional significance. - Allocate area near tank to grow and preserve indigenous tree/plant species of cultural value

Aspects/Causes of Impact	Environmental / Social Impact	Possible Mitigation Measures
Lack of, or poor, maintenance of valley tanks and boreholes	Reduced or no water for livestock and domestic use	- Train IWUOs to manage and maintain valley tanks and boreholes
CLIMATE-RELATED ISSUES		
Failure of structures (eg. tanks, pipes, troughs, water points) due to excessive rain	Soil erosion, gully formation, downstream flooding	<ul style="list-style-type: none"> - Ensure sound design of all structures which must consider resilience to severe climatic events - Ensure structures are continuously and routinely maintained – checking structures soundness (cracks, erosion around edges), desilting, etc - Prepare analysis of risks of tank structure failing, and emergency response plans - Sensitise communities on the importance of maintaining and need for protecting structures
Prolonged dry periods leading to drought	Reduction of water availability in valley tanks, and lowering of groundwater aquifers due to insufficient recharge	<ul style="list-style-type: none"> - Institute water conservation practices and water use management to save available water, eg. maintenance of tank structures to minimise leaks, planting trees around tanks to reduce evaporation. - Implement re-afforestation programmes to create micro-climates
Clearing of vegetation for valley tanks	Carbon releases	<ul style="list-style-type: none"> - Offsetting through woodlot afforestation or re-afforestation initiatives

7.4 Cumulative and Synergistic Impacts

Cumulative environmental and social impacts are those that result from “the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones”⁴⁵. Thus, cumulative impacts occur when several developments of a similar or different nature, and within the same project/programme or from unrelated projects, result in a combined effect on the biological, physical or social environments. They may be caused by past, current and future activities.

In the context of KIIWP, for example, valley tanks may be located such that they collect runoff from only one micro-catchments, thus compromising the amount of water that can be stored in each tank. Similarly, if two irrigation schemes were to use the same water source, that water source may become stressed particularly in the dry season. Or if an agro-processing plant is releasing effluent into a river, and an irrigation scheme located downstream is using the same river, the quality of water downstream of the scheme will be affected by both the effluent agro-processing plant and leaching of agrochemicals from the irrigation scheme. A synergistic impact occurs when two or more factors produces an effect greater than the sum of their individual impact. An example of a synergistic impact would be if an agro-processing plant is being planned or built under an altogether different project but is located close to a proposed irrigation scheme, this may influence the types of agricultural produce that the farmers will want to grow. This is both beneficial to the agro-processing plant as well as to

⁴⁵ IFC (2013). Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets – Good Practice Handbook.

the farmers. Similarly, if a new road is going to be constructed, this will open up markets for produce beyond the village or cell, and on the other hand, the road becomes economically more feasible.

ESIAs and ESMPs conducted for KIIWP subprojects will therefore have to establish other economic and development activities in the district, sectors and villages to determine the types of cumulative and synergistic impacts that may result from such activities on, or due to, the biological, physical and social environments that may affect KIIWP activities.

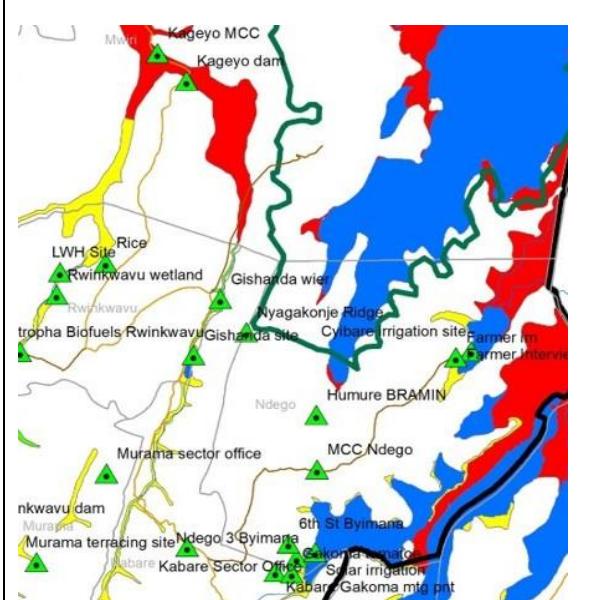
7.5 Site Specific Environmental, Social and Climate Observations

This section focuses mainly on the proposed irrigation schemes and dams, as sites for catchment rehabilitation and protection, valley tanks and boreholes have not as yet been identified, and highlights specific issues that were observed during the site visits which have implications on design and/or scheme environmental and social sustainability, and climate resilience.

7.5.1 Ndego Sector

Humure Pumped Irrigation Scheme

- Source: The source of water for the scheme is Lake Ihema. The scheme will be located about 500m away from the lake and the command area will cover 600 ha. The lake is part of the Akagera Wetlands Complex, and most of it lies within the Akagera National Park. The proposed intake is located at the tip of an arm of the lake that protrudes outside the park.
- Protected area: The actual abstraction point has not been identified at this stage. But most of the tip of Lake Ihema from where water is to be abstracted is a totally protected wetlands. The Bramin scheme adjacent to the Humure site takes water from a small section of the shoreline that lies between the Akagera National Park and the protected wetlands along the shoreline that lie outside the park. It should be highlighted that IFAD will not support and developments that could affect potentially critical habitats, and therefore an alternative intake site may need to be identified. Otherwise SECAP requires that an ecological risk assessment, scenario planning and adaptive management strategy if abstraction from the protected wetlands to be considered (Guidance Statement #1).
- Pollution: The command area slopes towards Lake Ihema (albeit gently), and therefore the lake is a potential receptor for agri-pollutants as well as sedimentation from soil erosion.
- Land take: Although land take will be minimised as the target beneficiaries are those farmers who already have land within the command area, land take will be necessary for rising main, tank and conveyance pipes/canals, workshops and ancillary infrastructure.
- Human/wildlife conflict: Farmers indicated that, although the ANP boundary itself is fenced, there have been cases where hippos and baboons have raided their farms, leading to loss of crops. The irrigated fields under the proposed subproject may attract more wildlife to raid the farms.
- Access to water for livestock: Cattle pass through the proposed scheme site to access water, and the scheme is likely to block the access currently used. This triggers FPIC. Alternative watering sites will therefore have to be considered, and this must be done in collaboration and through consultation with the livestock keepers and farmers.
- Community requests: The community have expressed the need for their involvement during scheme design. They also wanted to discuss their contributions in terms of what and how much they can and cannot contribute.

	
<p>Google Earth image of part of the Project area showing Lakes Ihema, Kibare and Nasho, Bramin Scheme</p>	<p>Map of same part of the Project area indicating potential sites, Lakes Ihema, Kibare and Nasho, and Bramin Scheme</p>

Kibare Pumped Irrigation Scheme

- Source: The source of the scheme is Lake Kibare, which is part of the Akagera Wetland Complex. The scheme will be located about 500m away from the lake. The command area will cover 400ha.
- Pollution: The command area slopes towards Lake Kibare (albeit gently), and therefore the lake is a potential receptor for agri-pollutants as well as sedimentation from soil erosion.
- Wetlands: Along a part of the lake shore, a trench demarcates the buffer zone between the wetlands bordering the lake (protected area). Some parts of the lake shore are totally protected, and other parts are conditionally protected. Therefore, the intake should be located with care so as to avoid the totally protected wetland areas. The EIA certificate issued by RDB will give conditions for development in conditional wetlands and these must be adhered to. In addition, IFAD does not invest in projects that could affect critical habitats or that may result in the degradation of such habitats. For projects that are located in wetland areas, IFAD's SECAP requires an ecological risk assessment, scenario planning and adaptive management strategy (Guidance Statement #1). IFAD will also indicate measures to protect the wetlands which will be included in the loan agreement.
- Human/wildlife conflict: Farmers reported that their farms are frequently raided by hippos which reside in the lake and also baboons. This has led to substantial loss of crops, and poses a danger to farmers as well. The Project aims to enhance crop yields, but this may also result in increased raiding by wildlife.
- Social integration: The farmers in this area have not worked together before. They need clarity on what the Project involves, and were concerned about how benefits and farming activities are shared through a cooperative, especially in cases where some farmers have large plots and others have small ones.
- Grievance redress: Various grievance redress mechanisms are in place: i) Gacaca system which was established to resolve issues after the genocide; ii) cooperatives have a social affairs committee who will first receive the complaint, after which it goes to the village; iii) there is also a local government grievance redress system.

Byimana Pumped Irrigation Scheme

- **Source**: The source of the scheme is Lake Nasho, which is part of the Akagera Wetland Complex. The scheme will be located about 500m away from the lake. The command area will cover 400ha.
- **Wetland**: The source lies in a conditional wetland and therefore conditions will be imposed by RDB and IFAD for the construction of the scheme.
- **Pollution**: The command area slopes towards Lake Nasho, and therefore the lake is a potential receptor for agri-pollutants as well as sedimentation from soil erosion.
- **Access to grazing**: Here again, the scheme may hinder access by livestock keepers to grazing or indeed take up grazing land, and this would trigger FPIC. Access to grazing must be ensured through consultations with the livestock keepers and farmers.
- **Cooperatives/Scheme Management**: The community have had some bad experiences with previous cooperatives – one where maize was grown, harvested but no one came to collect the maize. They feel they have lost a lot of investment (time, money). There was an initiative by the army to provide pumps to grow potatoes, but the farmers didn't have the capacity to manage the pumped scheme – did not have money to buy fuel. In another case, a REMA supported solar-powered scheme was set up by the lake - this has not been functional for about 7 years as one component for the solar pumps was missing and the community haven't been able to get it/have been waiting for it to be installed. Farmers indicated that they do not understand or don't have time for paperwork, so getting finances from banks is a problem.
- **Community contributions**: The community indicated that they were cash strapped, so would not be able to contribute to the Project up front. They would therefore like the Project to support them fully for a few years in the initial stages to buy inputs and manage the scheme.
- **Power Supply**: The Rural Dairy Development Programme (RDDP) is supporting the installation of infrastructure for an electricity supply line to Ndego for the Milk Collection Centre. It may be possible to tap into this power source for the scheme pumps.

7.5.2 Kabare Sector

Gakoma Pumped Irrigation Scheme

- **Source**: The source of the scheme is Lake Nasho, which is part of the Akagera Wetland Complex. The scheme will be located about 500m away from the lake. The command area will cover 600ha.
- **Wetland**: The source lies in a conditional wetland and therefore conditions will be imposed by RDB and IFAD for the construction of the scheme.
- **Pollution**: The command area slopes towards Lake Nasho, and therefore the lake is a potential receptor for agri-pollutants as well as sedimentation from soil erosion.
- **Access to grazing**: In the dry season, cattle use this area for grazing. The scheme may hinder access by livestock keepers to grazing or take up their grazing land, triggering FPIC. Access to grazing must be ensured through consultations with the livestock keepers and farmers.
- **Road access**: Road access to this site is poor.
- **Cooperatives**: Many of the farmers already belong to cooperatives and are therefore familiar with how they work, and what will be required of them.
- **Grievance Redress Mechanism**: These are already in existence. If there is any conflict to do with land, etc, in the cooperatives ask neighbouring cooperatives to mediate. The cooperatives have different zones and each zone has a leader. So, grievances first go to the zone leader, then to the cooperative management, then village authorities.
- **Community requests**: They community wanted to be involved in the Project design at the earliest stages. Some farmers also mentioned experiences from the Buffet project in Kirehe

where the inputs cost more than the farmers received for their crops. The farmers were therefore not any better off, in fact felt they were poorer.

Gishanda Marshland Irrigation Scheme

- **Source:** The source of this scheme is Lake Gishanda, which reportedly a man-made water body. The plan would be to increase the dam wall here to collect more water. The site lies on the border of Kabare Sector and Rwinkwavu Sector.
- **Environmental flow:** Some farmers have dammed the river downstream of the proposed dam and scheme site where they practice fish farming. It is therefore important that the dam does not adversely affect their fishing activities.
- **Pollution.** Leached agrochemicals from the scheme may affect the water quality, and therefore the fish that are being bred in the fish farms.



Weir downstream of Gishanda Dam location

7.5.3 *Rwinkwavu Sector*

Gishanda Marshland Irrigation Scheme

- As above.

Rwinkwavu Watershed

- **Terracing:** There are no terraces so these will have to be constructed, farm level rainwater harvesting and agroforestry proposed.

- Current downstream activities: Extensive cultivation of rice are being carried out here. This is an extension of the LWH/RSSP scheme that takes water from the Rwinkwavu Dam on the border of Murama and Kabarondo Sectors.

7.5.4 Murama Sector

Ngoma Watershed

- Terracing: There are 990 ha of terraces existing already, but there is a shortage of water for growing crops. Farm level ponds have therefore been recommended here.
- Community requests: The area targeted for watershed activities lies on both sides of the Rwinkwavu Dam which was built to irrigate rice in Rwinkwavu, but is located on the boundary of Murama and Kabarondo sectors. Communities in Murama and Kabarondo Sectors feel that Rwinkwavu is benefiting from water sourced from their counties, yet they are struggling to farm. Farmers would also like to fish farm using cages where the Ngoma stream meets the Rwinkwavu dam.

7.5.5 Kabarondo Sector

Rwakigeri Watershed

- Terracing: The target area is very hilly, and at present there is no terracing. Consequently, it is prone to serious erosion.

Kanyeganyege Marshland Irrigation Scheme

- Source: The proposal is to build a dam on the Kanyeganyege River. The community reported that the river has never been dry.
- Environmental flow: Downstream from the proposed dam site, there is a very successful cooperative that operates a rice scheme, which also draws its water from the Kanyeganyege River. It is therefore important to maintain an environmental flow in the river, which will not affect that rice scheme.

7.5.6 Mwiri Sector

Kageyo Valley Dams/Boreholes

- Farmers capacity: LWH has rice fields here but these are not in good condition – the project is closing down in October 2018. This implies that there is a strong need for capacity building to ensure sustainability: farmers must not rely on the project for inputs and scheme management.
- Wetlands: There is potential for farming approx. 200ha in the marshlands just below Kageyo village. The wetland map shows this is a protected marshland, but there is agriculture going on here and cattle grazing. Some marshlands have been created as a result of access roads being constructed for the LWH rice scheme.
- Groundwater: There are no groundwater sources as far as the community know. So the options for water sourcing are rainwater and surface water
- Valley dams: In the past the government had put up valley tanks downstream of agriculture and grazing areas, but these got silted up very quickly (due to erosion of soils).
- Access to water resources: Water is being used for rice cultivation. There may be conflict between rice farmers and livestock keepers. REMA introduced bamboo planting around the wetlands as a buffer and have fenced off these areas. Consequently, access to water for livestock has been blocked.

7.5.7 Gahini Sector

Nyabombe and Rukore Kahi Valley Dams/Boreholes

- Sites: The locations for valley dams and boreholes have not been established as yet.
- Wetlands: There is a long stretch of conditional wetlands that runs from just north of Kageyo village through Gahini Sector.

7.5.8 Murundi Sector

Gakoma and Rwakabanda Valley Dams/Boreholes

- Sites: The locations for valley dams and boreholes have not been established as yet.
- Wetlands: At the end of the 45km stretch proposed for livestock interventions, there is a dam (Musenyeni Dam). The Sector Executive Secretary, the entire stretch of wetland from north Mwiri to Murundi is a totally protected wetland – this was confirmed by the updated wetland map (see Section 5.2.5, Map 5.9).

8 Climate Risk Assessment

8.1 Introduction

The main justification for the proposed KIIWP Project the mitigation of frequent drought occurrences that may be exacerbated by the effects of climate change that include reported persistent crop failures due to moisture stress, crop diseases and pest attacks. Studies indicate that temperatures are expected to rise across the country with increased rainfall in high areas of the country and significant reductions in the low-lying eastern parts of the country including Kayonza District. Kayonza District lie within the highest climate change vulnerability index indicated for the Eastern Province. Catchment rehabilitation, development of infrastructure for irrigation and for livestock consumption by the KIIWP Project are expected to relieve the effects of the persistent drought occurrences.

8.2 Climate Risk Analysis

8.2.1 Key Considerations

The KIIWP target beneficiaries are households who depend on rainfed subsistence agriculture and livestock husbandry. Residents of the Ndego, Kabare, Murama, Kabarondo, Rwinkwavu, Mwiri, Gahini and Murundi sectors testified to persistent crop failures and expressed to droughts as their greatest livelihoods threat.

Although the proposed Project area has lower rainfall than the rest of the country, it suffers frequent extreme weather events that include high winds during the rainy season that destroy trees and crops as well as blowing away roofs. The communities have adopted a building design whereby walls are made higher than the roofs to prevent them from being blown off by high winds. As mentioned above, the area is also prone to dry spells during the growing seasons and fully-fledged droughts with the negative effects already discussed.

The Project interventions are designed to mitigate changes in temperature, rainfall and extreme weather and would not be affected by same. However, the one of the main components of the Project involves of the abstraction of water for irrigation from the Akagera lake-wetland complex which includes Lakes Ihema, Kibare and Nasho in the Lower Akagera Catchment. The Akagera River conveys flow from four upstream large perennial rivers, these being the Nyabarongo and Mukungwa Rivers in Rwandan territory, as well as Akanyaru and Ruvubu Rivers from Burundi running north through territories of Uganda and Tanzania into Lake Victoria to become the Nile river.

The Lower Akagera Master Plan provides detailed information of the water balance in the catchment and indicates surface water supply data for potential irrigable areas with more than adequate surplus for environmental flow. The master plan discusses the 'reverse' flow pattern that fills up the lakes when the Akagera River is in flood from rainfall in the upstream catchments. The Master Plan argues that in case of substantial abstraction from the lakes for irrigation, the deficit would be filled from the river. However, the Master Plan does not take due consideration of climate change scenarios based on the indications that temperatures will continue to rise across the country in the long term with significantly increased rainfall in the higher-lying upstream catchments and significantly reduced rainfall in the eastern low-lying eastern catchments that include the proposed Project area. Climate change scenarios on one-way inter-basin transfer into the Lower Akagera with its own contribution diminished could impact on the hydrological balance including the necessary environmental flow. The Project would therefore benefit from a detailed hydrological study that take into account the long term climate change impact scenarios.

The Project is likely to alleviate opportunistic pests and diseases that take advantage of moisture stress and compromised immune systems of livestock due to inadequate forage and drinking water as well as aiding the spread of contagious diseases such as foot and mouth disease. However, there may be an increase in vector-borne diseases such as malaria and diseases caused by ticks. However, interventions involving irrigation are known to be associated with such vectors and therefore preventive measures should be considered in the Project design.

Weather-related risks or climate extremes could impact upon harvest and post-harvest stages of key value chains in the Project. Value chains for the Project have not yet been identified. Subsequent studies should address the possible weather and climate change in the value chains that will be identified.

8.2.2 Risk Classification

The purpose of climate risk screening is to determine the exposure of the Project to climate-related risks (High, Moderate or Low) based on available information about historic climate hazard occurrences, current climate trends and future climate change scenarios, as well as to assess the likelihood of the Project increasing the vulnerability of the expected target populations to climate hazards. It provides an opportunity to integrate climate issues into Project design and therefore increase Project resilience and hence sustainability.

IFAD's climate risk screening criteria are presented in Table 8.1 below.

Table 8.1 Climate Risk Screening

Climate Categorisation	Types of Projects
High Risk	Projects that promote agricultural activity on areas subject to extreme climatic events, such as flooding, drought, tropical storms or heat waves
	Projects where climate scenarios for the area foresee changes in temperature, rainfall or extreme weather that will adversely affect project impact, sustainability or cost over its lifetime;
	Projects that promote agricultural activity on marginal and/or highly degraded areas (such as on hillsides, deforested slopes or floodplains).
	Projects in areas in which rural development projects have experienced weather-related losses and damages in the past.
	Projects that establish infrastructure in areas with a track record of extreme weather events (e.g. water points in drought-prone areas)
Medium Risk	Projects that target groups entirely dependent on natural resources (such as seasonal crops, rainfed agricultural plots, migratory fish stocks) that have been affected by in the last decade by climate trends or specific climatic events;
	Projects where climate variability is likely to affect agricultural productivity (crops, livestock and fisheries) access to markets and/or the associated incidence of pests and diseases for the project target groups;
	Projects investing in climate-sensitive livelihoods that are diversified;
	Projects investing in infrastructure that is exposed to infrequent extreme weather events;
	Projects investing in institutional development and capacity-building for rural institutions (such as farmer groups, cooperatives) in climatically heterogeneous areas;
Low Risk	Projects that have the potential to become more resilient through the adoption of green technologies at a reasonable cost;

Climate Categorisation	Types of Projects
	Projects with opportunities to strengthen indigenous climate risk management capabilities;
	Projects with opportunities to integrate climate resilience aspects through policy dialogue to improve agricultural sector strategies and policies;
	Projects with potential to integrate climate resilience measures without extensive additional costs (e.g. Improved building codes, capacity-building, or including climate risk issues in policy processes);
	Projects that would benefit from a more thorough climate risk and vulnerability analysis to identify the most vulnerable rural populations, improve targeting, and identify additional complementary investment actions to manage climate risks.
Low Risk	Projects that are not likely to be vulnerable to climate risks and thus voluntary measures could be incorporated into the detailed design and implementation phases based on the SECAP project assessment recommendations. These projects generally focus on investments which do not have a direct physical or geographical interface with climate hazards (such as the development of a micro-finance institution).

Source: IFAD (2017), SECAP

According to SECAP's climate risk classification guidelines as described the Table 8.1 above, KIIWP is classified as high risk because:

- It promotes agricultural activity on areas subject to extreme climatic events, such as flooding, drought, tropical storms or heat waves;
- Climate scenarios for the Project area foresee changes in temperature, rainfall or extreme weather that will adversely affect the Project's impact, sustainability or cost over its lifetime;
- The Project promotes agricultural activity on marginal and/or highly degraded areas (such as on hillsides, deforested slopes or floodplains);
- The Project lies in an area which regularly experiences weather-related losses and damages.

The Project is considered high risk, although the Project interventions themselves are intended to reduce vulnerability to the effects of climate change. It is therefore recommended that an in-depth climate risk analysis be undertaken prior to the full design of the Project in order to inform the design and decision-making processes.



Gakoma Site

8.3 Climate Risk Resilience Measures

All the three components of the Project are aimed at climate resilient agriculture and livestock husbandry. However, due consideration of climate change factors must be given in the planned hydrological studies to be prepared as part of the suite of investigations to be carried out during the Project feasibility studies.

9 Summary of the Resettlement Action Framework

This chapter presents a summary of the Resettlement Action Framework (RAF) proposed for KIIWP. The RAF itself is presented in Annex 4 of this ESMF.

9.1 Approach to the Preparation of a Resettlement Action Plan for KWIIP

SECAP's Guidance Statement #13 on Physical and Economic Resettlement defines resettlement not only as the physical relocation of people but also as restrictions on or loss of access to means of livelihoods. Specifically, physical displacement refers to relocation, loss of residential land, or loss of shelter, while economic displacement implies the loss of land, assets, access to assets, income sources, or means of livelihoods. Physical and economic resettlement could be either agreed/negotiated or involuntary - the two settings have very different implications for IFAD, as explained below:

- Involuntary Resettlement: Resettlement is considered involuntary when affected people or communities do not have the capacity to refuse it – because the free, prior and informed consent (FPIC) principle is not properly implemented and they do not have power of choice – or their rights to refuse it are over-ridden by national law or are simply denied.
- Agreed/Negotiated Resettlement: There is agreed/negotiated resettlement when, in the respect of the do-no-harm principle and after having properly informed people and gone through the FPIC process, people potentially involved in the resettlement agree on being relocated and/or selling or relinquishing access to assets, against fair and timely compensations for their losses.

The preparation of a RAP that may be required for any KIIWP scheme should take direction from the principles of free prior and informed consent and “do no harm”. IFAD’s Land Policy requires involuntary resettlement to be avoided wherever possible. IFAD’s Land Policy specifies that “while working on ‘doing good’, IFAD will adhere to a ‘do no harm’ principle at all times, so as to minimize physical and potential economic impacts”. The policy requires all viable alternative Project designs to be explored in order to address risks of physical and economic displacement, and it also stipulates the need to restore livelihoods to improve the standards of living of affected persons. The approach and level of measures taken should be proportional to the range of IFAD’s operations. Hence IFAD’s principles with regard to physical and economic displacement are:

- IFAD will avoid or minimize wherever possible any physical or economic resettlement that could negatively impact the affected people; in any case this should be only for a common interest (such as in an irrigation scheme benefitting IFAD’s target groups) and based on positive outcomes of FPIC.
- All land and natural resource users with a legitimate claim will be recognized—including people having informal/customary rights.
- No affected person will be left worse off, and preferably should be left in a better position than before, through proper and timely compensation or any other mitigation measures agreed upon.

The RAP should also be guided by the IFC’s Performance Standard 5 on Land Acquisition and Involuntary Resettlement⁴⁶, which describe the principles of Involuntary Resettlement as:

⁴⁶ IFC (2012); IFC Performance Standards: Performance Standard 5 – Land Acquisition and Involuntary Resettlement. https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps5sustainability-at-ifc/policies-standards/performance-standards/ps5

- Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative Project designs;
- Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the Project to share in Project benefits.
- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of Project implementation, whichever is higher.

Thus, objectives of the RAP will be to:

- To avoid, and when avoidance is not possible, minimize displacement by exploring alternative Project designs;
- To avoid forced eviction;
- To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected;
- To improve, or restore, the livelihoods and standards of living of displaced persons;
- To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.

9.2 Methodology for RAP Preparation

The general steps in preparing a RAP are described below, while detailed methodology and guidelines for RAP preparation and implementation is provided in the Resettlement Action Framework in Annex 4.

Desktop Research

Familiarisation with the Project context, components and implementation modalities will be obtained through review of various documentation. From information available on the potential KIIWP schemes (such as the socio-economic and hydrological studies conducted as part of the Feasibility and Design), pumped irrigation schemes, dam construction and land husbandry works requiring major resettlement will be identified, and an estimate will be made of the number of people likely to be affected. Maps and drawings will be referred to where available.

Legal Framework

A number of policy legal instruments, which govern issues pertaining to compensation and resettlement, will be reviewed. Rwanda's National Land Policy of 2004 in reference to the constitutional principle of equality of all citizens, states that all Rwandans enjoy the same rights of access to land without any discrimination whatsoever. The policy is explicit in the principle by stipulating that women, married or not, should not be excluded from the process of land access, land acquisition and land control, and female descendants should not be excluded from the process of family land inheritance. Other legal documents pertinent to the RAP include:

- The Constitution of the Republic of Rwanda;
- Land Policy (2004);

- Law No. 43/2013 Governing Land in Rwanda;
- Law No. 32/2015 Relating to Expropriation in the Public Interest;
- Law No.17/2010 of 12/05/2010 Establishing and Organizing the Real Property Valuation Profession;
- Ministerial Order No. 001/2006 Determining the Structure of Lands;
- Presidential Order No. 54/01 (2006);
- Ministerial Order No. 002/2008 Determining Modalities of Land Registration (2008).

Institutional Framework

Key institutions responsible for resettlement and compensation policy, legislation and regulations relevant to KIIWP include the following:

- Ministry of Agriculture and Animal Resources (MINAGRI);
- Rwanda Agriculture and Animal Resources Development Board (RAB);
- Kayonza District;
- Ministry of Environment (MINIRENA);
- Rwanda Environmental Management Authority (REMA);
- Rwanda Development Board (RDB);
- Rwanda Land Management and Use Authority (RLMUA);
- Department of Water Resources.

Differences in GoR and IFAD Approaches to Compensation and Relocation

There are a number of differences between the Rwandan legal framework for resettlement and compensation and IFAD's Guidance Statement for physical and economic resettlement, Land Policy and FPIC requirements. The RAP will give proposals for addressing the differences so that both GoR and IFAD are satisfied.

Initial Meetings, Consultations and Field Visits

Meetings will be held with the KIIWP team, IFAD, MINAGRI and RAP, in order discuss the approach to the RAP, and to obtain relevant information and documentation, as well as to set up meetings with the relevant Kayonza District authorities and arrange the necessary field visits. Meetings will be also be held with relevant national agencies and key District authorities in order to establish national processes for compensation and resettlement and procedures for identifying Project affected people, as well as the natural resources that may be affected (such as wetlands or the Akagera National Park).

Consultations with the Kayonza District authorities will:

- Confirm their commitment (written, signed and stamped) to the entire resettlement and compensation process, and to inform the public accordingly.
- Confirm that the Kayonza Districts authorities will assist in the identification of PAPs, and in confirming the eligibility of listed PAPs.
- Agree on the “cut off” date for compensation, for example if it should be set as the starting date of the PAP survey.
- Specify the responsibilities of the Kayonza District authorities regarding the monitoring of the compensation and resettlement process.
- Establish the mechanisms for redress of grievances that will be most appropriate for the affected communities.

- Identify existing social networks and social support systems, that can help persons affected by the Project, and ways in which support can be given.
- Minute the details from the consultations with the district administrations and the PAPs will be recorded.

Consultations with communities will focus on issues such as land acquisition, compensation, entitlement, institutional arrangements for implementing and monitoring the RAPs, grievance redress mechanisms. The meetings will also establish how the communities can be involved in the RAPs at all stages – from PAP identification, surveys, valuation, entitlements, implementation, monitoring and evaluation. Of importance is the need to inform the PAPs of the cut-off date.

Screening

A screening checklist will be developed with the aim of establishing whether the Project will:

- Reduce access to economic and natural resources, such as land, pasture, water, public services;
- Result in resettlement of individuals or families;
- Require the acquisition of land (public, usufruct, temporary or permanent) for its development;
- Result in the temporary or permanent loss of perennial or annual crops or fruit trees;
- Affect household infrastructure such as the main residence, outside toilets, cowsheds, granaries, kitchens;
- Affect commercial premises such as shops, coffee houses;
- Affect institutional premises such as churches, mosques or schools;
- Affect physical cultural resources;
- Affect vulnerable people (elderly, poor, orphans, women headed households, widows or people with disabilities).

Establishing the need for a RAP

The need for resettlement will then be described in terms of geographical scope, processes for identification of PAPs, estimated of numbers of households and assets affected, a general description of the total areas of land affected and types of assets and structures affected; general description of PCR or sites of personal value (such as graves and graveyards) and public services that may need to be relocated (such as water supply lines, power lines).

Project Affected Persons Census

Following confirmation of Project affected persons, a socio-economic survey of the PAPs and census and asset inventory of each intervention site. A population census of PAPs should be carried for the following reasons:

- Determining legitimate beneficiaries that discourages opportunistic local migrants;
- Determining the scale of the required physical and economic resettlement;
- Provide indicators for monitoring and evaluation; and
- Providing a sampling frame for subsequent socio-economic research needed to establish fair compensation rates according to the law and to design, monitor and evaluate sustainable income restoration or development interventions.

PAP Socio Economic Survey

The RAP will develop detailed baseline surveys for each Project affected person/household. Information that will need to be collected for the PAP survey will include:

- Personal data (name/age/sex of respondent, residency, occupation, ethnic group, religion);
- Household composition and education levels (number of adult men and women, boys and girls, education levels of each);
- Household activities and income (main source of income, other income sources, bartering);
- Household expenditure (amount spent on basic goods);
- Health status (main illnesses suffered);
- Relocation options (extent of affectation, current use of property/land, preferred options for resettlement, preferred time for relocation, types of assistance required, other support needs, perceived problems during and after relocation).

Land and Asset Surveys

The RAP will assess and inventories land and property/assets affected by the proposed schemes. A land/property assessment form will be developed for use during the survey, and may include information such as:

- Location of the affected plot/house/structure;
- Category of the land (public/private/institutional);
- Property characteristics (types of structures affected, quality of structure, type of construction, roof type);
- Measurements of the structure/compound, and value of affected area;
- Occupancy details (tenant/squatter/owner);
- Affected area under cultivation (crop type, area under cultivation);
- Affected area not under cultivation (current land use, area affected); and
- Affected trees.

Grievance Redress Mechanisms

Based on discussions and consultations, the RAP will develop a grievance redress mechanism specifically for the RAP process and in accordance to Rwanda's law on expropriation, indicating the ways in which grievances can be registered, and processes, timescales and stages for responses, redress and appeal. An outline is provided in Annex 4.

Cut Off Date

The RAP will develop a methodology for determining the cut-off date. This is the date beyond which persons occupying the Project area are not eligible for compensation and/or resettlement assistance. Similarly, fixed assets (such as built structures, crops, fruit trees, and woodlots) established after the cut-off date will not be compensated. The cut-off date is determined in consultation with local authorities, and is usually the date of completion of the census and assets inventory, or any other mutually agreed date.

Eligibility Criteria

Eligibility criteria will be defined in order to identify PAPs and affected structures and assets. This will be based on Rwandan laws, but will also take into account those with no formal legal rights over their land holdings, in accordance with IFAD and other development partner requirements. However, it

should be noted that in Rwanda registration of land rights is mandatory by law and fair compensation only eligible to legal land property owners and land tenants in recognition of existing written and unwritten rights and civil and original customary rights.

Entitlement Matrix

An Entitlement Matrix will be prepared indicating the types of impacts on agricultural land, grazing land, commercial land, residential land, buildings and structures, standing crops, trees, and temporary acquisition of land, types of persons affected, and to establish types of compensation, entitlements and benefits that will be accorded. In addition, sites for the relocation of the PAPs will be identified together with the Kayonza authorities, should this be necessary.

Valuation Methodology

The RAP will describe methodologies used for valuing affected structures, assets, crops and trees. Where land is to be acquired, methodologies for valuation and compensation in kind or cash will be described. Other infrastructure that may be affected includes water pipelines, power lines, fences, hedges, which must also be considered in the valuation methodology.

Compensation and Resettlement Measures

Based on the entitlements and valuation methodology, the RAP will describe compensation payment and resettlement processes. Cultural preferences will be borne in mind. There is also need to address the treatment of vulnerable groups, such as living below the poverty line, the landless, the elderly, women and children. The RAP will describe the requirements of livelihood restoration plans for severely affected PAPs. The RAP will also stress that, in accordance with IFAD policies, programme activities can only begin once compensation has been fully paid and resettlement completed.

The RAP will develop detailed livelihood restoration plans for severely affected and vulnerable PAPs.

It will also stress that, in accordance with IFAD policies, subproject activities can only begin once compensation has been fully paid and resettlement completed.

Site Selection, Site Preparation and Relocation

The RAP will describe the process for identification and preparation of relocation sites and will describe the institutional and technical arrangements for identifying and preparing relocation sites to ensure that these sites selected are comparable to those that have been lost. Procedures for physical relocation, including the timetables for site preparation and transfer will be drawn up.

Housing Infrastructure and Social Services

The RAP will describe the process of providing housing for resettled persons, and their access to infrastructure and social services, and any assistance required by the PAPs for accessing these services.

Environmental Protection and Management

There may be environmental impacts as a result of any resettlement. The RAP will propose means to assess the impact of the relocation process on the bio-physical and social environment. If necessary, an environmental impact assessment study will be carried out. The roles of the different stakeholders,

and specifically of the displaced and host communities will be specified in terms of environmental protection.

RAP Implementation and Schedule

The RAP will describe the institutional framework for the implementation of the RAP. It will also contain an implementation schedule describing the various implementation activities that must be undertaken by the RAP and when these will be undertaken. The RAP implementation schedule should be sensitive to seasonal demands of the affected persons and communities (eg. rainy season, planting and harvest seasons).

Budget for RAP Implementation

The RAP will list all compensation activities and activities related to other forms of assistance that need to be costed in the RAPs. This will include allowances for inflation, and will indicate sources of funds, and flow of funds.

Monitoring and Evaluation

Procedures for internal monitoring which will include tracking of the RAPs will be developed. Monitoring indicators should be specified so that progress of the RAPs can be evaluated through which the physical progress of the RAP can be measured. The RAP should also propose how Impact monitoring should be done to assess the effectiveness of the RAPs and their implementation with respect to meeting the needs of the PAPs and in terms of, for example, appropriateness of the relocation sites, practicality of the implementation schedule; the effectiveness of grievance redress mechanisms and mechanisms for assisting vulnerable groups.

Disclosure of the Resettlement Action Framework

The RAP shall be made available to the district, sector, cell and village (*unmudugudu*) levels so that the affected communities may comment or seek clarification on any issues of concern prior to preparation of individual RAPs where these may be required. Interested or affected parties may therefore submit their comments, verbally or in writing, to the sector, cell or village committees. The RAP will also be disclosed on the IFAD website as required by IFAD's Disclosure Policy.

10 Environmental, Social and Climate Change Management for KIIWP

10.1 ESIA Procedures

The ESIA process in Rwanda as prescribed in REMA's EIA Guidelines⁴⁷ consists of the following phases:

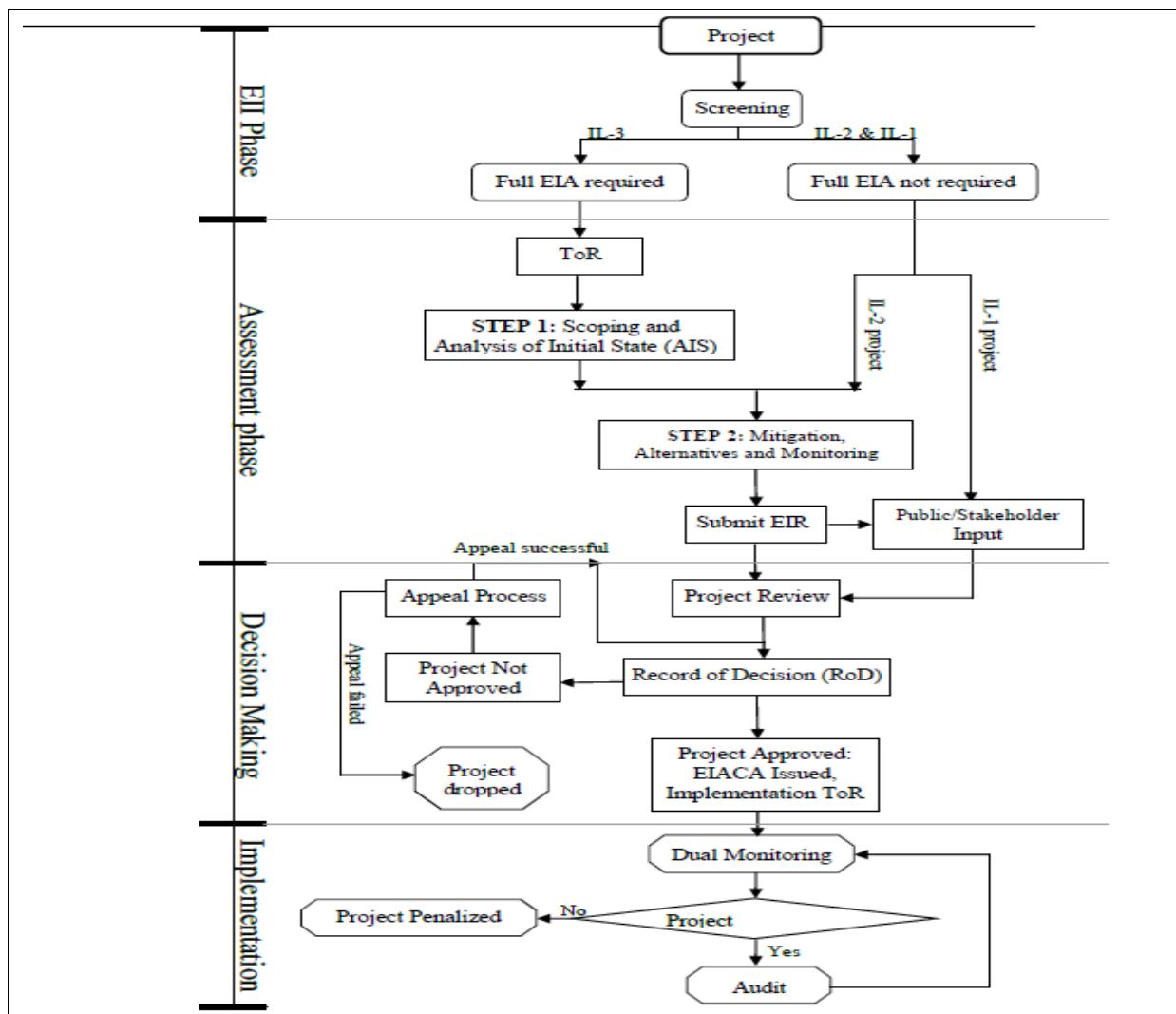
- i. Project Brief Submission and Registration: As a first step in the EIA process, a developer proposing to start a project shall notify RDB in writing by submission of a Project Brief. The purpose of a Project Brief, is to provide information on the proposed activity so as to enable RDB and Lead Agencies establish whether or not the activity is likely to have significant impact on the environment, and thus determine the level of EIA necessary. The project brief submitted to RDB by a developer will be registered as the formal application for an EIA.
- ii. Screening: Screening refers to the process by which RDB makes a decision as to whether an EIA is required or not, based on information in the Project Brief, and then classifies proposed projects as either of impact level (IL) 1, 2 or 3.
- iii. Scoping and Consideration of Alternatives. Scoping is carried out by the developers (or their EIA experts) in consultation with Lead Agencies and all relevant stakeholders. Scoping establishes important issues to be addressed in the environmental impact assessment and eliminate the irrelevant ones. After scoping, RDB approves the terms of reference (TOR) that would be used for carrying out the environmental impact study.
- iv. Baseline Data Collection and Analysis of Initial State: Baseline data describes status of existing environment at a location before intervention of the proposed project. Site-specific primary data on and around a proposed site should be collected by experts conducting the environmental impact study to form a basis for future environmental monitoring.
- v. Impact Prediction and Analysis of Alternatives: Impact prediction is a way of forecasting the environmental consequences of a project and its alternatives. This action is principally a responsibility of an EIA expert. For every project, possible alternatives should be identified and environmental attributes compared. Alternatives should cover both project location and process technologies. Alternatives should then be ranked for selection of the most optimum environmental and socio-economic benefits to the community. Once alternatives have been analysed, a mitigation plan should be drawn up for the selected option and is supplemented with an Environmental Management Plan (EMP) to guide the developer in environmental conservation.
- vi. EIA Report: An environmental impact study culminates into preparation of a report by the EIA expert(s). An EIA report (EIR) should provide clear information to the decision-maker on the different environmental scenarios without the project, with the project and with project alternatives. The developer is also required to produce an environment management plan (EMP). Any modifications made by a developer to the EIA report should be presented in form of an Environmental Impact Report Addendum. All these three documents should then be submitted to RDB by the developer.
- vii. Public Hearing: After completion of EIA report the Organic Law requires that the public must be informed and consulted on a proposed development. RDB may, if it deems necessary, conduct a public hearing before EIA reports are appraised by its Technical Committee. Any stakeholders likely to be affected by the proposed project are entitled to have access to unclassified sections of the EIA report and make oral or written comments to RDB. RDB shall consider public views when deciding whether or not to approve a proposed project.

⁴⁷ REMA (2006). General Guideline and Procedure for Environmental Impact Assessment.

- viii. Decision-Making: During the decision-making and authorization phase, EIA documents submitted to the Authority shall be reviewed by two decision-making committees: a Technical Committee and an Executive Committee constituted by RDB. If the project is approved, the developer will be issued with an EIA Certificate of Authorization, which permits implementation of the project in accordance with the mitigation measures in the EIA Report and any additional approval conditions.
- ix. Environmental Monitoring: Monitoring should be done during both construction and operation phases of a project. It is done not just to ensure that approval conditions are complied with but also to observe whether the predictions made in the EIA reports are correct or not. Where impacts exceed levels predicted in the environmental impact study, corrective action should be taken. Monitoring also enables RDB to review validity of predictions and conditions of implementation of the Environmental Management Plan (EMP). During implementation and operation of a project, monitoring is a responsibility of the developer and RDB.

The process is illustrated in Figure 10.1 below.

Figure 10.1 REMA's ESIA Procedures



Source: REMA (2006). General Guideline and Procedure for Environmental Impact Assessment

Table 10.1 describes the functions of the various entities involved in the ESIA process, as stipulated by the national EIA guidelines and requirements. It also illustrates IFAD's roles in the review and approval processes. For the purposes of clarification, REMA requires Environmental Impact Reports (EIRs) to be submitted for IL2 and IL3, although the level of assessment differs proportionately according to screening category. IFAD on the other hand refers to the assessment report for Category B projects (equivalent to IL2) as ESMPs and assessment reports for Category A projects (equivalent to IL3) as ESAs. In the description in this chapter, the term ESMPs and ESAs are used to distinguish assessments and reports for IL2 and IL3 projects respectively.



Kabarondo Sector

Table 10.1 Functions of Various Stakeholders in the ESIA Process

Functions	RAB/SPIU	IFAD	RDB	REMA	Lead Agencies	District, Cells and Villages	Project Communities / Beneficiaries
ESIA Stages							
Application for ESIA.	Submit application in form of Project Brief.		Receive and register EIA application (Project Brief) submitted by developer.				
Screening		Prepare SECAP Review Note Determine project categorisation	Review Project Brief to determine project classification. Identify relevant Lead Agency to participate in project screening.		Participate in screening.		
Scoping & developing Terms of Reference	Hire REMA-registered consultant to carry out scoping, and prepare TOR.	Review and comment on scoping report and ToRs	Transmit Project Brief to REMA, Lead Agency, Local Government. Organize publication & consultation on the Project Brief. Collect public comments. Approve experts to conduct EIA study. Write ToRs and send them to the developer.	Receive and review copy of Project Brief from RDB. Send advice on Project Brief to RDB.	Receive and review copy of Project Brief from RDB. Send comment/advice on Project Brief back to RDB.	Receive and review copy of Project Brief from RDB. Send comment/advice on Project Brief back to RDB.	Receive and review copy of Project Brief from RDB. Send comment/advice on Project Brief back to RDB.
Assessment of Impacts	Hire REMA-registered consultant to carry out ESIA study and prepare EIR		Provide information when consulted by EIA experts during impact studies.	Provide information to EIA Expert / and or developer during impact studies.	Provide information to EIA Expert /and or Developer.	Provide feedback during community consultations.	
Submission of EIA documents to RDB.	Submit ESIA/ESMPs to RDB	Receive ESIA/ESMPs Provide comments to ESIA/ESMPs	Receive prescribed number of copies of ESIA/ESMPs and Addendum (if				

ESIA Stages	Functions	RAB/SPIU	IFAD	RDB	REMA	Lead Agencies	District, Cells and Villages	Project Communities / Beneficiaries
				(applicable) from developer.				
				Verify that submitted EIA documents are complete.				
Public & stakeholder input.	Together with ESIA consultant, present ESIA/ESMPs at public meetings	Disclose ESIA and RAPs		Transmit copy of ESIA/ESMPs to REMA, Local Government(s), Lead Agencies and communities.	Serve on public hearing panel	Receive and review copy of ESIA/ESMPs from RDB (if not member of Technical Committee).	Receive and review copy of ESIA/ESMPs from RDB.	Receive and review copy of ESIA/ESMPs from RDB
				Organize public hearings.		Serve on public hearing panel	Assist RDB in organizing public hearings.	Send comments on project to Local Authority.
				Appoint Public Hearing presiding officer (Chairperson) from its staff.			Host public hearings.	Participate in public hearings.
				Receive public comments.			Host individual consultations.	
							Collect written comments from general public.	
							Send collected public comments to RDB.	
Review process & Decision making	Instruct ESIA consultant to incorporate comments into EIR	Receive and review final ESIA	Approve final ESIA	Appt the Technical and Executive Committees to review ESIA/ESMPs documents and make final decision, respectively.	Serve on the Technical Committee.	Serve on the Technical Committee.	Serve on the Executive Committee.	Serve on the Executive Committee.
				Be member of the Technical Committee. Transmit ESIA/ESMPs & Public Hearing			Endorse or reject decision by RDB	
				Report to Technical Committee.				
				Chair the Executive Committee.				

ESIA Stages \ Functions	RAB/SPIU	IFAD	RDB	REMA	Lead Agencies	District, Cells and Villages	Project Communities / Beneficiaries
				Take decision and communicate to developer.			
Project implementation, monitoring & auditing	Hire REMA-registered consultant to carry out independent audits Prepare quarterly and annual monitoring reports	Receive and review audit reports and quarterly and annual reports Undertake supervision missions ensure ESIA-ESMPs are implemented and compliance with SECAP requirements. Take action when project not in compliance	Receive and review annual monitoring reports Undertake routine inspection and auditing to enforce compliance. Take action when project not in compliance	Inspect to ensure environmental compliance during project implementation. Receive and review audit reports and annual monitoring reports Cross-check monitoring results. Undertake routine inspection and auditing to enforce compliance.	Assist in inspecting and monitoring environmental compliance during project implementation	Receive and review audits and annual monitoring reports. Environmental officers at district level assist in inspecting and monitoring environmental compliance during project implementation.	

Source: Adapted from REMA (2006) General Guidelines and Procedures for Environmental Impact Assessment, and IFAD (2017) SECAP.

10.2 KIIWP Environmental, Social and Climate Change Management Procedures

The ESCC management procedures for KIIWP subprojects will follow the national guidelines and processes as described in the preceding section, as well as IFAD's safeguard requirements as elaborated in SECAP. This section elaborates on those processes to ensure that the environmental and social assessments conducted for KIIWP subprojects are aligned with IFAD's safeguards requirements.

It must be noted that at this stage, interventions focussing on the development of value chains for both provision of staple food and income generation have not been identified. However, all such interventions will have to follow the procedures outlined below, including screening, preparation of ESIA and/or ESMPs and other safeguards documentation, review and approvals, disclosure, setting up grievance mechanisms, monitoring, auditing and reporting.

10.2.1 Implementation and Coordination

The institutional arrangements for KIIWP implementation are described in Section 2.4, which gives an overview of the roles of the Project Management Team and the KIIWP District Team, including the SPIU Environmental and Climate Change (ECC) Specialist and the KIIWP Environmental and Climate Change Officer (ECCO) and Social Safeguards Officer (SSO). Specific responsibilities in relation to ESIA procedures and safeguards requirements are described in the sections below.

10.2.2 Screening

Exclusion List

The purpose of screening is to provide an initial indication of the complexities of a project, after which it can be categorised to determine the level of investigation necessary to ensure that the project causes no harm to the environment or the project communities, and to ensure that the project is acceptable and sustainable in terms of environmental, social and climate risks and impacts.

At the outset it is important to state the types of projects that IFAD does not implement. In the context of the KIIWP subprojects, these are:

- *Projects in areas of critical habitats or which result in conversion or degradation of such habitats.* Emphasis will be to identify alternatives and ensure that any potential degradation or conversion is firstly avoided, and if not avoided, appropriately mitigated. This is relevant to KIIWP because the Ndego borders the Akagera National Park, and will source its water from Lake Ihema, which is mostly located in the park. In addition, a number of the interventions will affect wetlands, and although most of these are categorized as "conditional marshlands" by REMA, some of the marshlands contain biodiversity exhibiting high endemism (refer to Sections 5.2.6 and 5.2.8).
- *Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements, or subject to international bans, such as pharmaceuticals, pesticides/herbicides, ozone depleting substances, PCB's, wildlife or products regulated under CITES.* KIIWP will have to ensure beneficiary farmers use approved pesticides and herbicides, and that electrical appliances (transformers for power supply to the schemes) do not use PCBs. An indirect impact of KIIWP may result in an increase in poaching or killing of threatened or endangered species that may raid the irrigated fields, given the proximity of the proposed Humure Scheme in Ndego Sector to the Akagera National Park. Therefore, KIIWP must also ensure that sufficient provision is made for the protection and conservation of wildlife, flora and their habitats.

- *Production or activities involving harmful or exploitative forms of forced labour⁴⁸ and/or harmful child labour⁴⁹.* As such forced labour may not be an issue for KIIWP subprojects, but it should be noted that IFAD requires that farm hands/casual workers are paid decent living wages, and that labour and working conditions and well-being of workers and local communities are fully considered and in line with ILO conventions (see Section 3.6). In rural societies, children often skip school during the harvest period in order to assist their families on the farms. Children working on agricultural projects are especially susceptible to harm from poor use and management of agrochemicals. KIIWP subprojects will therefore have ensure that harvesting (and other) activities do not interfere with children's education, and that children do not handle agrochemicals and are not otherwise exposed to these substances.
- *Projects that involve the physical and/or economic displacement of more than 20 persons.* SECAP specifies that a full RAP is required where more than 20 persons are physically or economically displaced. However, the logistics of properly resettling and fairly compensating a large number of affected people, as well as restoring and improving their livelihoods, monitoring their well-being thereafter and managing the impacts on host communities, will be beyond the capacity of KIIWP's staff and resources. It is therefore recommended that IFAD does not implement subprojects involving the physical and/or economic displacement of more than 20 people.

Screening Categorisation

Rwanda EIA guidelines define three levels of impact which are determined through the screening process as follows:

- Projects for which it is evident that there will be significant and adverse environmental impacts whose mitigation measures cannot readily be prescribed must undergo through a complete assessment process and thus require a detailed EIA. These projects are categorised as Impact Level 3 (IL3). REMA's guidelines indicate that projects that will result in changes in water use through irrigation, drainage promotion or dams fall under IL3.
- Projects believed to have adverse, but not irreversible environmental impacts and for which mitigation and management measures can be readily designed and incorporated into the project fall into category Impact Level 2 (IL2). They require environmental impact assessments to be carried out but these may not require detailed analysis.
- Projects believed to have minimal adverse impacts, that can easily be identified through a Project Brief and not requiring further environmental analysis are categorised as Impact Level 1 (IL1). These projects do not require environmental impact assessments.

IFAD's screening categories as specified in SECAP (2017) are as follows:

- Category A projects are those that may have significant adverse environmental and/or social implications that: (i) are sensitive, irreversible or unprecedented; (ii) affect an area broader than the sites or facilities subject to physical interventions; and (iii) are not readily remedied by preventive actions or mitigation measures. These require full ESAs to be conducted. SECAP lists types of developments which would fall into Category A. These include projects involving wetland development; loss of natural habitat and loss of biodiversity or environmental services provided by a natural ecosystem in protected areas and their buffer zones, ecologically sensitive areas, areas of global/national significance for biodiversity conservation

⁴⁸ Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

⁴⁹ Harmful child labor means the employment of children that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.

and/or biodiversity-rich areas, and habitats dependent on by endangered species. Project that may lead to significant increased use of agrochemicals which may lead to life-threatening illness and long-term public health and safety concerns; and water-based (ground and/or surface) development where there is reason to believe that significant depletion and/or reduced flow may/has occurred from the effects of climate change or from overutilization (above recharge capacity). With regard to infrastructure, Category A projects include medium- and large-scale dam/reservoir construction (over 5 metre high wall, more than 500 metre long crest, and/or with a reservoir exceeding 3 million m³); and the construction/rehabilitation of irrigation schemes above 100 hectares. For social aspects, projects that could potentially cause economic or physical displacement or physical resettlement of more than 20 people, or impacting more than 10 per cent of any one community's or individual farmer's or household's assets also fall into Category A. For these projects, RAPs are also required.

- Projects involving agricultural intensification and/or expansion of cropping area in “non-sensitive areas”, watershed management or rehabilitation, large-scale soil and water conservation measures; small-scale irrigation and drainage projects and small and medium (capacity < 3 million m³) dam subprojects are classified as Category B. These projects require ESMPs to be prepared. Included in this category are projects that would result in economic and physical displacement affecting fewer than 20 people or impacting less than 20 per cent of any one community's or individual farmer's or household's assets. A simple RAP must then be conducted.
- Category C projects will have negligible or no environmental or social implications, and therefore no further environmental and social analysis is required.

Based on the above guidelines, the KIIWP interventions have been categorised as shown in Table 10.2 below.

Table 10.2 Categorisation of KIIWP Interventions

Infrastructure	Comments	REMA Risk Categorisation	SECAP Risk Categorisation	Rationale for Categorisation
Irrigation				
Pumped irrigation	3 sites in Ndego sector: Kibare (400 ha), Humure (600ha), Byimana (400ha) Source: Lakes Kibare, Ihema, Nasho respectively	IL3	Category A	Command areas greater than 100ha Humure scheme borders Akagera National Park. Intake likely to be in totally protected wetland. The park and its wetlands are areas of national importance and high biodiversity and endemism. Kibare and Byimana schemes intakes in conditional wetlands.
				Peculiar hydrological characteristics which need to be thoroughly studied: shallow lakes with reverse flow phenomenon from lakes upstream to Akagera River
	1 site in Kabare sector: Gakoma (600ha) Source: Lake Nasho	IL3	Category A	Command areas greater than 100ha Intake in conditional wetland Peculiar hydrological characteristics which need to

Infrastructure	Comments	REMA Risk Categorisation	SECAP Risk Categorisation	Rationale for Categorisation
				be thoroughly studied: shallow lakes with reverse flow phenomenon from lakes upstream to Akagera River
Small marshlands	Dams to irrigate a total of 275 ha both marshlands and hillsides Rwinkwavu/Kabare sectors, on River Gishanda, irrigating 125 ha Kabarondo Sector on River Kanyeganyege irrigating 150 ha	IL3	Category A	Command areas greater than 100 ha Medium-scale dams with dam height greater than 5m
Farm-level ponds	Source: rainwater Locations: Murama Selection criteria – a lot of land which has been terraced, but no water Pond size 50-200m3	IL2	Category B	Small scale water harvesting which will have minor impacts.
Catchment Conservation				
Land Husbandry (Terraces + agroforestry, mulching, liming, etc)	7500 ha in total, including 2275 ha irrigated and rainfed Kabare, Kabarondo, Rwinkwavu: dam or irrigation related Murama (900ha), Kabarondo (190ha): rainfed Criteria for selecting locations: terraced hillsides with water scarcity; non-terraced hillsides Av. Household land holding: 0.3ha	IL2	Category B	Watershed management and soil and water conservation activities in non-sensitive areas. Unlikely that more than 20 people will be physically or economically displaced.
Provision of Water for Livestock and Domestic Use				
Valley tanks new	Ndeggo, Gahini, Murundi and Mwiri Sectors. 7 new valley tanks Locations of new tanks not known.	IL2	Category B	Involve natural drainage into valley depressions. May require walls, but these will be less than 5m in height; Possible economic or physical displacement but will affect less than 20 people, particularly for acquisition of buffer zone. Impacts would revolve around degradation around borehole site which can be readily managed.
Valley tanks rehab	Ndeggo, Gahini, Murundi and Mwiri Sectors. Rehabilitation of 15 existing valley tanks	IL2	Category B	Rehabilitation of existing structures, involving repairing tank walls, desilting and landscaping activities, as well as rehabilitation of degraded valley tank environs. Impacts would revolve around degradation around borehole site which can be readily managed.
Boreholes	Ndeggo Gahini, Murundi and Mwiri Sectors. Possibly 20 boreholes.	IL2	Category B	There are few boreholes in the area, and therefore if there is groundwater, the aquifer is

Infrastructure	Comments	REMA Risk Categorisation	SECAP Risk Categorisation	Rationale for Categorisation
	Borehole location and capacity not known. No. of people and livestock to be supplied not established.			unlikely to be stressed or overutilized. Impacts would revolve around degradation around borehole site which can be readily managed.

10.2.3 Environmental, Social and Climate Safeguards Documentation

The basic purpose and requirements of various safeguards instruments are described below.

Environmental and Social Impact Assessment (ESIA)

For KIIWP, any subproject with significant adverse environmental, social and climate risks and impacts, is categorised as REMA IL3 (IFAD Category A) and requires a full ESIA study, which is presented as an Environmental Impact Report (EIR) – hereinafter referred to as an ESIA Report for ease of reference. The ESIA enables both environmental, climate change and social issues to be taken into account during all stages of project design and implementation. It identifies, predicts, evaluates and communicates the potential environmental, climate, and social impacts and risks of the project in a systematic and objective way. It also recommends appropriate preventive actions and mitigating measures, and maximizes environmental opportunities where possible.

The ESIA Report must cover, among others:

- Administrative and institutional arrangements required for environmentally sound implementation of the environmental management, applicable national and international environmental legal and policy frameworks and their relevance to the project;
- A detailed description of the proposed project components, as well as all ancillary works including location, technologies to be used, materials and their quantities, construction period, etc;
- A detailed description the biophysical and socio-economic baseline conditions, bearing in mind that these provide the basis for impact analysis and monitoring;
- A description of other ongoing or planned developments in the project area that could have cumulative or synergistic effects on the project outcome;
- Outcomes of stakeholder consultations and public participation and recommendations for addressing stakeholder concerns in design and implementation;
- Identification and analysis of anticipated adverse impacts and risks, and cumulative impacts, as well as beneficial impacts;
- Analysis of alternatives, including project sites, access options, technologies, construction methodologies, etc, and a ‘no project’ alternative;
- Preventative, mitigation and enhancement measures;
- Recommendations for changes to project design;
- Environmental, social and climate risk management plan (ESCMP – which includes climate risk resilience proposals);
- Grievance redress procedure;
- Monitoring and auditing requirements and procedures;
- Costs for environmental and social management and monitoring, and climate resilience measures.

As ESIAs and ESMPs are done in tandem with the feasibility studies and design development, it is important that:

- Stakeholder concerns – particularly those of the communities and project affected persons - are addressed in the ESMPs, and if they are not, reasons for doing so should be explained; and
- The project design should be presented to the communities.

The ESIAs for Category A subprojects will be prepared by consultants hired by the RAB.

Reference should be made to the Law No. 48/2018 of 13/08/2018 on Environment, Ministerial Order of 2008 relating to the Requirements and Procedure for Environmental Impact Assessment, and REMA's General Guidelines and Procedure for Environmental Impact Assessment (2006). SECAP provides a model terms of reference for undertaking ESIAs, and recommends a format for the ESIA Report. Annex 3 provides a sample TOR for ESIA studies for KIIWP irrigation subprojects.

Environmental and Social Management Plan (ESMP)

For subprojects that have no major environmental and social issues are categorised as IL2 (IFAD Category B), also require environmental and social impact assessments to be conducted and presented as EIRs, but they do not require the level of detailed analysis as for IL3 projects. In SECAP terminology, this less detailed analysis of risks and impacts is referred to as an environmental and social management plan (ESMP). However, an ESMP must contain:

- A detailed description of the project components;
- A baseline which focuses on baseline information required for the analysis of impacts and also for the purposes of monitoring;
- An analysis of positive and negative environmental, social and climate-related impacts;
- Mitigation measures for negative impacts;
- Details on the implementation of mitigation measures, including at what stage/when they should be incorporated, responsibilities for implementing mitigation, cost of mitigation;
- Details on monitoring requirements, including responsibilities for monitoring during construction and operation, monitoring indicators, monitoring baseline, frequency and means of monitoring, costs of monitoring.

The ESMPs for Category B subprojects will be prepared by the KIIWP Project Management Team. It may be that the team does not have the capacity to do this, in which case they may hire a consultant to prepare the ESMP.

Again, stakeholder concerns must be addressed in the ESMPs, and the project design should be presented to the communities.

The REMA Guidelines on the preparation of ESMPs as well as SECAP's ESMP formats should be closely followed.

Climate Risk Analysis

The purpose of climate risk screening is to determine the exposure of the project to climate-related risks (High, Moderate or Low) based on available information about historic climate hazard occurrences, current climate trends and future climate change scenarios, as well as to assess the likelihood of the project increasing the vulnerability of the expected target populations to climate hazards. It provides an opportunity to integrate climate issues into project design and therefore increase project resilience and hence sustainability.

Chapter 8 provides an analysis of climate risk for KIIWP, and the risk classification indicates that the Project is high risk. It is therefore recommended that an in-depth climate risk analysis be undertaken prior to the full design of the Project in order to inform the design and decision-making processes for the various subprojects.

The detailed climate risk assessment will be done by the SPIU ECC Specialist with support from IFAD.

Resettlement Action Plan (RAP)

Where involuntary physical displacement (relocation or loss of shelter) and economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) occur as a result of subproject-related land acquisition and/or restrictions on land use or access to resources, a resettlement action plan must be prepared. The approach should first be to do no harm, and adhere to the principle of free, prior and informed consent – that is to first avoid, then minimise displacement. But this may not always be possible. Therefore, the RAP aims to ensure that all persons affected by the subproject are treated equitably, and are compensated fully and fairly for lost assets, and that the mitigation of adverse effects as well as the benefits of resettlement are appropriate and sustainable. The RAP must identify the full range of people affected by the subproject and justify their displacement after consideration of alternatives that would minimize or avoid displacement. All people affected by involuntary resettlement should be consulted and involved in resettlement planning. The RAP establishes eligibility criteria for affected parties, and rates of compensation for lost assets, as well as levels and types of assistance for relocation and reconstruction of affected households. The RAP includes a grievance mechanism through which affected people can raise concerns, and it provides guidance for the implementation of the RAP, and on mechanisms for monitoring the performance of the resettlement and compensation program.

Depending on the number of persons or households affected, a full RAP or a simpler RAP (for less than 20 people being displaced) should be prepared by a consultant. SECAP Guidance Statement #13 stipulates that economic or physical displacement (ie. land, potable water and water for other uses), or physical resettlement of more than 20 people, or impacting more than 10 per cent of any one community's or individual farmer's or household's assets requires a full RAP.

Chapter 9 presents an outline for the preparation of a Resettlement Action Plan (RAP) in the event schemes and land husbandry activities under KIIWP cause physical resettlement or economic displacement.

RAPs will be prepared by consultants, and then submitted to KIIWP Social Safeguards Officer (SSO) and IFAD's SECAP Team for review and approval, after which it will be submitted to the Rwanda Land Management and Use Authority (RLMUA) for approval.

Integrated Pest Management Plan (IPMP)

Agrochemicals (mainly fertilizers and pesticides) may be necessary to achieve higher yields, but they must be carefully applied as they have various adverse environmental and social impacts related to contamination of water bodies and soil and thereby threatening biodiversity, risks to farm workers and community health from exposure to agrochemicals, and releases of GHGs. In order to properly manage the use of pesticides, Integrated Pest Management Plans (IPMPs) must be prepared.

FAO defines integrated pest management as: "*the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified*

and reduce or minimize risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms”.

The following main steps can be considered as typical for an IPM approach⁵⁰:

- Prevention and/or suppression of harmful organisms. This is often best achieved by a combination of the following options:
 - crop rotation;
 - inter-cropping use of adequate cultivation techniques (e.g., seedbed sanitation, sowing dates and densities, under-sowing, conservation tillage, pruning and direct sowing);
 - where appropriate, use of pest resistant/tolerant cultivars and standard/certified seed and planting material;
 - balanced soil fertility and water management, making optimum use of organic matter;
 - prevent spreading of harmful organisms by field sanitation and hygiene measures (e.g., by removal of affected plants or plant parts, regular cleansing of machinery and equipment);
 - protection and enhancement of important beneficial organisms, e.g. by the utilisation of ecological infrastructures inside and outside production sites.
- Harmful organisms must be monitored with adequate methods and tools, where available. Such adequate tools should include observations in the field and where feasible warning, forecasting and early diagnosis systems (e.g. traps).
- Based on the results of the monitoring it is decided whether and when to use what pest management inputs. Sustainable biological, physical and other non-chemical methods must be given priority over chemical methods if they provide satisfactory pest control.
- Pesticides should only be applied as a last resort when there are no adequate non-chemical alternatives and use of pesticides is economically justified.
- The pesticides applied shall be as specific as possible for the target and shall have the least side effects on human health, non-target organisms and the environment, while their use should be kept at minimum levels, e.g. by partial applications.
- Monitor the success of the applied pest management measures.

The IPMP should evaluate the impact of potential pests prior to programme implementation, identify the type of pests and assess the magnitude of impacts likely to be caused by those pests. In assessing the hazards of pesticide use, the toxicity of the pesticide and exposure to it are key elements. Therefore, as a minimum, the IPMP should:

- Screen the types of pesticides for toxicity by ensuring: they are effective against the target species, have negligible adverse impacts on human health and non-target species, will not precipitate resistance in pests, and do not fall into WHO class 1A or 1B;
- Aim to reduce exposure time or degree of exposure.
- Propose alternative non-pesticide management options (physical, mechanical and biochemical), as well as any available less toxic varieties of the pesticides.

The KIIWP ECC Officer, and in collaboration with the District Environment Officer and District Agriculture Officer should prepare the IPMP as applicable to the crops being grown in the KIIWP schemes. The IPMP may be also developed as part of the ESIA or ESMP or it can be a stand-alone document. The IPMP must also stipulate national requirements and approved and appropriate agrochemicals used in the schemes. In developing the IPMP, reference should be made to REMA's

⁵⁰ <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/ipm/more-ipm/en/>

Practical Notes on Soil Productivity and Crop Production, SECAP's Guidance Statement #2 on Agrochemicals, and IFC's EHS Guidelines on Crop Production (revised 2015).

Dam Safety Plan

The overarching dam safety objective is to protect people, property and the environment from the harmful effects of mis-operation or failure of dams and reservoirs. To ensure that dams and reservoirs are operated and that activities are conducted so as to achieve the highest standards of safety that can reasonably be achieved, measures have to be taken to achieve the following three fundamental safety objectives:

- to control the release of damaging discharges downstream of the small dam;
- to restrict the likelihood of events that might lead to a loss of control over the stored volume and the spillway and other discharges;
- to mitigate through onsite accident management and/or emergency planning the consequences of such events if they were to occur.

The three major factors that trigger small dams to fail:

- Sedimentation behind dam (sediments deposited clog outlet and intake structures);
- Seepage loss through foundation and embankment; and
- Low catchment yield and low volume of stored water in dams.

These situations come about as a result of inadequate design (hydrological, geotechnical, hydraulic); very limited site investigations and consequently poor understanding of site conditions; substandard embankment placement methods (eg. soil compaction methods); lack of watershed management practices; and inadequate maintenance or inspection frequencies.

To avoid or minimize the occurrence of dam failure, MINAGRI in collaboration with MININFRA have the responsibility to inspect dam safety aspects periodically during all phases of the dam design, construction, and operation and maintenance. Key considerations are:

- Dam hazard classification – which is assessed depending on the probable loss of human life and economic and environmental losses.
- Dam site investigations:
 - Selection of dam site so that in the event of failure there will be minimal impact;
 - technical considerations such as catchment, topography, embankment conditions and foundation, spillway locations, and watershed activities;
 - environmental considerations including reservoir slope stability, seismic activity, groundwater changes, sediment trapping, impacts on flora and fauna upstream and downstream, the need to maintain an environmental flow, and social demands downstream;
- Dam design – taking into account potential for overtopping of the embankment; potential for extreme events such as earthquakes or unprecedented high flows; sedimentation rates.
- Dam construction – the need for qualified and experienced contractors and supervisors; meticulous design review;
- Safety surveillance – surveillance programme specifying regular and frequent inspections, checklists of factors to be inspected; special inspections; problem solving; and instrumentation and monitoring.
- Operation and maintenance - effective and ongoing operation, maintenance and surveillance procedures; maintenance systems.

The KIIWP Project Management Team will be responsible to ensure that all the necessary dam safety requirements are adhered to during the planning and construction of proposed dams for irrigation. An abbreviated version of SECAP's Guidelines for Dam Safety are presented in Annex 7.

Standard Operating Procedures

Depending on the scale and complexity of the proposed scheme/project and issues that arise, other operating procedures or plans may need to be developed to ensure environmental protection, community and occupational health and safety and other risks and hazards. If necessary, these may include:

- RAP Implementation Plan;
- Livelihood Restoration Plan;
- Traffic Management Plan;
- Waste Management Plan;
- Health and Safety Management Plan;
- Pollution Contingency Plan;
- Erosion Management Plan;
- Emergency Preparedness and Response Plan;
- Cultural Heritage Management Plan.

These plans may be developed by the ESIA consultants or the Technical Assistants.

10.2.4 Review and Approval of ESIA, ESMP, IPMP, RAP, Dam Safety Plan

The ESIA will be first be reviewed by the SPIU ECC Specialist and IFAD's SECAP Team. ESIA for subprojects with issues of concern will be reviewed and given clearance by the Rwanda Development Board (RDB). ESMPs will be reviewed by the SPIU ECC Specialist, and then submitted for review and approval/clearance to RDB.

IPMPs will be reviewed by the SPIU ECC Specialist and IFAD, and approved by RAB. RAPs will be first reviewed by the KIIWP Social Safeguards Officer and IFAD's SECAP Team, and then proceed for review and approval by the Kayonza District Lands Office and the Rwanda Land Management and Use Authority (RLMUA).

The Dam Safety Plans will be reviewed by specialists at IFAD and approved by MININFRA, and will be disclosed on IFAD's website.

10.2.5 Disclosure of the ESIA and ESMPs

In developing ESIA and ESMPs, consultations must be held with all levels: at community, village, cell, sector and district levels. During these consultations, the processes for disclosure of the documents should be communicated. IFAD's SECAP procedures also require that sufficient consultations have been carried out with key stakeholders (ie. the communities) in order to satisfy its requirements for Free Prior and Informed Consent (FPIC).

Prior to approval of the subprojects, the ESIA and ESMPs, Integrated Pest Management Plans (IPMPs) and RAPs where these are required, will be disclosed nationally, at district level and at cell level at a location accessible to the general public, and in a form and language that the communities are able to understand, so that they may comment on any aspects/issues contained in the reports prior to their approval. IFAD requires that ESIA are disclosed for a period of 120 days prior to approval. The ESIA,

ESMPs, IPMPs and RAPs may therefore have to be updated to reflect these comments and indicate how the comments have been accommodated into the relevant subproject design and implementation procedures. If the comments have not been taken on board, the reason for doing so must be provided.

It is also important that the scheme designs are discussed and approved by the target beneficiary groups.

10.2.6 Grievance Redress Mechanisms

A grievance redress mechanism (GRM) is a process for receiving, evaluating and addressing project-related concerns of, and complaints by, project affected communities or persons.

IFAD's Grievance Redress Mechanism allows affected complainants to have their concerns resolved in a fair and timely manner through an independent process. IFAD's GRM requires: working proactively with the affected parties to resolve complaints; ensuring that the complaints procedure is responsive and operates effectively; and maintaining records of all complaints and their resolutions.

The principles of a good GRM are⁵¹:

- A mechanism scaled to risk and adverse impact on affected communities
- Designed to take into account culturally appropriate ways of handling community concerns
- A clear and understandable mechanism that is accessible to all segments of the affected communities at no cost
- Transparency and accountability to all stakeholders
- A mechanism that prevents retribution and does not impede access to other remedies

The key steps for grievance management are⁵²:

- i. Publicising grievance management procedures so that the mechanism is accessible to everyone;
- ii. Receiving (ie. collecting, recording and registering) and keeping track of grievances;
- iii. Reviewing and investigating grievances to assess the nature of the grievance, its severity and legitimacy;
- iv. Developing resolution options commensurate with the nature of grievances and preparing and communicating a clear response, and closing out cases when agreement with the complainants is reached
- v. Monitoring grievances through tracking to ascertain effectiveness, adapting the mechanism to correct inefficiencies, using the results of monitoring for feedback and lessons learned.

Grievance Redress Mechanism for KIIWP

In Rwanda disputes and disagreements may arise in the initial stages of project development commonly related to land property boundaries, destruction of land resources following valuation processes including standing crops, amount of monies to be compensated and delay in disbursement of agreed compensation.

KIIWP Project interventions will be delivered to community beneficiaries through cooperatives. Cooperatives manage grievances and conflicts through internal committees. During stakeholder consultations it was understood that communities have confidence in cooperative grievance redress

⁵¹ IFC (2009); Good Practice Note – Addressing Grievances from Project-Affected Communities, Guidance for Projects and Companies on Designing Grievance Mechanisms

⁵² ibid

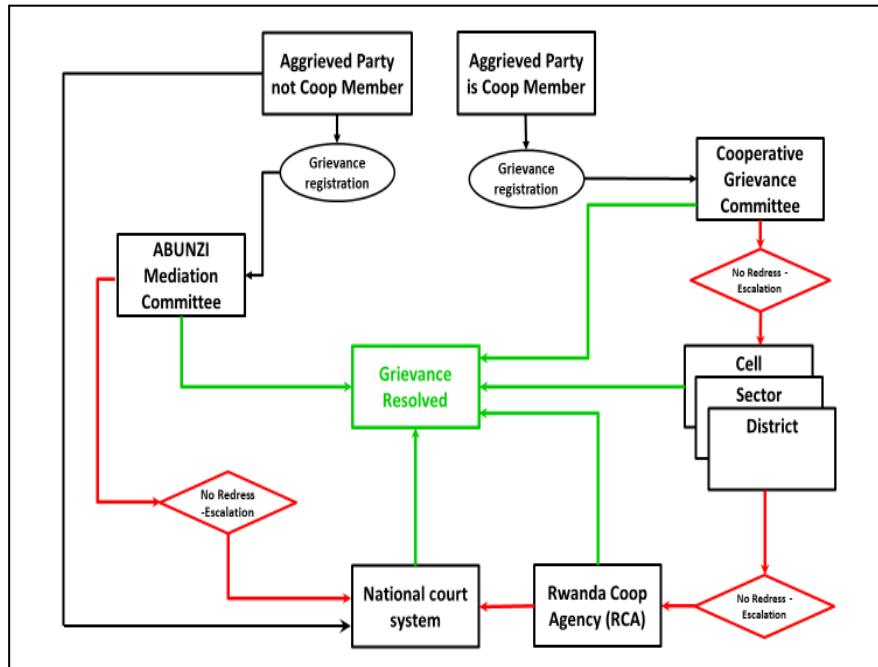
mechanisms. It is advised therefore that the KIIWP Project facilitate the constitution of intervention delivery cooperative or adopt existing ones to be involved in Project design, development and implementation.

Consultations also brought an understanding that escalation avenues are available for grievance redress are available within the local governance structures within the hierarchical cell, sector, district administration arrangement. Failure to resolve a grievance will normally allow an escalation of the local administration.

The KIIWP Project is expected to be managed by GoR through the SPIU framework with due district representation. A grievance redress mechanism (GRM) will be prepared by the Scheme Grievance Committees as proposed in Figure 10.2, and will follow either the *Abunzi* system if the aggrieved party is not a member of the cooperative concerned, or it would follow the resolution mechanism typically used by the cooperatives as stipulated in the provisions of Law N°

48/2013 of 28/06/2013 establishing Rwanda Cooperative Agency (RCA). The RCA requires that cooperatives request arbitration on unresolved grievances registered by their members. RCA evokes its grievance redress mechanism, failure at which the grievance is escalated to the national court system. Aggrieved parties who are not members of a cooperative would register grievances in the *Abunzi* system or directly in the national courts, depending on the gravity of the grievance as defined by the law. This mechanism is also proposed at Project operation level as the GRM for resettlement requirements before Project commencement is provided for by law.

Figure 10.2 Grievance Redress Mechanism for KIIWP



IFAD's Complaints Procedure

IFAD has established a complaints procedure entitled: "IFAD Complaints Procedure for Alleged Non-Compliance with its Social and Environmental Policies and Mandatory Aspects of its Social, Environmental and Climate Assessment Procedures" (PB/2014/06). The procedure came into effect in January 2015, and provides a means for any person who is not satisfied that an IFAD supported development is complying with IFAD's social and environmental policies to lodge a complaint. This can be done by email on: SECAPcomplaints@ifad.org.

10.2.7 Monitoring

Performance Monitoring

Performance monitoring requires that:

- The various safeguards instruments (ESIA, ESMP, IPMP, RAP, dam safety plan) have been prepared to the required standard, within the required timelines;
- The safeguards instruments have been reviewed and approved by the responsible entities;
- Environmental, social and climate mitigation measures, have been/are being implemented and that mitigation measures are effective. This includes monitoring the implementation of the ESMPs, RAP and IPMP, and also the grievance redress mechanism(s);
- The community is participating in all stages of the environmental and social management and monitoring processes;
- KIIWP Project Management Team and KIIWP District Team, and relevant District and cell level officers have been trained in accordance with the capacity building proposals;
- Reports are prepared and delivered as required.

In addition, monitoring needs to be undertaken at the intervention level to assess the performance of the irrigation schemes, catchment protection and rehabilitation activities, and facilities provided for livestock watering.

Performance monitoring will be done by the IWUOs, cell SEDOs and LWUOs and overseen by the District Environmental Professional and the SPIU ECC Specialist.

Examples of typical monitoring parameters and indicators are shown in Table 10.3 below:

Table 10.3 Typical Performance Monitoring Indicators

Monitoring Parameter	Monitoring Activity/Indicators	Target	Responsibility for Monitoring
Safeguards Instruments			
Approvals and Implementation	% of ESIA/ESMPs approved	100% ESIA/ESMPs approved	SPIU ECC Specialist
	% of RAPs where RAP implementation completed	100% RAPs completely implementation	SPIU ECC Specialist
Safeguards training	No. of KIIWP Project Management Team, District and cell officers trained	All KIIWP Project Management Team, and all relevant District and cell officers trained	SPIU ECC Specialist
Reporting	No. of quarterly reports received	4 quarterly reports received	SPIU ECC Specialist
	No. of annual reports received	1 annual report received	SPIU ECC Specialist
Intervention Level Monitoring			
Water availability	No. of days water <u>not</u> available for irrigation	Zero days water not available	IWUOs
	Abstraction rates	As stipulated in Scheme Water Abstraction Permit	IWUOs
Soil quality	Area of scheme where salinization is present and evident	No salinization evident	IWUOs

Monitoring Parameter	Monitoring Activity/Indicators	Target	Responsibility for Monitoring
Compensation and resettlement	No. of PAPs compensated	All eligible PAPs compensated	Cell SEDO
	No. of PAPs relocated	All PAPs eligible for relocation are relocated	Cell SEDO
	No. of compensation/resettlement-related grievances received	Zero complaints received	Cell SEDO
Catchment rehabilitation	No. of hectares of degraded catchment rehabilitated	Total targeted land identified for rehabilitation is rehabilitated	Sub-catchment committee
	No. of hectares of land terraced	Total targeted land identified for terracing is terraced	Sub-catchment committee
Functioning of valley tanks	% of valley tanks (rehabilitated and new) being used	100% valley tanks being used	LWUOs
	No. of valley tanks silted 3 years after construction	Zero valley tanks silted	LWUOs
	Area around valley tank where degradation due to livestock concentrations is present and evident	No degradation evident	LWUOs

Results Monitoring

Results monitoring involves monitoring compliance and effectiveness of the safeguards instruments, and also assesses the overall environmental, socio-economic and climate-related impacts of the Project's interventions in relation to its development objectives. Results monitoring will be done on an annual basis by the SPIU ECC Specialist with support from KIIWP's ECC Officer and Social Safeguards Officer, in collaboration with the District Environmental Officer. This will also contribute to the KIIWP Mid-Term Review. Results monitoring will be critical in providing feedback and lessons learned for any future phases of KIIWP. Typical parameters for results monitoring are shown in Table 10.4 below. Social and socio-economic indicators should be measured specifically for the cells in which the subproject interventions are taking place. However, environmental indicators (such as those relevant to water quality and aquatic ecology) may go beyond cell boundaries.

Table 10.4 Typical Results Monitoring Parameters

Monitoring Parameter	Monitoring Activity/Indicators
Water quality in rivers	Water quality at given sites downstream of abstraction points
Agrochemical releases into irrigation drains/rivers	Water quality at given sample sites along drainage network, and point of discharge to river
Agrochemical concentrations in aquatic fauna	Noticeable number of dead fish observed in rivers, marshlands and lakes
Soil quality	Nutrient depletion and loss in structure Agrochemical contamination
Economic activity in Project area	Changes in agricultural production and marketing
Socio-economic status	Changes in poverty levels Changes in nutrition status Changes in employment levels for women, men and youth
Health	Changes in morbidity rates due to malaria
Food security	Impacts of crop production on food security in the cells
Livestock	Number of livestock using valley tanks in dry years

10.2.8 Quarterly and Annual Reviews

Quarterly and annual reviews will be undertaken by the KIIWP ECC Officer and Social Safeguards Officer. These reviews are necessary to:

- Ensure that subprojects are complying with the processes established in the ESMF;
- Ensure that subprojects are compliant with the conditions and requirements stipulated in ESMPs, IPMPs and RAPs,
- Identify challenges and opportunities in order to learn lessons and thereby improve Programme performance; and
- Be able to determine the cumulative impacts of the Programme to establish attainment of the Programme Development Objectives.

The reviews will produce a Quarterly and Annual Review Reports for each sector. It is recommended that each year, the workshops are held where environmental, climate change and social performance of the Project will be reviewed and discussed, and recommendations made for improved Programme performance.

The Quarterly and Annual Review reports will be presented to PSC on a quarterly and annual basis in order to ensure that the Programme activities are achieving Programme objectives. IFAD will participate in these presentations.

10.2.9 Environmental and Social and Auditing

The purpose of auditing is to establish the level of compliance with national policy objectives and regulatory requirements and whether the conditions of approval attached to the environmental impact assessment report are being implemented satisfactorily. The KIIWP Project Management Team will be responsible for ensuring that environmental and social audits are carried out once a year during

implementation for Category A subprojects and once in two years for Category B subprojects. The audits will be carried out by independent consultants.

Audit reports will be sent to the PSC and IFAD, as well as to REMA and the District.

10.2.10 Reporting

The KIIWP Management Team will submit quarterly and annual environmental, social and climate resilience performance reports to the PSC and IFAD.

10.3 Summary of Processes and Responsibilities

Table 10.5 below summarises the procedures and responsibilities described in this ESMF.

Table 10.5 ESMF Procedures and Responsibilities

ESMF Procedures	Activity	Responsibility
Screening	Eligibility	KIIWP Project Team
	Categorisation	SPIU ECC Specialist / KIIWP ECCO / KIIWP SSO
ESIA	Preparation of ESIA (IL3/Category A subprojects)	ESIA Consultant
	Disclosure of ESIA	RAB, MINAGRI, IFAD
	Review and approval of ESIA	RDB, IFAD
	Implementation of ESMP	KIIWP ECCO
	Supervision and monitoring of the ESMP	SPIU ECC Specialist
ESMP	Preparation of ESMP (IL2/Category B subprojects)	Consultant or KIIWP ECCO and SSO
	Disclosure of ESMP	RAB, MINAGRI, IFAD
	Review and approval of ESMP	RDB, IFAD
	Implementation of ESMP	KIIWP ECCO
	Supervision and monitoring of the ESMP	SPIU ECC Specialist
Climate Risk Analysis	Preparation of Climate risk analysis	SPIU ECC Specialist, IFAD
	Climate risk monitoring	SPIU ECC Specialist
RAP	Preparation of RAP	RAP Consultant
	Disclosure of RAP	RAB, MINAGRI, IFAD
	Review and approval of RAP	Kayonza District Land Office, RLMUA, IFAD
	Implementation of RAP	RAP Implementation Committee
	Supervision and monitoring of the RAP	KIIWP SSO
IPMP	Preparation of IPMP	KIIWP ECCO, DEO, DAO
	Review and approval of IPMP	MINAGRI, IFAD
	Supervision and monitoring of implementation of IPMP	KIIWP ECCO
Dam Safety Plan	Preparation of Dam Safety Plan	Dam design consultant

ESMF Procedures	Activity	Responsibility
	Review and approval of Dam Safety Plan	IFAD, MININFRA, MINIRENA
	Supervision and monitoring of implementation of Dam Safety Plan during dam construction	RAB, MININFRA, MINIRENA, KIIWP Irrigation Engineer
	Supervision and monitoring of implementation of Dam Safety Plan during dam operation	RAB, MININFRA, MINIRENA, KIIWP Irrigation Engineer
Other Plans/SOPs	Preparation of management plans / SOPs	ESIA Consultant or Technical Assistants
	Implementation of SOPs	KIIWP ECCO, SSO
Grievance Redress Mechanism	Grievance receipt, verification, investigation, resolution, communication with complainant and referral to higher levels if necessary	Scheme Grievance Committees
	Monitoring of effectiveness of GRM	KIIWP SSO
Performance monitoring	Safeguards instruments	SPIU ECC Specialist
	Intervention level activities	IWUOs, Cell SEDOs, Sub-catchment committees, LWUOs
Results Monitoring	Project level environmental and social indicators	SPIU ECC Specialist, KIIWP ECCO, SSO, DEO.
Reviews	Submission of quarterly review reports to PSC and IFAD	KIIWP ECCO, SSO
	Submission of annual review reports to PSC and IFAD	KIIWP ECCO, SSO
Environmental and Social Audits	Annual audits of IL3/Category A subprojects	Independent consultants
	Audits of IL2/Category B subprojects once every 2 years	Independent consultants
Reporting	Submission of quarterly and annual environmental, social and climate resilience performance reports to the PSC and IFAD	KIIWP Project Management Team

11 Capacity Building

11.1 Existing Capacity

11.1.1 KIIWP Lead Agency

MINAGRI is the lead agency under whose auspices KIIWP will be implemented. MINAGRI has an Environment and Climate Change (ECC) Specialist whose primary focus is on regulation and strategic planning. This officer is the only person in MINAGRI responsible for environmental and climate change issues, and covers the entire country. As such, the ECC Specialist will not be directly involved in KIIWP oversight.

RAB has a number of research programmes on crop development, climate change, soils, etc, which have relevance to environmental issues. At zonal level, RAB has a Department of Natural Resources Management. In the Eastern Zone, RAB has a station at Rwamagana Station which is well-staffed with researchers.

However, while RAB personnel have a high level of specialised expertise, the RAB personnel who will be responsible for overseeing KIIWP may not be fully aware of the various environmental, social and climate interactions that may occur from the KIIWP Project activities and how environmental, social and climate risk mitigation are to be mainstreamed into Project activities. It is important that environmental, social and climate considerations are incorporated during Project implementation and there is therefore a need to build the capacity of RAB personnel who will oversee KIIWP, in order for them to have a holistic understanding of the various Project activities to ensure that the Project can be sustainable environmentally, socially and climatically.

11.1.2 KIIWP Project Management Team

As mentioned in Section 2.4, the SPIU-IFAD staff who will be involved in overseeing KIIWP will include Coordinator, Finance Officer, M&E Officer, Procurement Officer, Administration Officer, the Environmental and Climate Change Specialist and the agro-meteorologist. Staff specifically dedicated to KIIWP within the SPIU will include the KIIWP Programme Manager, an accountant, an M&E officer in charge also of gender and youth, an irrigation engineer, a WUO Specialist, a Land Husbandry/Soil and Water Conservation (SWC) Engineer, and a Cooperative Development Officer.

At the District level, KIIWP staff will consist of an accountant, a WUO Specialist, a Land Husbandry (SWC) Engineer, a Cooperative Development Officer, a horticulture specialist, an irrigation technician, an Environmental and Climate Change Officer (ECCO), and a Social Safeguards Officer (SSO).

With regard to the Project Management Team, capacity building will focus on environmental, climate and social risks and implications, compliance, and also on mechanisms and modalities for addressing these risks.

11.1.3 KIIWP Implementation Partners

There will be a number of implementation partners for KIIWP. At national level these would include the Rwanda Cooperative Development Agency (RCA), Business Development Fund (BDF), and RWFA.

District level implementation partners will be the local administrative entities, namely district, sector, cell and village authorities. In Kayonza District, there is one District Environmental Officer (DEO) who

is responsible for inspection of all activities in regard to environmental management, including ensuring wetland/marshland buffer zones are maintained, mining, brick making near lakes, terraces, biogas, improved cooking stoves. He reports directly to the Mayor. He collaborates occasionally with REMA, but there is no formal link with REMA. Although this officer works with the sector level specialists (such as the agronomist), the latter do not have any training in environmental issues. Generally, therefore capacity for monitoring environmental, social and climate-related issues is lacking at the district level.

The District Environment Committee is chaired by the Mayor, and the DEO is the secretary. Representative from the various district subject offices are members of this committee, for example the Agricultural Officer, Forest Officer, Mineral Field Officer, Socio-Economic Development Officer (SEDO). This is the main forum in which cross-sectoral environmental issues are discussed.

At sector level there is no institutional provision for environmental management. There are supposed to be sector environmental committees, but these are not functional.

However, at cell level Socio-economic Development Officers (SEDOs) are in charge of environmental management, but again have very little understanding of environmental issues. Most cells have SEDOs, so social compliance is easier to monitor than environmental compliance. The cells also have environmental committees.

MINAGRI has recently advertised positions for District agricultural inspectors (DAIs) who will be in charge of inspecting all agricultural activities in their respective districts, including regulatory and compliance requirements governing agricultural activities. Once instated, the Kayonza District Agricultural Inspector may support KIIWP district personnel in monitoring environmental, social and climate related issues for KIIWP.

Capacity building requirements for national, district, sector and cell level implementation partners will focus on environmental, climate and social risks and implications and addressing risks. District, sector and cell level implementation partners would also be involved in supervision and/or monitoring of implementation of the ESMMPs and climate mitigation measures, and therefore will need to be capacitated to undertake these responsibilities.

Technical service providers (TSPs) will be taken on by the Project to provide capacity building and implementation assistance on irrigation techniques, financial management of schemes, crop production, business development/entrepreneurship, etc. However, there will be a need for these service providers to support mainstreaming of environmental, social and climate change issues into the service packages that they are providing.

11.1.4 Project Beneficiaries

The WUOs (ie. IWUOs and LWUO) and catchment/watershed farmers will be key in ensuring that ESMMPs are implemented. They will therefore need a good understanding of how the activities they will carry out under KIIWP will affect - or be affected by - environmental, social and climate change aspects, what measures are required to address these issues, and how they need to be incorporated into Project infrastructure and management practices.

The surrounding communities, including farmers who are not members of IWUOs/LWUOs and others who rely on agricultural value chains and commodities (such as agricultural produce traders, transporters, agricultural input and equipment traders, agrivets, etc) will also require sensitisation and awareness raising, as well as training in erosion prevention and climate smart agricultural practices.

As mentioned in Section 2.3.2, youth and the physically challenged members of the Project communities will be encouraged to participate in farming, as well as value chain development.

11.2 Capacity Building

Training on environmental, social and climate-related aspects will be delivered according to the level at which implementation of specific activities and actions is required. This will cover, among others:

- Requirements of the national environmental, social and climate policies, legislation and administrative frameworks;
- Requirements of IFAD's SECAP and ERNM, Climate, Land and Disclosure Policies;
- ESMF processes, procedures and institutional arrangements to develop and implement required safeguards documents;
- Screening as prescribed in the ESMF;
- Environmental, social and climate impact assessment, IPMP, RAP, PCR approaches and requirements;
- Preparation, implementation and monitoring of ESMPs, ESIA, IPMPs and RAPs;
- ESMPs and monitoring key environmental and social performance indicators for each subproject site;
- Reporting and monitoring implementation of ESMPs, IPMPs and RAPs;
- Environmental and social best practices – including proper application of chemical inputs, pest management, water efficiency/water saving agronomic practices, soil fertility management, dam safety, labour-saving techniques, gender empowerment;
- The use of climate and weather information in agriculture;
- Climate smart agriculture;
- Participatory mapping;
- Watershed management;
- Conservation agriculture techniques.

Table 11.1 below summarise capacity building topics, and methods for training.

Table 11.1 Capacity Building Topics

Topic No.	Capacity Building Topics	Target Audience	Training Methods
1	National environmental, social and climate policies, legislation and administrative frameworks requirement	RAB, KIIWP Project Management Team at SPIU and District level DEO, District SEDO, DAI Sector specialists, cell SEDO	Training workshops at national and district, sector and cell level, and hydrographic basin committees.
2	IFAD's SECAP and ERNM, Climate, Land and Disclosure Policies	RAB, KIIWP Project Management Team at SPIU and District level DEO, District SEDO, DAI Sector specialists, cell SEDO	Training workshops at national and district, sector and cell level, and hydrographic basin committees.
3	KIIWP environmental and social management processes, procedures and institutional arrangements to develop and implement required safeguards documents	RAB, KIIWP Project Management Team at SPIU and District level DEO, District SEDO, DAI Sector specialists, cell SEDO	Training workshops at national and district, sector and cell level, and hydrographic basin committees.

Topic No.	Capacity Building Topics	Target Audience	Training Methods
4	Environmental, social and climate impact assessment, IPMP, RAP, PCR assessment, approaches and requirements	KIIWP ECCO and SSO DEO, District SEDO, DAI Cell SEDO TSPs	Training workshops at national and district, sector and cell level.
5	Preparation, implementation and monitoring of ESMPs, ESIAs, IPMPs and RAPs	KIIWP ECCO and SSO DEO, District SEDO, DAI Cell SEDO WUOs	Training workshops at national and district, sector and cell level.
6	ESMPs and monitoring of key environmental performance indicators	KIIWP ECCO and SSO DEO, District SEDO, DAI Cell SEDO, hydrographic basin committees WUOs	Training workshops at national and district, sector and cell level, and hydrographic basin level.
7	Reporting and monitoring the implementation of ESMPs, IPMPs and RAPs	KIIWP ECCO and SSO DEO, District SEDO, DAI Cell SEDO	Training workshops at national and district, sector and cell level.
8	Environmental and social best practices – including dam safety, proper application of chemical inputs, pest management, water saving agronomic practices, soil fertility management, labour saving techniques	RAB KIIWP ECCO and SSO DEO, District SEDO, DAI Cell SEDO WUOs, watershed farmers TSPs	Training workshops Training sessions at district level – classroom and field (FFS) Roll-out training for by district PMT sector and cell levels, WUOs, farmers and TSPs
9	Participatory mapping	KIIWP ECCO and SSO DEO, District SEDO Cell SEDO WUOs, watershed farmers	Training sessions at district level – classroom and field (FFS) Roll-out training for by district PMT sector and cell levels, WUOs, farmers
10	The use of climate & weather information for agriculture	Watershed farmers, scheme farmers, water users organizations, etc	Training sessions at district level – classroom and field (FFS) Roll-out training for by district PMT sector and cell levels, WUOs, farmers
11	Watershed management	KIIWP ECCO and SSO DEO, District SEDO Cell SEDO WUOs, watershed farmers Project communities	Training sessions at district level – classroom and field (FSS) Roll-out training for by district PMT sector and cell levels, WUOs, farmers, communities
12	Training on the use of APSIM (a software which has been calibrated under PASP project) that is being used to forecast yields based on weather forecasts and farm inputs	KIIWP ECCO and SSO DEO, District SEDO	Training sessions at district level – classroom and field (FSS)

Topic No.	Capacity Building Topics	Target Audience	Training Methods
13	Conservation agriculture techniques	KIIWP ECCO and SSO DEO, District SEDO Cell SEDO WUOs, watershed farmers Project communities	Training sessions at district level – classroom and field (FSS) Roll-out training for by district PMT sector and cell levels, WUOs, farmers

11.3 Technical Assistance

At the start of the Project, a capacity needs assessment will be carried out in order to:

- Identify the existing knowledge, skills and gaps in the area related to environmental and social compliance among the Project Implementation Team and key Project implementation actors;
- Make recommendations for detailed capacity development required in order to ensure environmental and social compliance of KWIIP Project at all stages of its development and implementation;
- Make recommendations for detailed capacity building required by Project Implementation Team and key Project implementation actors in order to ensure climate risk mitigation and emission reductions at all stages of the Project development and implementation;
- Prepare a detailed capacity building plan, training manuals (modules, visual aids, leaflets), training schedule, and provide costs for these activities based on the identified capacity needs
- Carry out the initial training programme by using the manuals developed.

In addition, Technical Assistance will be hired on temporary basis, as and when necessary, to support the Project Management Team and other key Project implementers at both National and District level to mainstream environmental, social and climate issues.



Valley dam, Murundi Sector

12 ESMF Implementation Budget

The cost estimate for the implementation of activities proposed in this ESMF is USD 2,987,500, as presented in Table 12.1 below. This covers costs for preparation of safeguards documentation, hiring of dedicated staff to oversee environmental, social and climate-related aspects of KIWP activities, capacity building, Project compliance monitoring, annual audits, technical assistance and annual reviews.

Table 12.1 ESMF Implementation Budget

	Unit	No.	Unit cost USD	Year 1 USD	Year 2 USD	Year 3 USD	Year 4 USD	Year 5 USD	Total cost USD
Preparation of Safeguards Documents									
Category A ESIA Studies	studies	3	200,000		600,000				600,000
Category B ESMPs	studies	42	10,000	50,000	200,000	170,000			420,000
Resettlement Action Plans	studies	7	40,000	80,000	200,000				280,000
			Subtotal	130,000	1,000,000	170,000	0	0	1,300,000
RAP Implementation									
Compensation of affected assets, resettlement assistance, etc.	RAPs	7	45,000		90,000	225,000			315,000
			Subtotal	0	90,000	225,000	0	0	315,000
KIWP Staff Salaries									
1 Environmental and Climate Change Officer, 1 Social Safeguards Officer	persons	2	15,500	15,500	31,000	31,000	31,000	31,000	139,500
			Subtotal	15,500	31,000	31,000	31,000	31,000	139,500
Capacity building									
Training workshops at national, district, sector and cell levels	workshops	2	lumpsum	15,000	25,000				40,000
Practical training	sessions	6	25,000	125,000		25,000			150,000
Roll out training	sessions		lumpsum		50,000	200,000	200,000	50,000	500,000
			Subtotal	140,000	75,000	225,000	200,000	50,000	690,000
Project Monitoring									
SPIU	persons	3	lumpsum	11,000	22,000	22,000	22,000	22,000	99,000
District	persons	2	lumpsum	1,000	2,000	2,000	2,000	2,000	9,000
			Subtotal	12,000	24,000	24,000	24,000	24,000	108,000
Annual Independent Audits									
Irrigation Schemes	sites	6	5,000			30,000	30,000	30,000	90,000
Catchment conservation	sites	6	5,000			30,000		24,000	54,000
Livestock watering	clusters	8	5,000			40,000		32,000	72,000
			Subtotal	0	0	100,000	30,000	86,000	216,000
Technical Assistance									
Consultants	months	6	12,500	50,000	25,000				75,000
Training manual, visual aids, etc	lumpsum	1	lumpsum	75,000					75,000
			Subtotal	125,000	25,000	0	0	0	150,000
Annual Environmental, Social and Climate Change Performance Workshops									
Workshops	number of workshops	4	25,000		15,000	15,000	15,000	15,000	60,000
			Subtotal	0	15,000	15,000	15,000	15,000	60,000
GRAND TOTAL (USD)					422,500	1,260,000	790,000	300,000	206,000
									2,978,500

The basis of the estimate is as follows:

Preparation of safeguards documents

- Category A ESIA Studies will all be conducted in Year 2.
- Category B ESMPs: 5 studies to be carried out in Year 1, 20 studies in Year 2, and 17 studies in Year 3.
- RAP: 3 full RAPS will be required for Kabare, Rwinkwawu and Kaborondo schemes. At this stage we assume that RAPs will also be required for 2 valley dams and 2 boreholes

RAP Implementation

- This is estimated based on comparable projects under Rural Green Climate and Climate Resilient Development Project funded by the Ministry of Environment (MINIRENA) and the Green Climate Fund in Gicumbi District⁵³.

KIIWP Safeguards Staff Salaries

- KIIWP will be staffed with two safeguards officers: one Environmental and Climate Change Officer, and one Salary Social Safeguards Officer. The salaries for these staff based on current salaries for field officers on IFAD-supported projects is USD 1291 per month. Project implementation is expected to begin in July 2019, so salaries for the first year cover 6 months.

Capacity Building

- Training workshops at national, district, sector and cell levels will take place in Year 1 and cover Topics 1 and 2 (as shown in Table 11.1). These will be conducted by SPIU personnel, an IFAD SECAP specialist, and resource people from MINAGRI RAB, REMA, RWFA. In Year 2, training will be done for Topics 4,5,6,7 by a consultant (possibly the same consultant carrying out the full ESIAs). The costing is based on 50 participants attending.
- Practical training covering Topics 8, 9,10, 11, 13 will be done in Year 1, and in Year 3 Topic 12 will be covered.
- Roll out training is based on 80% of an estimated 28000 direct target beneficiaries who will receive a stipend of Rwf 2000, for sessions for 2 days on 5 separate topics.

Project Monitoring

- SPIU: This covers field allowances for 2 SPIU officers and a driver. It is based on 2 days per week assuming 24 weeks in Year 1, and 48 weeks in Years 2,3, 4 and 5 as follows: 2 officers for 2 nights @Rwf 37,500 + 1 day@Rwf7,200, and 1 driver for 2 nights @ Rwf 17,800 + 1 day@Rwf4,800.
- District field allowances: This covers field allowances for 2 KIIWP Safeguards staff for 3 days per week for 24 weeks in Year 1, and 48 weeks in Years 2, 3, 4 and 5 @ Rwf 6000 per day.

Annual Independent Audits

- Each audit will be undertaken by one consultant for 5 days @USD500 + expenses, estimated at USD 5000 per audit. The audits will cover the six proposed irrigation schemes. At this stage the number of catchments to be rehabilitated is not clear, so it is estimated that in all 6 audits (covering 1 or more sites) will take place twice over the 5-year project period. For the livestock watering points, the interventions will be clustered for audit purposes, and 8 clusters of roughly 5 sites each will be audited twice over the 5-year project period.

⁵³ FONERWA (2017). Resettlement Policy Framework for the Strengthening Climate Resilience of Rural Communities in Northern Rwanda.

Technical Assistance

- It is proposed that 2 consultants will be taken on for 3 months each, totalling 4 months in Year 1, and 2 months in Year 2.
- As part of the TA, it has been proposed that training manual, visual aids, etc will be produced. This figure is a ballpark figure based on an estimate on monies spent on RDDF training materials

Annual Environmental, Social and Climate Change Performance Workshops

- The annual performance review workshops will take place once a year beginning in Year 2. For this workshop on daily stipends will be provided, based on 50 participants.



13 Summary of Key Issues Arising and Recommendations for KIIWP Design

13.1 Hydrology

One of the major concerns that emerged during the study is the availability of surface water resources for the proposed schemes and the command areas proposed for irrigation. As mentioned in Section 5.2.4, based on information gathered from the Lower Akagera Master Plan as well as discussions with the RWFA, the hydrology of the Akagera River and its lakes are complex. There is a “reverse flow” when the Akagera River is in flood as a result of rainfall in the upstream catchments (Akagera and Ruvubu) filling up the lakes. The lakes are reportedly shallow (5 – 10 m in depth), and the width and depth of the channels between Akagera River and lakes are a crucial factor for maintaining the hydrological functionality. Alterations to these channels may have serious consequences, particularly for the lakes. If substantial water is abstracted from the lakes for irrigation, the deficit will be filled from the river. Thus, the Lower Akagera Master Plan recommended that abstraction of water for agricultural use between the Akagera River and its lakes should be avoided. On the other hand, the Plan also indicates that at catchment level the renewable surface water resources are sufficient to cater for irrigation use and other demand until 2030, after which resources will be stressed during the 1 in 20 dry year. By 2040, the Plan states that water resources during the dry season will be stressed for most years, except when exceptionally wet years are experienced.

Recommendation: Based on the above, in order to accurately ascertain the availability of water resources for the Project, it is crucially important that a detailed hydrological study be carried out for the proposed Project area in order to substantiate or otherwise, the recommendations of the Lower Akagera Master Plan. This will then inform the number of hectares that can be sustainably irrigated.

13.2 Environmental Flow

The proposed irrigation schemes at Rwinkwavu and Kabarondo will involve the construction of dams for water storage, which will have to be filled with water. The Ndego and Kabare Irrigation schemes will draw water from river sources. There is a need for maintaining an environmental flow to sustain aquatic ecosystems and to support human, agricultural, livestock and industrial demand downstream. Thus, while the dams are being filled, and when the irrigation schemes are drawing water from the river sources, a prescribed environmental flow will have to be released downstream. The Lower Akagera Master Plan proposes an environmental flow of 33% of the average monthly flow. This means that the amount of water released downstream will have to be adjusted according to monthly flow patterns. However, ultimately RWFA will propose a suitable environmental flow for each site, which will be stipulated in the Water Abstraction Permit for that site.

Recommendation: Environmental flow as permitted by RWFA must be maintained at all times in order to do no harm to downstream ecosystems and so as not to compromise downstream demand. The scheme and dam designs will therefore have to take the recommended environmental flows into consideration as this will influence on the intake works as well as the potential area to be irrigated.

13.3 Wetlands

REMA has categorised various wetlands as totally protected, conditionally protected and unconditional (see Section 5.2.5). A key concern for the proposed scheme at Humure in Ndego Sector

is that the spur of Lake Ihema which protrudes outside the Akagera National Park is classified as totally protected. This is reasonable, since the rest of the lake lies within the ANP and any disturbance (for example in terms of water abstraction, sedimentation from erosion or pollution from agrochemicals) will affect the lake's water quality and possibly quantity, and therefore its biodiversity. Although the Bramin Scheme - which is located next to the proposed Humure site – draws its water from Lake Ihema, from a small section of the lake shore that lies between the totally protected wetland and the National Park boundary, it must be stated here that IFAD will not support projects in areas of critical habitats or which result in conversion or degradation of such habitats.

For interventions that will draw water from conditional wetlands (namely Kibare, Byimana, Gakoma, and the dams on the Gishanda and Kanyeganyege Rivers), RDB will issue an EIA Certificate of Approval that will list a number of conditions for the respective developments. However, a review of the conditions issued for similar schemes in the country revealed that these conditions were generic and did not specifically mention any measures to be taken to protect the wetlands.

Recommendations: i) An alternative source of water, or method of supplying water, will have to be identified for the Humure scheme, or the scheme location shifted to enable water to be drawn from the conditional wetlands of Lake Kibare; ii) IFAD will specify explicit conditions for wetland protection in the loan agreement which will need to be adhered to during subproject implementation.

13.4 Biodiversity

Based on an inventory of biodiversity of the wetlands south of the Akagera National Park (see Sections 5.2.6 and 5.2.8), the wetlands within the Project area are likely to be rich in biodiversity, and may harbour some endemic faunal and floral species. Any disturbance to these wetlands, for example due to changes in water flow regimes as a result of abstraction for the proposed irrigation schemes, and due to dam construction, may affect these species.

Recommendation: i) An ecological risk assessment should be conducted to identify and assess the significance of risks to wetland ecology in the subproject areas that are located upstream and downstream of the proposed irrigation sites, as well as any potential risks to biodiversity in the Akagera National Park; ii) If species of national or global importance are identified, scenario planning and an adaptive biodiversity management strategy will have to be prepared (see SECAP's Guidance Statement #1 Biodiversity), or the sites may have to be relocated, or alternative water sources sought, so as not to affect these species.

13.5 Buffer Zones

National requirements stipulate the need to maintain buffer zones for all water bodies. These vary from 20m to 50m, depending on the type of water body.

Recommendations: i) During the design of schemes and valley tanks, the recommended buffer zones must be accommodated. In some cases, this may result in the acquisition of land or assets, and therefore will necessitate a resettlement action plan (see SECAP's Guidance Statement #13 Physical and Economic Displacement); ii) If the schemes are close to the ANP, wetlands, woodland/ forest, a buffer zone should be established, the width of which should be based on discussions with ANP and on REMA regulations, and applying precautionary principle for maximum buffer width for ANP and wetlands.

13.6 Dams

As mentioned above, the two schemes in Rwinkwavu and Kabarondo Sectors will involve the construction of dams. At present the location and specifications of these dams is not known. However, it is expected that these will be medium sized dams, having wall heights between 5 and 15 m. According to SECAP's Guidance Statement #8 on Dams and their Safety, these are considered as large dams. The valley tanks may have shorter walls. Nevertheless, IFAD places the utmost importance on the safety of new dams that it finances, as well as on the safety of existing dams upon which an IFAD-assisted project is directly dependent. IFAD will therefore require the loan agreement to contain a covenant to ensure that dams and reservoirs are designed, constructed, operated, maintained, superintended and eventually decommissioned to the highest possible standards.

Recommendations: i) MINAGRI will need to engage a suitably qualified consultant with extensive experience and a proven record in dam design; ii) in addition, MINAGRI will have to adopt and implement dam safety measures for the design, bid tendering, construction, operation and maintenance of the dam and associated works.

13.7 Climate Risk Analysis

According to SECAP's climate risk classification guidelines, KIIWP is classified as high risk because it promotes agricultural activity on areas subject to extreme climatic events, such as flooding, drought, tropical storms or heat waves; climate scenarios for the Project area foresee changes in temperature, rainfall or extreme weather that will adversely affect the Project's impact, sustainability or cost over its lifetime; the Project that promotes agricultural activity on marginal and/or highly degraded areas (such as on hillsides, deforested slopes or floodplains); and the Project lies in an area which regularly experiences weather-related losses and damages.

Recommendation: Although the Project interventions themselves are intended to reduce vulnerability to the effects of climate change, an in-depth climate risk analysis must be undertaken prior to the full design of the Project in order to inform the design and decision-making processes, as required by SECAP. The analysis should be carried out by the SPIU ECC Specialist with support from IFAD.

13.8 Community Expectations

Consultations with the communities revealed that the communities' expectations are high in regard to the propose irrigation interventions. However, until the hydrological and ecological studies mentioned above are undertaken, the sizes and indeed the sustainability, of the proposed schemes cannot be confirmed. The studies are expected to be completed by 2020, which for the communities is a long way away.

Recommendations: i) The Kayonza District administration – particularly at cell level – will need to manage these expectations; ii) the ESIA studies to be prepared for the various schemes should include a Stakeholder Engagement Plan which should include a Stakeholder Communication Strategy detailing how community expectations can be managed, and the roles that the authorities and KIIWP Project Teams in implementing the Communication Strategy.

13.9 Physical and Economic Displacement

Physical and economic displacement may occur due to land acquired for scheme infrastructure, catchment protection and to create and maintain buffer zones. The eligibility criteria proposed in this ESMF recommends that subprojects that may physically or economically displace more than 20 people should not be considered under KIIWP, due to the capacity of the Project and District, and logistics required, to implement the necessary RAP and other safeguards requirements, as well as to carry out monitoring of displaced persons.

Recommendation: Where physical and economic displacement of 20 or less people may occur, a simple RAP is required, following the guidelines provided in Annex 4 of this ESMF.

13.10 Access to Water Sources and/or Grazing

The irrigation schemes may hinder access paths used by livestock to reach water sources or pasture, as observed at the Humure and Byimana sites in Ndego Sector and Gakoma site in Kabare Sector. This, together with competition between land for grazing and land for agriculture and catchment protection was also raised as a potential source of conflict during consultations with the Livestock Owners Opinion Leaders.

Recommendations: i) At the pumped irrigation sites, the design should consider the possibility of providing alternative watering points (eg. troughs) for livestock at locations as agreed with the communities and livestock owners; ii) Village level land use plans need to be developed which demarcate land use for different purposes, and more specifically for KIIWP purposes for agriculture, catchment protection and livestock keeping.

13.11 Health

The District Health Director indicated that malaria is responsible for 46.3% of morbidity cases in Kayonza District. The proposed irrigation schemes will result in large or small pools of stagnant water which provide breeding habitats for mosquitoes. Since May 2018 the District Health Office has begun a campaign to plant mosquito repelling plants/trees such as Artemisia, Geranium and Neem around homesteads and fields.

Recommendation: The Project should work with the District Health Office to acquire these plants and plant them around the proposed schemes and dams.

13.12 Human/Wildlife Conflict

During consultations with the communities, farmers reported that their farms are frequently raided by hippos which reside in the dams and valley tanks, and also by baboons. This has led to substantial loss of crops, and poses a danger to farmers as well. The Project aims to enhance crop yields, but this may also encourage increased raiding by wildlife.

Recommendation: The ESIA studies should study this issue in detail, and propose measures for reducing or eliminating human-wildlife conflict. Usually fencing is proposed to keep wildlife out. Because of the size of the command areas, this would be a costly measure, but may have to be considered if no other alternatives prove effective.

13.13 Community Involvement in Subproject Development

Consistently during the consultations, the communities expressed their desire to be involved in the subproject preparation, design and implementation. They also requested that they be consulted beforehand on how they would be expected to invest in the scheme development. Local involvement is key to sustainability, and local knowledge is very important in terms of siting infrastructure.

Recommendations: It is recommended that the community are involved in all stages of the development of subprojects, including siting of infrastructure. They must also be extensively consulted on their ability to contribute, and the modalities of how they can or are able to contribute, since all members of the communities do not have access to cash or loans at any given time. In addition, the Project design needs to be more specific in regard to the involvement of youth as well as the physically challenged members of the Project communities.



Annexes

- Annex 1:** **References**
- Annex 2:** **List of Persons Consulted**
- Annex 3:** **Sample TORs for ESIA Studies**
- Annex 4:** **Resettlement Action Framework**
- Annex 5:** **FPIC Implementation Plan**
- Annex 6:** **Guidelines for an Integrated Pest Management Plan**
- Annex 7:** **Guidelines for Dam Safety**
- Annex 8:** **Sample Contract Clauses for Environmental and Social Management**
- Annex 9:** **Notes on Community Consultations**
- Annex 10:** **List of Potential Beneficiary Consultation Participants**
- Annex 11:** **Proceedings of the ESMF Validation Workshop**
- Annex 12:** **Study Team, Sites Visited and ESMF Timelines**

Annex 1: References

Documents

- Fischer, E (2011). Biodiversity Inventory of Key Wetlands in Rwanda. Final Report. REMA.
- FONERWA (2017). Resettlement Policy Framework for the Strengthening Climate Resilience of Rural Communities in Northern Rwanda.
- Green and Clean Solution Ltd (2010). Environmental Management Plan (EMP) for Kayonza 15 Subproject. MINAGRI, Land Husbandry, Water Harvesting and Hillside Irrigation Project.
- IFAD (2009). Indigenous Peoples Policy
- IFAD (2010). Climate Change Strategy
- IFAD (2010). Policy on Disclosure of Documents
- IFAD (2012). Environment and Natural Resources Management Policy
- IFAD (2015). How to Do: Seeking Free, Prior and Informed Consent in IFAD Investment Projects.
- IFAD (2015). PRICE Mid Term Review
- IFAD (2017). Kirehe Community-based Watershed Management Project (KWAMP), Project Completion IFAD (2017). PASP Mid Term Review, April 2017
- IFAD (2017). Social, Environment and Climate Assessment Procedures
- IFAD (2018). Kayonza Integrated Irrigation and Watershed Protection Project. Draft Project Design Report
- IFC (2009); Good Practice Note – Addressing Grievances from Project-Affected Communities, Guidance for Projects and Companies on Designing Grievance Mechanisms
- IFC (2012); IFC Performance Standards: Performance Standard 5 – Land Acquisition and Involuntary Resettlement.
- IFC (2013). Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets – Good Practice Handbook.
- MacPherson, Derek (2013). Report on an Aerial Census of Akagera National Park, Rwanda – August 2013.
- MINAGRI (2010). Rwanda Irrigation Master Plan (RIMP). Ebony Enterprises Ltd and the World Agroforestry Centre (ICRAF).
- MININFRA (2010). The Study of Improvement of Rural Water Supply in Eastern Province. Prepared by Japan Techno Co Ltd and Nippon Koei Co Ltd with support from JICA.
- National Institute of Statistics of Rwanda (2012). Fourth Population and Housing Census, Rwanda. Kayonza District Profile.
- Nile Basin Initiative (2016). Strategy for Management of Environmental Flows in the Nile Basin.
- REMA (2006). General Guideline and Procedure for Environmental Impact Assessment.
- REMA (2009). State of the Environment Report 2009.
- REMA (2011). Atlas of Rwanda's Changing Environment.
- REMA (2015). Baseline Climate Change Vulnerability Index.
- REMA (2015). State of the Environment and Outlook Report.

REMA (2017). State of the Environment and Outlook Report: Achieving Sustainable Urbanisation. Report: Main report and appendices.

Republic of Rwanda (2003). Rwanda Environment Policy.

Republic of Rwanda (2004). National Land Policy.

Republic of Rwanda (2005). Organic Law determining the use and management of land in Rwanda.

Republic of Rwanda (2006). Law N° 08/2006 of 24/02/2006 Determining the Organisation and Functioning of the District.

Republic of Rwanda (2008). Law N°62/2008 of 10/09/2008 putting in place the use, conservation, Protection and management of Water resources regulations

Republic of Rwanda (2008). Ministerial Order determining the list of chemicals and other prohibited pollutants.

Republic of Rwanda (2008). Ministerial Order establishing the list of protected animal and plant species.

Republic of Rwanda (2008). Ministerial Order establishing the list of works, activities and projects that have to undertake an EIA.

Republic of Rwanda (2008). Ministerial Order Relating to the requirements and Procedures for EIA.

Republic of Rwanda (2010). Ministerial Order determining the length of land on shores of lakes and rivers transferred to public property.

Republic of Rwanda (2010). Ministerial Order determining the list of prohibited plains to construction.

Republic of Rwanda (2010). Ministerial Order determining the modalities of environment conservation in mining and quarry extraction.

Republic of Rwanda (2010). Ministerial Order determining the models of land consolidation and its productivity.

Republic of Rwanda (2010). Prime Minister's order determining the organization, functioning and responsibilities of committees in charge of the Environment conservation and protection.

Republic of Rwanda (2011). Freehold land titles Order Official Gazette no 36 of 05.09.2011.

Republic of Rwanda (2011). Ministerial order N°001/11.30 of 23/11/2011 establishing irrigation water users associations in irrigation schemes

Republic of Rwanda (2011). National Policy for Water Resources Management.

Republic of Rwanda (2011). National Strategy on Climate Change and Low-Carbon Development (NSCCLCD)

Republic of Rwanda (2012). Small Dams Safety Guidelines.

Republic of Rwanda (2013). District Potentialities Assessment for the Integrated and Self-Centred Local Economic Development). Kayonza District.

Republic of Rwanda (2013). Kayonza District Development Plan 2013-2018.

Republic of Rwanda (2013). Kayonza District: District Potentialities Assessment for the Integrated and Self-Centred Local Economic Development.

Republic of Rwanda (2013). Law No 46/2013 Of 16/06/2013 Establishing Rwanda Development Board (RDB) and Determining its Mission, Organisation and Functioning.

Republic of Rwanda (2013). Ministerial Order determining the list of water pollutants.

Republic of Rwanda (2013). Ministerial Order determining the organization and functioning of hydrographic basin committee.

Republic of Rwanda (2013). Ministerial Order determining the organization of water resources data collection-treatment-management-exploitation and communication.

Republic of Rwanda (2013). Ministerial Order determining the procedure for declaration, authorization and concession for the utilization of water.

Republic of Rwanda (2013). Rwanda Irrigation Policy and Action Plan.

Republic of Rwanda (2013). Second Economic Development and Poverty Reduction Strategy (EDPRS2).

Republic of Rwanda (2014). Sector Specific Environmental Audit Guideline for Agriculture Projects.

Republic of Rwanda (2015). Fourth Population and Housing Census (Rwanda, 2012). District Profile Kayonza.

Republic of Rwanda (2015). Health Sector Policy.

Republic of Rwanda (2015). Law N° 32-2015 of 11-06-2015 Relating to Expropriation in the Public Interest.

Republic of Rwanda (2015). National Contingency Plan for Drought.

Republic of Rwanda (2015). Rwanda's Constitution of 2003 with Amendments through 2015.

Republic of Rwanda (2016). Environmental and Social Management Guideline for Agriculture Projects.

Republic of Rwanda (2016). Ministerial Order determining regulations governing agrochemicals.

Republic of Rwanda (2016). National Biodiversity Strategy and Action Plan (NBSAP).

Republic of Rwanda (2016). Organic Law repealing Organic Law n° 02/2010/OL of 09/06/2010 on organization (jurisdiction (competence and functioning of the mediation committee as modified and complemented to date (ABUNZI).

Republic of Rwanda (2016). Resettlement Policy Framework.

Republic of Rwanda (2018). Law N°48/2018 of 13/08/2018 on Environment.

Republic of Rwanda (2018). National Agriculture Policy.

Republic of Rwanda (2018). Strategic Plan Agriculture Transformation (PSTA 4).

Rwanda Mines, Petroleum and Gas Board (??). Kayonza District MFO's Annual Report 2017-2018.

Rwanda Mines, Petroleum and Gas Board (??). Kayonza District MFO's Monthly Report May 2018.

Rwanda Mines, Petroleum and Gas Board (May 2018?); Mineral Field Officer's Annual Report 2017-2018, Kayonza District.

Sher Ingénieurs-Conseils s.a. (February 2014). Rwanda National Water Resources Master Plan; Master Plan Report – Appendix 08NAKL. Catchment Master Plan – NAKL; Final Version. Rwanda Natural Resources Authority.

Sher Ingénieurs-Conseils s.a. (May 2014). Rwanda National Water Resources Master Plan; Master Plan Report, Main Volume; Final Version. Rwanda Natural Resources Authority.

Websites

<http://horecorwanda.com/background/>
<http://projects.worldbank.org/p126440/third-rural-sector-support-project?lang=en&tab=overview>
<http://rdb.rw/one-stop-centre/#environmental-impact-assessment>
<http://riversymposium.com/about/brisbane-declaration/>
<http://scalingupnutrition.org>
<http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/ipm/more-ipm/en/>
<http://www.ifc.org/exclusionlist>
<http://www.ryaf.rw/spip.php?article1>
<http://www.statistics.gov.rw/publication/size-resident-population>
<https://operations.ifad.org/documents/654016/052e9c5b-8048-446f-8863-0356d242571d>
[http://documents.worldbank.org/curated/en/178141468307134222/pdf/LW0AF00P14754300PID0VM0140 Oct02013.pdf](http://documents.worldbank.org/curated/en/178141468307134222/pdf/LW0AF00P14754300PID0VM0140_Oct02013.pdf)
<https://operations.ifad.org/documents/654016/1bec6b12-b16d-4206-982c-640757fa7e7a>
<https://www.akageranationalpark.org/>
<https://www.cbd.int/countries/profile/default.shtml?country=rw>
<https://www.icco-cooperation.org/en/projects/stars>
https://www.ifad.org/documents/38714182/39732735/Rwanda+PPA+Executive+Summary_2015.pdf/0e39a6f9-49c1-4ed2-a2e2-6b12cf892c52?version=2.0
https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps5sustainability-at-ifc/policies-standards/performance-standards/ps5
<https://www.un.org/zerohunger/>

Annex 2: List of Persons Consulted

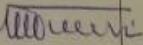
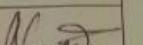
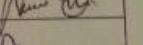
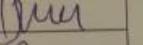
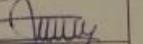
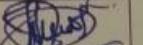
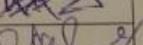
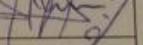
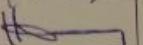
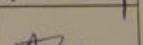
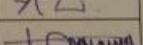
The following pages contain attendance lists of meetings and workshops held during the conduct of this ESMF.

In Kigali, individual consultations were also held with:

Name	Position / Organisation	Contact
Innocent Bisangwa	Director, Climate Change & Environment, MINAGRI	
Rachel Tushabe	Director of Education and Mainstreaming, REMA	
Francios Tetero	Directorate of Water Resources, Rwanda Water and Forest Authority	0788 466012 francios.tetero@rwfa.rw
Davis Buggingo	Directorate of Water Resources, Rwanda Water and Forest Authority	0788 230018 Davis.buggingo@rwfa.rw
Robert Ndabavunye	Irrigation Engineer, LWH	0788 546626
Diduce Habamenshi	Environmental Specialist, LWH	0788 613065

Meeting with Kayonza District Officials on 27th September 2018 at Kayonza District Head Quarters

MEETING BETWEEN KAYONZA OFFICIALS & IFAD TEAM WORKING ON ESMF FOR KWIIMP
PROJECT ON 27/08/2018

Nº	NAMES	POSITION	TELEPHONE	SIGNATURE
1	MURENZI J. Claude	Mayor	0788304126	
2	SIRAIKARE N. Sylvere	RABIMINAGA Scientist	0788410742	
3	RUGEGE Denis	IFAD Consultant	0785475131	
4	Madeleine Uwabyimbabazi	Climate Envir. Sp.	0788878101	
5	MUDENGE Jean Paul	Environment Officer	0788642401	
6	KWIZERA Alphonse	Forestry & Natural Resources	0783025125	
7	KARUNDWA Hussein	DPO	0788480193	
8	HOPP Munganyinica	Vlm BD	0788841117	
9	ARU WILLETS	IFAD Consultant	078940277	
10	Gisele UWIZEYE	Gender & Family Promotions	0788867363	
11	BISANGWA Emmanuel	Director of Social Development	0788671298	
12	MURENZA J. Baptiste	Youth, Sport & Culture	0788456282	
13				
14				

Debriefing Meeting held on 10th September 2018 at RAB Head Office

No	Names	Position/Organisation	Email/Phone	Signature
1	Patrick Kavugendo DG	RAB	patrick.kavugendo@rab.gov.rw	P
2	Sorlange Uwizeza	RAB	sorlange.uwizeza@rab.gov.rw	Holde
3	Alex Ntumizimana Coord. INGOs	Ag. SPIV	alex.ntumizimana@minagri.rw	Holde
4	Stéphane Biharden Sj Wer	Research on KIIWP final per Sja	stephane.biharden@minagri.rw	N J
5	Durstone Karankwiza HOD-AG	Minagri Coab grp	Durstone.Karankwiza@minagri.rw	Caro
6	Madeleine Mujyigidi	SPIV et FEDAFinal proj	madeline.mujyigidi@minagri.rw	J
7	Aimable Ntakwefu	IFAD CPO	0788389888	Aimable
8.	KARENDA Gashora	RAB - RDP	0788401732	Gashora
9	MUCYO Papier	Senior Irrigation Engineer / RAB	0783497927	MUCYO
10	Rwandan Jean Lambard	Adviser to DG RAB	J.lambard@rab.gov.rw	Concordant

KIIWP ESMF Validation Workshop held on 22nd November 2018 at Umabano Hotel, Kigali

#	Participant's name	Institution	Position	Location/District	Phone number	Signature	Email
1	NGABONDE Thierry	Kagoma District	Geologist	Kagoma	0788480883		thierryngabonde@papri.com
2	MUCYO Papiru	RAB	Senior Irrigation Engineer	Kigali	0783497923		papy2020@gmail.com
3	HABUYAMBADE Maurice PRICE/NESB CM	Maurice PRICE/NESB CM	Kigali	0780405163		habuyamrade.y.j. cl.kagabo@papri.com	
4	Rusayi Simon	NAED/DRIVE	H VCS	Kigali	0787188330		
5	Desire KAGABO	CIAT	Scientist	Kigali	0788769088		
6	Hanson MUNYANZA	RAB	Agro/Env	Kigali	0788430283		
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Annex 3: Sample TORs for ESIA Studies for KIIWP Irrigation Projects

Kayonza District Irrigation and Integrated Watershed Management Project (KIIWP) Terms of Reference for an Environmental & Social Impact Assessment Study for [XXXX] Irrigation Scheme, [XXXX] Sector

Introduction and Background

Rwanda has abundant untapped water resources in the form of natural lakes, rivers, groundwater, marshlands and runoff. The United Nations' Food and Agricultural Organisation's (FAO) AQUASTAT estimates Rwanda's internal renewable water resources at 31.9×10^9 m³/year and the National Irrigation Master Plan (2010) identifies potential irrigable area of 589,711 ha. Buoyed by support from government resources and development partners, Rwanda has sharply increased the area under irrigation from 8,000 ha in 2010 to the current 48,000 ha, but the country has an ambitious target of 100,000 ha to achieve by 2020.

In 2016, Rwanda's Eastern Province was seriously affected by a severe drought which led to the death of 2,417 heads of cattle as well as poor crop yields during Season A (October to December). As a result, more than 47,000 households in the districts of Kayonza, Nyagatare, Gatsibo, Ngoma and Kirehe were affected and became food insecure. The Government of Rwanda (GoR) had to provide food relief and water for livestock to support the affected districts. Although these districts have since come up with measures to mitigate drought-induced calamities, in order for these initiatives to achieve long-term impacts and deliver increased resilience, the Government requested IFAD to formulate a new integrated irrigation and watershed development project focusing on Kayonza District, which was most seriously affected.

The Kayonza District Irrigation and Integrated Watershed Management Project (KIIWP) therefore aims to improve the resilience of smallholder farmers to droughts and effects of climate change through increased levels of production and productivity of selected food and cash crops, livestock and improved market access and business development. The Project is expected to improve household food and nutrition security, income and asset ownership for smallholder farmers, particularly amongst vulnerable groups including women-headed households and youth. KIIWP comprises three components. The first component, Component 1, will focus on strengthening resilience to drought. This will involve catchment rehabilitation and protection, irrigation development and infrastructure management institutions. Component 2 will provide support to farm business development. A third component will support institutional development and project coordination.

Against this background, the Rwanda Ministry of Agriculture and Animal Resources (MINAGRI), in collaboration with the Rwanda Agriculture and Animal Resources Development Board (RAB), now seeks to invite proposals to carry out an environmental and social impact assessment study on [XXXX] irrigation scheme in [XXXX] Sector.

These terms of Reference (ToRs) set out the scope of work for preparation of an Environmental Social Impact Assessment (ESIA) for the [XXXX] Irrigation Project to be implemented in an environmentally and socially sustainable manner, and in full compliance with the Law on Environment of 2018, Ministerial Order of 2008 relating to the requirements and procedures for Environmental Impact Assessment, the Rwanda Environmental Management Authority's (REMA) General Guidelines and Procedures for Environmental Impact Assessment (2006) and IFAD's Social Environmental and Climate Assessment Procedures (SECAP, 2017).

In line with REMA's EIA Guidelines, the proposed scheme will have significant adverse environmental and social impacts and therefore are categorized as Impact Level 3 (IL3) requiring full environmental

impact assessments. Moreover, according to SECAP's screening procedures, the proposed irrigation project is categorized as Category A because it will have command areas over 100ha, and will be located near the wetlands which are considered ecologically sensitive areas.

Scope of Work

Geographic Coverage

This Consultancy will focus on the [XXXX] irrigation scheme proposed in [XXXX] Sector with a total command area of [XXXX] ha. The proposed infrastructure will include:

- [[XXXX]] Irrigation infrastructure: Diversion weirs/intakes; headworks; dams, dam walls/embankments; conveyance canals, secondary, tertiary and field canals; pumps and pump houses; water storage facilities; distribution pipes; and drainage lines;
- Ancillary facilities: depending on the scheme size, this could include workshops, sheds, offices and fuel storage;
- Access infrastructure: access roads, bridges and footpaths. However, these will not be implemented through KIIWP [XXXX]

Map 1: Proposed [XXXX] Site, Kayonza district, Eastern Province

INSERT MAP OF PROJECT SITE



Technical Scope

Based on information provided by the Feasibility Consultant and from other relevant studies conducted for the scheme and greater project area, the Consultant will prepare a full description of the scheme and its existing setting including a biophysical and socio-economic description, using maps where appropriate. The description will include the general layout of the scheme, scheme size, location, site characteristics (topography, physical and chemical conditions), water source, intake works, canals, crops to be grown according to land suitability, water availability, crop water requirements, irrigation systems and technologies considered, and supplementary works, such as power supply, access roads, workshops, construction methodologies, labour requirements, construction materials and sources, access routes, and logistical arrangements for delivery of any plant and equipment, etc. The consultant will then analyse and assess the potential adverse environmental, social and climate-related impacts that may arise from project construction and implementation, evaluate alternative options, and proposed mitigation and management measures to be presented in an Environmental and Social Management Plan.

The ESIA will be conducted in tandem with the Feasibility Study, which will include studies covering hydrology, soils, agronomy, irrigation technology, and irrigation engineering covering a total potential area of [XXXX] ha. It is therefore expected that the ESIA Consultant will work very closely with the Consultant conducting the Feasibility Study.

Purpose and Objectives of the Consultancy

The purpose of this consultancy, therefore, is to prepare ESIA report to meet both national and international best practices and standards.

The specific objectives of this consultancy are to:

- i. Contribute to the environmental and social design for the scheme;
- ii. Prepare a Project Brief for submission to the RDB;
- iii. Prepare a Scoping Report for submission to the RDB;
- iv. To establish a baseline for biophysical, climatic conditions and socio-economic data
- v. Prepare a Stakeholder Engagement Plan which can be used during the ESIA process as well as during the construction and operation phases of the scheme;
- vi. Identify all potential adverse environmental and social impacts of the scheme and recommend measures for mitigation;
- vii. Establish the need for physical and/or economic displacement resulting from scheme activities and proposed infrastructure, and if necessary, develop Terms of Reference and cost estimates for a Resettlement Action Plan (RAP);
- viii. Develop a comprehensive Environmental and Social Management and Monitoring Plan (ESMMP), which will include cost estimates for mitigation and monitoring;
- ix. Prepare an Environmental and Social Impact Assessment Report for submission to the Rwanda Development Board and to IFAD's Executive Board.

Tasks and Responsibilities

Project Brief

The Project Brief will information on:

- i. The name, title and address of developer;
- ii. The name, purpose, objectives and nature of the project, including attributes such as size of project, design, activities that shall be undertaken during and after the establishment of the project;
- iii. Products and inputs, sources of inputs, etc;
- iv. Description of the proposed project site and its surroundings and alternative sites, if any, where the project is to be located;
- v. Description of how the proposed project and its location conform to existing laws;
- vi. Regulations and policies governing such project and the use of the site/area proposed for its location;
- vii. Any likely environmental impacts that may arise due to implementing various phases/stages of the project and proposed mitigation measures;
- viii. 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);
- ix. Decommissioning/closure and site restoration;
- x. Any other information that may be useful in determining the level of EIA required.

Scoping

The consultant will conduct a scoping exercise to identify and prioritize the main environmental, social and climate issues to be studied, and to ensure that the spatial and temporal scopes and extent of the environmental assessment is compatible with the size of the project. As part of scoping the consultant will determine appropriate approach and methods necessary to assess the potential environmental and socio-economic impacts of the scheme during the ESIA study. At this stage, the consultant will specify, and provide costs for, any additional and specialized studies that may be required in order to produce comprehensive ESIA report.

Scoping will identify, and provide information to key stakeholders to be engaged during the ESIA study, in order to identify and assess the scheme's environmental, climate and socio-economic impacts. Based on environmental, social and climate-related issues of significance that may affect, or be affected by, the scheme development, this ESIA will address these critical issues.

The Consultant will be required to give a description of the pertinent Rwandan regulations, standards and regulatory bodies governing environmental and social quality, health and safety, protection of species, agriculture, and land use, etc. In addition, IFAD's SECAP and relevant Guidance Statements, and WB EHS Guidelines will be described. The consultant will also describe international conventions and multi-lateral environmental agreements (MEAs) that Rwanda is party to. For all the aforementioned, the particular relevance to the scheme and its activities will be described. The Consultant will prepare a legal register which will list all legislation, legal instruments relevant to the scheme, indicating applicability to the site. In addition, the consultant will indicate permits and licences that are required to be obtained for the scheme development during construction and operation.

Stakeholder Engagement

As part of scoping, the Consultant will identify all the relevant stakeholders who will be affected by, or will affect, directly or indirectly, the scheme development. This should include Rwanda Agriculture and Animal Resources Development Board (RAB), MINAGRI, Ministry of Environment, Ministry of Land and Forestry (MINILAF), Ministry of Infrastructure (MININFRA) and affiliated agencies, REMA, Rwanda Water and Forest Authority (RWFA), scheme communities, mining companies and large farming schemes in the project area, and all other relevant stakeholders. It will be important to engage closely with the local administrative authorities at district, sector cell and village level. In this regard, the Consultant will:

- i. Develop a stakeholder engagement plan that provides an opportunity for potentially affected persons, relevant authorities, entities that may affect the development and interested parties to raise issues and concerns pertaining to the proposed scheme. This will require the identification, analysis and categorization of stakeholders, determining their possible interests in the development and risks associated with any of these interests; recommendations for mitigation measures to such risks; establishing the level of knowledge and support for the scheme from the identified key stakeholders;
- ii. Develop a communication strategy to engage with stakeholders;
- iii. Keep records of public meetings (including number of public consultations and lists of attendance during those consultations) organized to enable stakeholders to present their concerns and opinions regarding the proposed scheme;
- iv. Ensure that stakeholder concerns are incorporated into the ESIA report recommendations and propose means for these to be incorporated into the scheme design or scheme activities as appropriate.

Environmental, Climate and Socio-Economic Baselines

The consultant is expected to collect, analyze and present qualitative and quantitative baseline information specific to the scheme site(s) and its area of influence. Baseline information will describe the existing social, economic, demographic and environmental and climatic conditions, and will include, but not be limited to:

- i. Physical environment: including hydrology and water resources, topography, geology, chemical and physical soil characteristics, land cover, climate and weather information, (rainfall pattern, onset and cessation, amount, distribution, minimum, maximum and average temperatures, wind direction and intensity), chemical and physical parameters for water quality, air quality, noise, etc.
- ii. Biological environment: ie. flora and fauna types and diversity, populations endangered species, and sensitive habitats. Particular attention will be given to flora and fauna that may be affected in the Akagera National Park, the Akagera Wetland Complex and other wetlands in the Project Area, as a basis for establishing the ecological impact.
- iii. Socio-economic and cultural environment:
 - a. Carrying out a household survey to capture the existing socio-economic baseline conditions including: a description of production systems, labour, and household organization; land ownership, size, and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;
 - b. Analysing current agriculture (livestock, cropping etc.), land and water practices and their viewpoints on irrigated agriculture; and
 - c. Analysing current resource use (land, water, labor, inputs, markets etc.) in the area intended for intervention;
 - d. Providing details on any vulnerable groups;
 - e. Describing land tenure and transfer systems, including common property natural resources from which people derive their livelihoods and sustenance, non-title-based systems (including fishing, grazing, or use of forest areas) governed by local recognized land allocation mechanisms, and any issues raised by different tenure systems in the project area;
 - f. Describing patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project;
 - g. Providing details on public infrastructure and social services that will be affected, for example, administrative centres, health, rural market facilities, post-harvest infrastructure, agro-processing facilities, education; and access to telecommunications;
 - h. Social and cultural characteristics of displaced communities, including a description of formal and informal institutions (e.g., community organizations, ritual groups, nongovernmental organizations (NGOs)) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.

The baselines are expected to provide benchmarks against which scheme progress and compliance can be measured during both construction and operation.

Analysis and Assessment of Impacts and Recommendations for Mitigation

The consultant will be required to:

- i. Identify potential positive and adverse impacts of the scheme and its supplementary infrastructure on the hydrology/water resources, soils, fauna and flora (particularly on the ecology of the wetlands and Akagera National Park), climate, the economy and social environment of the scheme areas;

- ii. Establish whether physical and/or economic resettlement will take place, the scale, magnitude and nature of displacement;
- iii. Describe, analyze, assess, categorize and prioritize all concerns that may arise during construction, operation and decommissioning of the scheme (including those of occupational health and safety and community health and safety), that will have short-, medium- and long-term, and cumulative impacts, as well as residual impacts after mitigation and/or management measures have been incorporated;
- iv. Make recommendations on how to address any adverse impacts to be implemented under the environmental and social management and monitoring plan.
- v. Make recommendations on how to enhance any opportunities that the scheme may bring about.
- vi. Assess all possible climate risks to the project implementation and propose risk mitigation options, prioritizing those measures that have multiple benefits (no-regret measures).

Assessment of Alternatives

The consultant should assess alternatives to the proposed scheme including the ‘no project’ scenario. The environmental and social impacts of any alternatives are to be compared to the impact of the proposed scheme. If analysis of alternatives reveals one that has considerably less significant impacts than the proposed scheme design, then the consultant must either recommend a redesign the scheme to favour a design with less impacts, or explain why the proposed scheme design was selected instead of one with less impacts.

The assessment will consider, among others, alternatives for:

- Scheme location;
- Water sources;
- Access routes;
- Power supply;
- Irrigation technologies;
- Choice of crops based on soil conditions crop water requirements and climate;
- Construction materials and methodologies.

Resettlement Action Plan

In the event that the consultant determines that there will be physical or economic displacement due to the scheme, a Terms of Reference for a RAP will be prepared in line with National compensation and relocation requirements, the approach to a RAP provided in the KIIWP ESMF (2018), as well as IFAD’s Guidance Statement #13 on Physical and Economic Resettlement, taking into account the following considerations:

- Identification of affected persons;
- Physical assets to be affected by the scheme and the supplementary infrastructure (land, crops, trees, etc);
- Loss of income;
- Cut-off date(s);
- Valuation of assets and properties;
- Eligibility criteria for compensation;
- Women, youth and vulnerable persons (recommending how issues of concern specific to these groups can be addressed);

- Implementation schedules, costs, and monitoring indicators;
- Where impact is adverse, recommend appropriate livelihood restoration mechanisms;
- In consultation with all stakeholders, recommend a grievance resolution mechanism.

A full RAP will be commissioned as a separate study, should this be necessary.

Environmental and Social Monitoring and Management

The consultant will prepare a series of environmental and social mitigation, monitoring and management plans which will contain all the recommended mitigation measures and management actions during construction and operation phases, including specific management plans for labour, emergency response, occupational health and safety, community safety and security, traffic management, grievance resolution, stakeholder engagement and any other activity- or operation-specific plans that will assist in ensuring environmental and social compliance through all phases of the development. The ESMMP will recommend key indicators in order to monitor, measure and manage environmental and social performance, as well as propose mitigation and adaptation indicators for climate change.

Costs for Mitigation and Monitoring

The consultant will provide costs for mitigation and monitoring as proposed in the ESMMP and activity-specific management plans.

Preparation of the Environmental and Social Impact Assessment Reports

The consultant will follow the REMA EIA Guidelines. The main text of the ESIA Report should focus on findings, conclusions and recommended actions and be supported by summaries of data collected and citations for any references used in interpreting those data. The report will be organised according to, but not necessarily be limited by the following outline:

- Executive summary;
- Description of the proposed project;
- Policy, legal and administrative framework
- A detailed description of the biophysical and socio-economic and cultural environment, and climatic conditions of the project area;
- Significant environmental and social impacts, cumulative impacts and proposed mitigation measures;
- Analysis of alternatives;
- Stakeholder consultations and outcomes;
- TORs for RAP (if applicable);
- Environmental, social and climate risk mitigation, management and monitoring plans;
- Cost estimates for implementing and monitoring the environmental, social and climate risk mitigation, management and monitoring plans;
- Conclusions and key recommendations;
- List of references;
- Photographs, maps and plans as appropriate.

The consultant should present comprehensive environmental and social impact assessment reports to the RAB and IFAD for comment, and, after which the reports will be revised to incorporate these

comments. The reports will then be subject to public review and disclosure, prior to finalization. The consultant should also note that IFAD requires a disclosure period of a minimum of 120 days. After the report is finalized, the consultant will submit the report to RDB for approval, and will follow up on the approval process until the EIA Certificate of Approval is issued.

Qualifications and Experience

The Consultant's company will have extensive experience in conducting Environmental and Social Impact Assessments in East Africa. In addition, the Consultant's company is required to illustrate knowledge and experience in assignments requiring compliance with IFAD's SECAP requirements, the IFC Performance Standards and the World Bank Group's Environmental Health and Safety Guidelines.

The Consultant's Team is expected to have the following but not limited to the following key staff:

Team Leader/Environmentalist: The Team Leader will be expected to be an environmental specialist with not less than 10 years' proven working experience in environmental assessments matters with a reputable international firm and must hold at least a Masters Degree in Environmental Science or related sciences.

Hydrologist/Water Resources Specialist: The hydrologist/water resources specialist will be expected to have not less than 10 years' proven working experience in hydrological/water resources matters with a reputable international firm and must hold at least a Masters Degree in Hydrology or Water Resources Management or related sciences.

Socio-Economist: The socio-economist should have a minimum of 10 years' proven working experience in the socio-economy matters and a holder a Masters Degree in Socio-Economics, Social Sciences/Sociology or related field. He/She must demonstrate knowledge of the Rwandan social and cultural environment.

Ecologist: The ecologist will have at least 10 years' proven working experience in ecology or biological sciences matters, and particular experience and knowledge of wetland ecology. The ecologist will hold at least a Masters Degree in biological sciences, ecology or biodiversity conservation.

Agronomist: The agronomist will have at least 10 years' proven working experience in crop production matters, and particular experience and knowledge in crop production, agriculture best practices, crop water requirement and management, and crop irrigation, and soil water retention and fertility management. He/She must have at least a Masters Degree in Crop Production or related fields.

The consultant may include other experts to enhance the team's competency, for example, climate/agro-meteorology specialist, irrigation engineer and an occupational health and safety expert.

It is recommended that the consultant liaises very closely with the feasibility and design consultants, in particular with the irrigation engineer, hydrologist and agronomist.

Deliverables and Schedule

The Consultant shall prepare and submit the following reports to the Client:

- a. *Project Brief.* The Project Brief will be submitted to RDB two weeks after signature of contract.
- b. *Preparation of a Scoping Report.* Within a month after receiving approval for the conduct of the study from RDB, the Consultant will submit a Scoping Report to the RAB comprising initial findings and recommendations for review and comment, following which the consultant will submit the Scoping Report to RDB and along with the TOR for the ESIA study for approval.
- c. *Draft ESIA report:* This report will be submitted to the RAB and IFAD three (3) months after approval of the ESIA TOR by RDB. It will contain a detailed analysis of the process, findings, conclusions, recommendations and appendices of the study, as per the requirements of this TOR.
- d. *Final ESIA Report:* This report shall incorporate all comments from RAB, SPIU and IFAD and will then be submitted to RDB for review and approval.

The schedule for deliverables is presented below.

Deliverable	Timeline	Reporting Requirements
Project Brief	2 weeks after signature of contract	2 hard copies + soft copy of the Project Brief to be submitted in English in pdf
Scoping Report	1 month after acceptance of Project Brief by RDB to proceed with the ESIA	2 hard copies + soft copy of the Scoping Report to be submitted in English in pdf
Draft ESIA Report	3 months after approval of TOR by RDB	5 hard copies + soft copy of the Draft ESIA Report to be submitted in English in Microsoft Word
Draft Final ESIA Report	0.5 months after receiving comments on the Draft ESIA in preparation for 120 day disclosure period	5 hard copies + soft copy of the Draft Final ESIA Report to be submitted in English in pdf
Final ESIA Report	5 months after disclosure date	5 hard copies + soft copy of the Final ESIA Report to be submitted in English in pdf

Expected Duration of the Assignment

The assignment is expected to be completed within a period of not more than 11 months, from inception to submission of the final report. The effective date of commencement will be the date on which the consultancy agreement is signed by MINAGRI and the consultant.

Proposal Evaluation Criteria

The consultants will be evaluated based on the following criteria:

- Company profile including experience in conducting ESIA for irrigation projects
- Experience in IFAD or WB/IFC funded Projects
- Adequacy of work plan and methodology
- Team Composition (Team leader/Environmentalist, Hydrologist/Water Resources Specialist, Socio-Economist, Ecologist/Wetland ecologist, Senior Agronomist, and other experts).

Coordination of this Assignment and Submission of Reports

This consultancy assignment shall be coordinated by the MINAGRI, RAB, SPIU for IFAD-funded projects. The contact persons to whom all issues and correspondence concerning this assignment shall be directed, including submission of reports are:

- RAB: [XXXX]
- IFAD: [XXXX]

Annex 4: Resettlement Action Framework

1. RATIONAL AND OBJECTIVES OF THE RESETTLEMENT ACTION PLAN

The purpose of this Resettlement Action Framework (RAF) is to provide RAB and the Kayonza District project steering committee with a framework that sets out policies and legal framework, principles, institutional arrangements, schedules and indicative budgets that will guide compliance with national and IFAD possible involuntary resettlement and displacement. The framework provides standard procedures agreeable for all affected parties for project activities that may include construction works.

KIIWP will be integrated within the SPIU of IFAD projects that are under RAB. KIIWP has been categorised as Category A, having considered that project activities may involve the following:

- Development of wetlands;
- Loss of natural habitat and loss of biodiversity or environmental services provided by a natural ecosystem in sensitive areas considering that some sites are in close proximity of the protected Akagera National Park;
- Construction of large-scale irrigation schemes (above 100 hectares per scheme);
- Significant abstraction or diversion/containment of surface water leaving the river flow below 20 per cent environmental flow plus downstream user requirements; and
- Economic or physical displacement (ie. land, potable water and water for other uses), or physical resettlement of more than 20 people, or impacting more than 10 per cent of any one community's or individual farmer's or household's assets.

Category A projects fall under the SECAP's mandatory elements that stipulate one or combination of a formal Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Framework (ESMF), Resettlement Action Framework (RAF)/ Resettlement Action Plan (RAP), free, prior and informed consent (FPIC)/FPIC implementation plan and Indigenous People Plan. In case of Rwanda however, there is no part of the population designated as "Indigenous People" - Rwandans are considered homogeneous by the country's Constitution.

SECAP's Guidance Statement #13 provides guidance to Country Management Teams (CPMs) and Country Programme Management Teams (CPMTs) who that may have to deal with physical relocation or any change in land use and livelihoods options resulting from IFAD supported interventions. Specifically, physical displacement refers to relocation, loss of residential land, or loss of shelter, while economic displacement implies the loss of land, assets, access to assets, income sources, or means of livelihoods. Physical and economic resettlement could be either agreed/negotiated or involuntary - the two settings have very different implications for IFAD, as explained below:

- **Involuntary Resettlement:** Resettlement is considered involuntary when affected people or communities do not have the capacity to refuse it – because the free, prior and informed consent (FPIC) principle is not properly implemented and they do not have power of choice – or their rights to refuse it are over-ridden by national law or are simply denied.
- **Agreed/Negotiated Resettlement:** There is agreed/negotiated resettlement when, in the respect of the do-no-harm principle and after having properly informed people and gone through the FPIC process, people potentially involved in the resettlement agree on being relocated and/or selling or relinquishing access to assets, against fair and timely compensations for their losses.

The preparation of a Resettlement Action Plan (RAP) that may be required for any KIIWP scheme should take direction from the principles of free prior and informed consent and "do no harm". IFAD's Land Policy requires involuntary resettlement to be avoided wherever possible. The policy specifies that "while working on 'doing good', IFAD will adhere to a 'do no harm' principle at all times, so as to

minimize physical and potential economic impacts". The policy requires all viable alternative project designs to be explored in order to address risks of physical and economic displacement, and it also stipulates the need to restore livelihoods to improve the standards of living of affected persons. The approach and level of measures taken should be proportional to the range of IFAD's operations. Hence IFAD's principles with regard to physical and economic displacement are:

- IFAD will avoid or minimize wherever possible any physical or economic resettlement that could negatively impact the affected people; in any case this should be only for a common interest (such as in an irrigation scheme benefitting IFAD's target groups) and based on positive outcomes of FPIC.
- All land and natural resource users with a legitimate claim will be recognized—including people having informal/customary rights.
- No affected person will be left worse off, and preferably should be left in a better position than before, through proper and timely compensation or any other mitigation measures agreed upon.

The RAP should also be guided by the IFC's Performance Standard 5 on Land Acquisition and Involuntary Resettlement⁵⁴, which describe the principles of Involuntary Resettlement as:

- Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs;
- Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.
- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

The main objective of this RAF is to enable the avoidance or minimization of the effects of involuntary resettlement and displacement. The following principles will be adopted for the KIIWP project:

- Involuntary resettlement and land acquisition will be avoided where feasible, or minimized, where it cannot be eliminated;
- Where involuntary resettlement and land acquisition are unavoidable, resettlement and fair compensation will be provided to the Project Affected Persons (PAPs);
- PAPs will be meaningfully consulted according to the Free, Prior and Informed Consent, (FPIC) and will participate in planning and implementing both the resettlement and project activities;
- PAPs will be assisted to improve their livelihoods and standards of living the best possible or at least to restore them to levels before displacement.

The specific objectives of the RAF are to:

- Establish resettlement and compensation principles as well as implementation arrangements for the KIIWP project interventions sites in the sectors of Ndego, Kabare, Murama, Rwinkwavu, Kabarondo, Mwiri, Gahini and Murundi;
- Describe the legal and institutional framework underlying Rwandan approaches for resettlement, compensation and rehabilitation;

⁵⁴ IFC (2012); IFC Performance Standards: Performance Standard 5 – Land Acquisition and Involuntary Resettlement. https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps5sustainability-at-ifc/policies-standards/performance-standards/ps5

- Compare and discuss gaps if any between the Rwanda laws, regulations and policies, and the policies of IFAD regarding resettlement, compensation and rehabilitation;
- Define the eligibility criteria for identification of Project Affected Persons (PAPs) and entitlements;
- Describe stakeholder engagement processes and procedures and participatory approaches involving PAPs and other key stakeholders; and
- Provide detailed procedures for filing grievances and resolving disputes raised during stakeholder engagements and subsequent stages of the KIIWP project.

2. ANTICIPATED SOCIAL IMPACTS OF KIIWP

The KIIWP project intends to provide improved food security and incomes of 50,000 rural households on a sustainable basis in the 8 administrative sectors of Kayonza District that are most affected by drought comprising Ndego, Kabare, Murama, Rwinkwavu, Kabarondo, Mwiri, Murama, Gahini and Murundi. The following interventions are proposed under Sub-components 1.1 and 1.2:

- 4 sites for pumped irrigation in Ndego and Kabare Sectors totalling 2000 ha;
- 275 ha of land will be developed for marshland irrigation in Rwinkwavu, Kabare and Kabarondo Sectors;
- Farm ponds will be constructed for rainwater irrigation on some 10ha of land in Muruma Sector;
- Catchment rehabilitation and protection interventions will include terracing and agroforestry and will cover an estimated 1300ha;
- Other planned interventions in Ndego, Gahini, Murundi and Mwiri sectors include construction of 7 new valley tanks, rehabilitation of 15 non-functional valley tanks, and installation of 20 boreholes to provide water for livestock.

Table A4.1 Physical and Economic Displacement Implications of KIIWP Activities

Component/Sub-component	Activities	Resettlement and compensation Implications
Catchment Rehabilitation and Protection	Construction of check dams, gabions, side drains, catchwater drains	None
	Terracing and contour bunds on farms	Temporary loss of use of land; permanent loss of land, crops, structures or assets for protection structures.
Irrigation Development	Pumped irrigation systems	Temporary loss of use of land; permanent loss of land, crops, structures or assets for dams, canals, and scheme infrastructure.
	Ancillary infrastructure for marshland and hillside irrigation pumped systems	Temporary loss of use of land; permanent loss of land, crops, structures or assets for installation of ancillary infrastructure (workshops, pumphouses, power supply lines, access ways, etc).
	Farm-level rainwater harvesting structures	Permanent loss of land, drops, structures or assets
Livestock and domestic water supply Rehabilitation of 100km of feeder roads	Livestock and domestic water infrastructure	Temporary loss of use of land; permanent loss of land, crops, structures or assets for valley dams.
		Temporary loss of use of land; permanent loss of land, crops, structures or assets for access roads, road widening, etc.

Source: Adapted from FONERWA, 2017.

Much as the first principle is avoidance of any disruption, there are possibilities that the abovementioned project interventions may result in temporary loss of use of land, permanent loss of land, crops, structures and/or assets to waterways and other pumped irrigation systems and rain water harvesting infrastructures. The same losses may be experienced in feeder road construction and in livestock water infrastructure installations that may include small dams and boreholes. A RAP will

therefore have to be developed to guide KIIWP and ensure compliance to the IFAD safeguards as articulated in the SECAP Statement 13 and Rwanda's national resettlement and/or displacement requirements.

3. METHODOLOGY FOR THE PREPARATION OF THE RAF

This RAF has been prepared as an integral part of the KIIWP ESMF using an approach and methodology that included desktop research, field visits to the proposed intervention sites in the respective sectors of Kayonza District and stakeholder consultations.

Desktop research

The desktop research involves mainly the review of key documents that provided baseline information as well as deeper insights of the KIIWP project. Key documents included Rwanda's Constitution, Vision 2020, the medium-term development framework documents of the concluding the second phase Economic Development and Poverty Reduction Strategy (EDPRS-2, 2013-2018) and its successor, the first phase of the National Strategy for Transformation (NST-1). The literature review also included policies, strategies, legislation, regulations and guidelines relevant to resettlement and displacement, the IFAD SECAP version 2017 as well as RAF documents for similar project in Rwanda.

Stakeholder consultations and field visits:

During ESMF preparation activities for KIIWP in August 2018, preliminary stakeholder consultations were conducted in Kigali and in the beneficiary district of Kayonza. Consultations process started with stakeholder identification for the KIIWP project through briefings with relevant IFAD and MINAGRI officials including RAB, SPIU staff involved in similar projects. Office visits involving discussions and interviews were carried out with officials of REMA, Water Resources Department, MINIAGRI and the Kayonza District Mayor with the heads of respective district service units.

Consultative discussions in Kigali were held in with the relevant national agencies on issues as summarised below:

- Rwanda Environmental Management Authority (REMA) officials of the Environmental Education and Mainstreaming unit regarding the beneficiary districts capacity to monitor KIIWP activities; and separately with Environmental Management and Pollution Control unit regarding the special regulations for the land use management of wetlands.
- Department of Integrated Water Resource Management regarding irrigation water use regulations and their application and relevance to KIIWP.
- The Single Project Implementation Unit of the Ministry of Agriculture and Animal Resources responsible for projects similar to KIIWP.
- The climate resilience coordination office in the Ministry of Agriculture and Animal Resources regarding potential complementarity of climate resilience strategic actions with KIIWP.
- Officials of the Agriculture Technical Assistance Facility - AgriTAF Programme regarding lessons that can be learned and potential synergies with KIIWP.
- The Rwanda Agricultural Board as the operational partner of IFAD in the design, development and implementation of KIIWP

Identified potential beneficiary stakeholders were consulted at proposed project sites within the targeted drought prone intervention sectors of Ndego, Kabare, Murama, Kabarondo, Rwinkwavu, Mwiri, Gahini and Murundi. These consultations involved mainly focus group discussions individuals, members and leaders of crop and livestock producer cooperatives and sector-level opinion leaders.

The selected schemes visited for sector-level discussions and consultations with potential beneficiary community members conducted during the mission are summarised in Table A4.2 below.

Table A4.2 Schemes Visited for Community Consultation Purposes

Date	Sector	Site	Site Name	Village/Cell	No. of persons consulted	Planned Area (ha)
27/08/2018	Kayonza District Mayor and Staff				8	N/A
28/08/2018	Ndego	Milk Collection Centre staff			5	N/A
28/08/2018	Ndego	Ndego Sector Opinion Leaders			20	N/A
28/08/2018		Site 1	Kibare	Isangano	28	
28/08/2018	Ndego	Site 2	Humure	Kiyovu	20	1,400
29/08/2018		Site 3	Byimana	Byimana	38	
29/08/2018	Kabare	Site 1	Gakoma	Rubumba	6	600
29/08/2018	Kabare Rwinkwavu	Site 2	Gishanda	Cyambare Mukoyoyo	Site appraisal only	150
30/08/2018	Kabarondo	Site 1	Rwakigeri	Rwakigeri	10	125
		Site 2	Kayeganyege	Kanyeganyege		
30/08/2018	Murama	Site 1	Ngoma	Muko	11	Farm level ponds
30/08/2018	Gahini	Site 1	Nyabombe	Juru		
		Site 2	Rukore	Kahi		
04/09/2018	Rwinkwavu	Site 1	Rwinkwavu	Muko	Site appraisal only	
05/09/2018	Murundi	Site 1	Gakoma	Buhabwa		
		Site 2	Rwakabanda	Ryamanyoni		
05/09/2018	Mwiri	Site 1	Kageyo	Kageyo	29	
05/09/2018	Kayonza CBD	Livestock farmers meeting			37	
Total					212	

Source: ESMF Study Consultations, August 2018.

A range of issues were discussed during community consultations, the main topics covered being:

- Cooperative Approach for Delivery
- Target Beneficiary Crop Priorities
- Target Beneficiary Willingness to Invest
- Land Use Competition and Conflicts
- Target beneficiary grievance resolution views

Key outcomes from preliminary consultations as discussed earlier in the document include the following:

Cooperative Approach for Delivery of KIIWP

Target beneficiary stakeholders and opinion leaders generally demonstrated awareness of and experience in cooperative frameworks and expressed support for the plans to deliver KIIWP interventions in this modality. Most of the residents of the proposed Kibare pumped irrigation site indicated that they had not worked in cooperative arrangements and sought clarifications during the focus group discussion. The Kibare residents expressed support after the clarifications were provided by the local agronomist and the RAB official that were present at the forum.

Target Beneficiary Crop Priorities for KIIWP

Focus group discussions with target beneficiaries and opinion leaders in the proposed pumped irrigation sites of Kibare, Humure and Byimana in the Ndego sector and of Gakoma in Kabare sector were unanimous in indicating maize, beans and soya as priority crops. Rice, banana, sugarcane as well as vegetable crops including tomato and beetroot were indicated as priority crops. In the land husbandry support intervention areas coffee was indicated as the highest priority for reasons including drought resistance. Other priority crops indicated included pineapple, avocado and other fruit trees that include mango, orange, lemon, tree-tomato and passion fruit. Banana and cassava were also indicated as priority crops but the stakeholders lamented the widespread problem of disease infestations that destroyed most both crops.

Target Beneficiary Willingness to Invest in KIIWP

Focus group discussions indicated a willingness to invest in the necessary maintenance infrastructure for irrigation including pumping systems, dams and boreholes. Target beneficiary stakeholders indicated that they already invest resources and cash in growing crops every season for the required inputs, although the crops fail in most seasons due to drought. Willingness to invest more and to seek commercial credit with the assurance of irrigation. Some focus group discussions indicated a need for capacity development in business skills and financial management.

Land Use Competition and Conflicts

Potential conflicts were flagged in some focus group discussions and discussions with individuals. In Kageyo, it was indicated that farmers compete among themselves to irrigate rice and with watering cattle in the dry season when the flow is reduced. Stakeholders indicated a need to rehabilitated valley dams that were silted and the need for the construction of others as well as boreholes for livestock water requirements. Similar potential for conflict was observed in Humure and Kibare where cattle graze and drink in the pump irrigation target sites. Other conflicts flagged included wildlife, especially hippo and baboons. Hippos were flagged as a problem in most of the intervention sites and were observed by the field team. There was a general air of frustration and despair among the stakeholders as they talked about the need for help to mitigate effects of persistent droughts. The community of Humure gave an account of crop failures season after season while they see the neighbouring Bramin farm prospering with bumper harvests from irrigation. They expressed frustration that government often provides food relief purchased from neighbouring Tanzania whereas they are capable of feeding themselves by irrigating their crops from the same water source that Bramin draws from. The same frustration was expressed by residents of Byimana and Gakoma in reference to the Buffet irrigation scheme within a few kilometres from their fields.

Target beneficiary grievance resolution views for KIIWP

Stakeholders indicated confidence for the resolution of conflicts that could emerge during the development and implementation of KIIWP interventions. Focus group discussions demonstrated a good understanding of conflict resolution mechanisms within cooperative rules as laid out in corporate constitutions as well as national laws and regulations on cooperatives. It was explained that conflict that develop within a cooperative are resolved by a grievance/conflict resolution committee. Complaints are escalated to local governance structures when settlement is not reached within the cooperative starting with sector level and district level if still not resolved. Unresolved grievances in cooperatives must be escalated to the Rwanda Cooperative Agency (RCA), the statutory body in charge of cooperative regulation and management. RCA will attempt to redress cooperative-born grievances through its mediation and arbitration system before forwarding them to the country's court system if unable to resolve them. Court systems are available to complainants if conflicts remain unresolved through the resolution mechanisms and local governance structures.

4. INSTITUTIONAL FRAMEWORK

The Lead Project Agency for KIIWP will be the Rwanda Agriculture and Animal Resources Development Board (RAB), a technical agency of the Ministry of Agriculture and Animal Resources (MINAGRI) which will have the overall responsibility for Project coordination and execution. Thus, the key institutions responsible for resettlement and compensation policy, legislation and regulations relevant to KIIWP include the following:

- Ministry of Agriculture and Animal Resources (MINAGRI);
- Rwanda Agriculture and Animal Resources Development Board (RAB);
- Kayonza District;
- Ministry of Environment (MoE);
- Rwanda Environmental Management Authority (REMA);
- Rwanda Development Board (RDB);
- Rwanda Land Management and Use Authority (RLMUA);
- Department of Water Resources.

Ministry of Agriculture and Animal Resources (MINAGRI)

MINAGRI is responsible for developing the policies, laws and regulations as well as coordination of all activities related to agricultural development and food security as well as their follow up and evaluation. The ministry's mission is to ensure food and nutrition security of Rwandans by using modern agribusiness technologies, professionalizing farmers in terms of production, commercialisation of the outputs, and the creation of a competitive agricultural sector. The Ministry will provide oversight for the implementation of KIIWP while the RAB will be the lead implementation agency. A Project Steering Committee (PSC) will be set up chaired by Permanent Secretary (PS) of MINAGRI. The membership of the PSC will be determined by MINAGRI and shared with IFAD.

Rwanda Agriculture and Animal Resources Development Board (RAB)

RAB is responsible for developing agriculture and animal husbandry through their reform, and using modern methods in crop and animal production, research, agricultural extension, education and training of farmers in new technologies.

Kayonza District

A District Steering Committee chaired by the Kayonza Mayor and made up of members of the District Council, members representing the farmers, farmers organisations (FOs), and local institutions from the public and private sectors' participating in the Project will be put in place. The management of infrastructure and optimal use of developed land at district level is ensured by a Scheme Steering Committee for irrigation and soil conservation activities at district level. The Kayonza District Executive Committee will administer expropriation requirements for KIIWP as provided for in Article 7 of Law N° 32-2015 of 11-06-2015 Relating to Expropriation in the Public Interest.

Ministry of Environment (MINIRENA)

The MINIRENA is responsible for developing the policies, laws and regulations as well as relating to environment and climate change as well as the coordination and evaluation of all RAP implementation activities.

Rwanda Environment Management Authority (REMA)

REMA is responsible of national environmental protection, conservation, promotion and overall management, including advisory to the government on all matters pertinent to the environment and climate change. For any major resettlement, an ESIA will be required for which REMA will provide guidance.

Rwanda Development Board (RDB)

RDB will be responsible for reviewing and approving any ESIsAs conducted for resettlement.

Rwanda Land Management and Use Authority (RLMUA)

RLMUA is responsible for putting in place and operationalizing an efficient system of land administration, use and land management that secures land ownership in the country.

Department of Water Resources

The Department of Water Resources is responsible for the implement Integrated Water Resources Management (IWRM) agenda of the National Policy on Water Resources. It coordinates various stakeholders involved in the water sector including those working in domestic water supply, irrigation, ecosystems, financing, transboundary water level and infrastructures development.

5. LEGAL FRAMEWORK

Rwanda's legal framework that is applied to projects involving resettlement and displacement compensation and other redress requirements is anchored on the Constitution of 2003 as amended in 2015, the land policy and pieces of legislation that give it effect, as follows:

The Constitution of the Republic of Rwanda

The Rwandan Constitution, promulgated in 2003 and revised in December 2015, recognizes ownership of property and every person's right to private property (Article 34). Consequently, private property, whether individually or collectively owned, is inviolable. Exceptionally, the right to property may be overruled in the case of public interest. In these cases, circumstances and procedures are determined by the law and subject to fair and prior compensation (Article 34). 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 Constitution of the Republic of Rwanda also articulates 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 very person has the duty to protect, safeguard and promote the environment under Articles 22 and 53 respectively. Guidance of the Constitution on environmental preservation and management as a cross cutting issue is reflected in the national Vision 2020 and the national policy on environment of 2003.

The Constitutional rights as articulated in Vision 2020 and environmental policy are given effect by Organic Law No. 4/2005 of 8 April 2005 as amended in 2018. Principle 1 of Article 7 in the Organic Law stipulates precautionary measures that are informed by the results of both environmental assessment of policies, plans, projects, and development activities and the assessment of social well-being. Chapter IV, Articles 67-70, Organic Law sets out specific guidelines for Environmental Impact Assessment (EIA) and stipulates that every project, and those programmes and policies that may affect the environment, shall be subjected to EIA before obtaining authorization for implementation.

Land Policy (2004)

The land policy of 2004 introduces the consideration of master plans for use and sound management of land resources. 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. The policy promotes irrigating areas that are more or less flat and semi-arid to support agricultural production while discouraging overgrazing and pasture burning. 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.

Law No. 43/2013 Governing Land in Rwanda (2013)

The Land Law has been developed to determine the modalities of allocating, acquiring, transferring, using and managing land in Rwanda. Article 3 of the law reaffirms the States supreme power in management of land and the right to expropriate in the public interest. Under Article 6, any citizen can be granted freehold title, and as per Article 7, for an area up to 5 hectares. The Minister may allow for freehold titles in excess of 5 hectares.

Article 10 notes that private individual land shall comprise land acquired either through customary or written law. Article 17 notes that in addition to freehold title, the right to land may be granted by the State in the form of emphyteutic lease (specifying that the lessee must improve the property with construction), for between 3 and 99 years, which can be renewed. Article 18 states that allocated or leased land shall be evidenced by a certificate of land registration issued by the registrar of land titles. Article 20 notes that registration of land is obligatory.

In terms of land use consolidation, Article 30 notes that it is prohibited to subdivide agricultural land plots if this would result in a plot of less than 1 hectare. Owners of lands which are prohibited from subdivision should co-own and use the land. Article 34 notes that landowners have the right to exploit their land in accordance with the law, and freely own land, except in the case of expropriation in the public interest.

Law No. 32/2015 Relating to Expropriation in the Public Interest

Article 2 defines expropriation in the public interest as, ‘an act based on power of Government, public institutions and local administrative entities with legal personality to remove a person from his/her property in the public interest after fair compensation’. Further, fair compensation is defined as, ‘an indemnity equivalent to the value of land and the activities performed thereon given to the person to be expropriated and calculated in consideration of market prices as well as compensation for disturbance due to expropriation’.

Article 3 notes that, ‘No person shall hinder the implementation of the program of expropriation in the public interest on pretext of self-centred interests.’ Article 17 states that after the publication of a decision on expropriation in the public interest, complete with a list of holders of rights registered on land titles and property incorporated on land, land owners shall not develop any long-term activities on the land, otherwise such activities shall not be compensable during expropriation.

In terms of valuation, Article 22 states that land values and prices for property consistent with the prevailing market rates shall be established by the Institute of Real Property Valuers in Rwanda. Article 23 states that independent valuers certified by the Institute of Real Property Valuers in Rwanda should conduct valuation of land and property. In accordance with Article 25, the valuation of land and property should be conducted in the presence of the landowner/property owner or their lawful representatives, and in the presence of representatives of local administrative entities.

According to Article 26 land titles must be produced as evidence of ownership, and evidence of marital status as applicable. Any persons dispossessed of land, or unlawfully occupying land, or having developed activities prohibited after the enactment of relevant laws shall receive no compensation.

Article 27 reaffirms that compensation for land must include any improvements on the land and compensation for disruption associated with expropriation.

Article 28 notes that the value of land and property should be calculated on the basis of size, nature and location and the prevailing market rates. The compensation for disruption caused by expropriation to be paid to the expropriated person shall be equivalent to five percent (5%) of the total value of his/her property expropriated.

Article 32 refers to sign-off by the owner once he/she is satisfied with the valuation. Article 33 allows for any person not satisfied with the valuation to contest in writing within seven days. Any person

contesting the assessed value must engage the services of a valuer or a valuation firm recognized by the Institute of Real Property Valuers in Rwanda, at their own expense, to carry out a counter-assessment of the value. Under Article 34 if unsatisfied the matter may be referred to the courts. However, the compensation will be paid pending the court decision so as not to delay expropriation.

In terms of payment of compensation, Article 35 notes that, ‘fair compensation can be paid in monetary form in the Rwandan currency or in any other form mutually agreed upon by the expropriator and the person to be expropriated’. The fair compensation must be paid to the expropriated person before he/she relocates. Article 36 notes that compensation must be paid within 120 days of approval by the Ministry, or otherwise becomes null and void, unless mutually agreed otherwise. After payment, the affected person has a further 120 days to relocate. In this time they should not plant any crops that would take more than 120 days of growth before harvesting.

Article 38 stipulates that compensation shall be deposited into a bank account with a recognized locally-based bank or financial institution. When, in case of joint ownership, compensation must be paid to more than one person, such as family or a legally married spouse, compensation will be deposited into an account which requires co-authorization to withdraw money.

Article 39 allows for payment of compensation in-kind as opposed to cash. During public consultation with PAPs, they confirmed that they need compensation in cash not in kind. KIIWP will trigger this law in case of loss of property of economic benefit resulting project activities.

Ministerial Order No. 001/2006 Determining the Structure of Lands (2006)

This ministerial order determines the structure of Land Registers, and the responsibilities and functions of the District Land Bureau. The responsibilities of the land bureau include among others to implement land registration, keep land registers, monitor and approve activities pertaining to valuation of land and property, and demarcate and approve land cadastral maps. Rural populations with customary land rights are being encouraged to register their land through these institutions.

Presidential Order No. 54/01 (2006)

This presidential order determines the structure, the responsibilities, the functioning and the composition of Land Committees. Article 9 of the order gives the office of the land committee independence in the discharge of its daily technical duties. Therefore, it receives no instructions from any other organ.

Ministerial Order No. 002/2008 Determining Modalities of Land Registration (2008)

The Ministerial Order includes dispute resolution procedures in relation to land registration, including the use of a Cell Land Adjudication Committee (LAC). The LACs are comprised of five members, supplemented by five members of the particular village (imidugudu) where demarcation and adjudication is taking place. The cell executive secretary acts as the LAC secretary, although he or she has no voting rights.

Article 17 grants parties to a dispute the right to take that dispute to the LAC. Where disputes are resolved with the assistance of the LAC, the parties are bound by that agreement, and may not later raise the issue. Article 20 provides procedures for the LAC when hearing disputes, including that the hearing is open to the public and announced eight days in advance.

6. IFAD’S PRINCIPLES, POLICIES AND TOOLS

IFAD’s core mandate is to support the social and economic empowerment of poor rural women and men. As such, it is opposed to any investment that will have a negative impact on its target groups. KIIWP project interventions are likely to require resettlement or economic displacement due to temporary, loss of use of land, permanent loss of land, crops, structures and/or assets to waterways

and other pumped irrigation systems and rain water harvesting infrastructures. The same losses may be experienced in feeder road construction and in livestock water infrastructure installations that may include small dams and boreholes.

FPIC and the do-no-harm principles will therefore be followed as stipulated in Statement 13 of IFAD's SECAP. Specifically, Guidance Statement #13 requires:

- Adherence to the “do-no-harm principle” at all times. A broad range of development interventions, particularly those concerned with agricultural intensification, such as irrigation or technology-based agricultural production, and those focused on afforestation or rangeland management, effectively add value to land. Under such circumstances, there may be the risk that the rural poor, especially women, may lose out to more powerful groups. Projects in these areas must be designed, therefore, in such a way they ‘do no harm’ to the land tenure interests of the rural poor, especially those of women, indigenous and tribal peoples and other vulnerable groups. Careful measures must always be considered to avoid elite capture or forced displacement of people, and to address conflicting claims.
- Adherence to the principle of free, prior and informed consent. Before supporting any development intervention that might affect the land access and use rights of communities, IFAD will ensure that their free, prior and informed consent has been solicited through inclusive consultations based on full disclosure of the intent and scope of the activities planned and their implications.

FPIC for KIIWP is provided in Annex 5 of this ESMF.

SECAP Guidance Statement #13 draws on IFAD policies and on international guidelines and best practices referring to safeguards against involuntary resettlement, including the International Finance Corporation (IFC) Policy on Environmental and Social Sustainability and its Performance Standard 5. A comparison has been made in Table A4.3 below between the IFAD's requirements and Rwanda's legislation governing involuntary resettlement as discussed above. The comparison⁵⁵ is adapted from FONERWA (2017).

⁵⁵ FONERWA (2017). Resettlement Policy Framework for the Strengthening Climate Resilience of Rural Communities in Northern Rwanda

Table A4.3 Comparison between IFAD's SECAP Requirements and Rwanda's National Legislations

Principles	Applicable SECAP Requirements	Applicable Rwandan Legislation	Recommendations
Valuation	<p>Valuation of assets to be done at replacement cost method to help determine the amount sufficient to replace lost assets and cover transaction costs. In applying this method of valuation, depreciation of structures and assets should not be taken into account.</p> <p>If the residual of the asset being taken is not economically viable, compensation and other resettlement assistance are provided as if the entire asset had been taken.</p>	<p>Valuation is covered by the Expropriation Law and the Land Valuation Law and stipulates that the affected person receive fair and just compensation.</p>	<p>KIIWP to adopt replacement cost method of valuation.</p>
Land Squatters (i.e. those who have no recognizable legal right of claim to the land they are occupying)	<p>Persons without legal land ownership and occupancy, or possession, will not be entitled for compensation for the lands that they occupy, but will be compensated for the permanent improvements or structures they may have introduced or built in the affected lands before the cut-off date.</p>	<p>Article 26 of the expropriation law No 35/2015 provides that the person to be expropriated shall provide land titles and documentary evidence that he/she is the owner of property incorporated on land. Those unlawfully occupying land (including squatters) shall receive no compensation.</p>	<p>Compensation will be done for the crops, permanent improvements or structures squatters may have introduced or built in the affected lands before the cut-off date.</p>
Compensation	<p>Preference to be given to land based resettlement strategies for displaced persons whose livelihoods are land-based as compared to monetary compensation</p>	<p>Article 22 of the expropriation law No 35/2015 entitles the landholder to compensation for the value of the land and activities on the basis of size, nature location considering the prevailing market value.</p>	<p>Adopt mode of compensation by giving preference to land-based resettlement as opposed to monetary compensation.</p>
Livelihoods Restoration Measures	<p>Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.</p>	<p>Expropriation law does not provide for alternative land and resettlement for those with the pre-displaced status</p>	<p>Assistance to be provided for livelihood restoration to ensure affected persons are not worse off than before the project.</p>
Participation and Consultation	<p>Persons to be displaced should actively be consulted and should have opportunity to participate in planning and design of resettlement programs</p>	<p>The Rwandan law on Expropriation simply stipulates that affected peoples be fully informed of expropriation issues. The law also conflicts the very purpose of consultation and involvement by prohibiting any opposition to the expropriation program if considered to be under the pretext of self-centred justification which might not be the case</p>	<p>Ensure full participation by persons to be displaced in design of resettlement and compensation modalities.</p>

Principles	Applicable SECAP Requirements	Applicable Rwandan Legislation	Recommendations
Timeframe	<p>Displacement must not occur before necessary measures for resettlement are in place, i.e., measures over and above simple compensation. These include compensation and other measures required for relocation and preparation and provision of facilities of resettlement sites, where required. In particular, taking of land and related assets may only take place after compensation has been paid and where applicable resettlement sites and moving allowances have been provided. Furthermore, measures pertaining to provision of economic rehabilitation however can and often do occur post displacement. A cut-off date must be agreed upon and documented; people who encroach on the area after the cut-off date are not entitled to compensation or resettlement assistance.</p>	<p>Rwanda expropriation law stipulates a timeframe upon which the property to be expropriated must be handed over which is 120 days after compensation has been paid.</p>	<p>A cut-off date should be applied. Where compensation is to be paid to an affected person in accordance with an approved resettlement plan, but the offer has been rejected, the taking of land and related assets may only proceed if funds equal to the offered amount plus 10 percent have been deposited in a secure form of escrow or other interest-bearing deposit, and a satisfactory means for resolving the dispute concerning said offer of compensation in a timely and equitable manner has been provided for.</p>
Overall Strategy	<p>There is no requirement to prove that the project fits within the overall land master plan</p>	<p>Section 2 of the expropriation law on procedures, provides for the process to show how the subprojects fits into the land master plan of the area in question</p>	<p>Demonstrate how resettlement processes fit into land master plan as per Rwanda Expropriation Law</p>
Eligibility	<p>Eligibility criteria include even those who do not have formal legal rights to land at the time the census begins but have a claim to such land or assets provided that such claims are recognized under the laws of the country or become recognized through a process identified in the resettlement plan and also those who have no recognizable legal right or claim to the land they are occupying</p>	<p>Article 18 of the law requires the person who owns land intended for expropriation to provide evidence of ownership or rights on that land and presents a certificate to that effect</p>	<p>Recognise claims by persons with no formal legal rights to land at the time of census. This will be more appropriate for determining eligibility due to the fact that many of those who farm the lands don't own it, although they may have depended on farming on such lands for their livelihood, and as such, should be assisted to at least maintain their pre-project level of welfare. (especially for assets)</p>
Land Compensation	<p>Resettlement of displaced persons to be done through provision of land for land instead of cash compensation for land, when livelihoods are land based. Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.</p>	<p>Expropriation law is silent on provision of alternative land and resettlement of those to the pre-displaced status</p>	<p>Land for land compensation to be given preference. Where land is insufficient for land for land compensation, then cash compensation may be applied.</p>
Required Measures	<p>Displaced persons to be consulted on offered choices for compensation, and provided with technically and economically feasible resettlement alternatives.</p>	<p>Expropriation law does not provide for alternatives when undertaking compensation</p>	<p>Provide project affected persons with alternatives for compensation and resettlement (as necessary)</p>

Principles	Applicable SECAP Requirements	Applicable Rwandan Legislation	Recommendations
Grievance redress mechanisms	PAPs should be informed of the compensation processes and must participate in the establishment of Grievance Redress Mechanisms	The new Expropriation Law of 2015 creates the committee in charge of supervision of projects of expropriation in the public interest which shall also handle complaints procedures for individuals dissatisfied with the proposed project or the value of their compensation	Adopt Rwanda Expropriation Law which establishes the committees in charge of GRM in conjunction with the proposed GRM in this RAF.
Displacement	Displacement must not occur until all necessary measures for resettlement are in place.	The notification period under national legislation requires that property must be handed over 120 days after financial compensation has been paid	Ensure all SECAP and national requirements are met within the 120 days after financial compensation has been paid.
Consultation and disclosure	Consult project-affected persons, host communities and local NGOs, as appropriate. Provide them opportunities to participate in the planning, implementation, and monitoring of the resettlement program, especially in the process of developing and implementing the procedures for determining eligibility for compensation benefits and development assistance (as documented in a resettlement plan), and for establishing appropriate and accessible grievance mechanisms.	The Expropriation Law governs the specifics of land acquisition. The law provides for public dissemination on the importance of the project to be established and the need for expropriation. In addition to dissemination, the Expropriation Law requires prior consultative meetings and examination of the project proposal involving expropriation, with a view to avoid eventual prejudice on the person or entity subject to expropriation. Normally, a consultative meeting is held within 15 days after receipt of the application for expropriation. Based on these consultations, the relevant Land Commission or Committee (from the Cell level to the National level) takes a decision to approve the project within a period of 15 days.	Consultations and disclosure processes to be conducted as per SECAP requirements.

Source: Adapted from FONERWA (2017)

7. RAP PREPARATION

SECAP's Guidance Statement #13 stipulates that Project Affected Persons (PAPs) are duly compensated before any KIIWP project works, in according with this Resettlement Action Framework and according to a Resettlement Action Plan (RAP) that will subsequently prepared for the implementation.

RAP preparation Process

The Kayonza District with the assistance of IFAD, will hire a qualified individual consultant to prepare a detailed RAP to guide resettlement for those interventions that will cause physical or economic relocation. The consultant will need the services of a certified valuer to support land and/or asset valuation process. The RAP will be submitted and approved by RAB and IFAD.

Identifying need for RAP

There will be need to confirm that a RAP is needed by carrying out a screening exercise at the subproject stage. The need for resettlement will be described in terms of geographical scope, processes for identification of PAPs, estimated of numbers of households and assets affected, a general description of the total areas of land affected and types of assets and structures affected; general description of PCR or sites of personal value (such as graves and graveyards) and public services that may need to be relocated. Transparent stakeholder consultations including PAPs and public disclosure will be conducted during the PAP identification process. PAPs will be informed of their right to have access to a grievance mechanism thought the resettlement action processes.

Screening

The screening process will involve the identification of the lands that may result in physical or economic resettlement. The screening will be carried out by the Kayonza District as early as possible in the KIIWP implementation planning process. A screening checklist will be developed with the aim of establishing whether the Project will:

- Reduce access to economic and natural resources, such as land, pasture, water, public services;
- Result in resettlement of individuals or families;
- Require the acquisition of land (public, usufruct, temporary or permanent) for its development;
- Result in the temporary or permanent loss of perennial or annual crops or fruit trees;
- Affect household infrastructure such as the main residence, outside toilets, cowsheds, granaries, kitchens;
- Affect commercial premises such as shops, coffee houses;
- Affect institutional premises such as churches, mosques or schools;
- Affect physical cultural resources;
- Affect vulnerable people (elderly, poor, orphans, women headed households, widows or people with disabilities).

Project Affected Persons Census

Following confirmation, the RAP will involve the identification of Project Affected Persons (PAPs), a socio-economic survey of the PAPs and census and asset inventory of each intervention site. A population census of PAPs should be carried for the following reasons:

- Determining legitimate beneficiaries that discourages opportunistic local migrants;
- Determining the scale of the required physical and economic resettlement;
- Provide indicators for monitoring and evaluation; and

- Providing a sampling frame for subsequent socio-economic research needed to establish fair compensation rates according to the law and to design, monitor and evaluate sustainable income restoration or development interventions.

Socio-economic Survey

The socio-economic survey should be aimed at establishing of the numbers and socio-economic impact of PAPs that includes a baseline description of pertinent demographic and social characteristics of households affected by KIIWP. In order that the context of the programme is understood, the RAP should present a brief description of the environmental and social baselines of the KIIWP subproject area and surroundings. The bio-physical baseline could include topics such as topography, climate, soils and geology, water resources and hydrology, forests, wetlands, National Park, flora and fauna. The social baseline should describe, among other things, household characteristics, poverty levels, health status/nutrition levels and economic activities.

Preparation of Asset Inventories

Asset inventories by intervention sites will be carried by teams established by the Kayonza District in consultation with RAB and IFAD. The inventories should result in asset registers that are verified by PAPs. The asset registers will be signed and copies given on the spot to the PAP. At the same time a copy of the grievance redress procedure will also be given to the PAS as stated in the Grievance Redress Mechanism.

Land donation protocol and procedures

Some PAPs may decide to donate land or assets voluntarily and chose not to be compensated in appreciation of the greater value of the infrastructure installations. In such cases, valuation of the relevant asset will proceed normally as provided by this RAF and the PAP will sign on the valuation report confirming that they prefer not to be compensated. The land donation shall be documented and reported.

Preparation of RAP Report

A RAP report will be prepared by the Consultant under the supervision of the Kayonza District and in consultation with affected parties. Box A4.1 shows the format for a RAP Report as recommended by SECAP's Guidance Statement #13.

Box A4.1 RAP Report Outline

Outline of the Resettlement Action Plan

Terms and definitions

Executive summary

1. Description of the project

2. Potential impacts of the resettlement and minimization mechanisms

3. Objectives of the resettlement plan

4. Census and socio-economic studies

5. Legal and institutional frameworks - including mechanisms for conflicts resolution and appeals

6. Eligibility determination

7. Implementation of the FPIC process

8. Valuation of and compensation for losses for livelihoods restoration and improvements

9. Resettlement measures

a. Site selection, site preparation and relocation

b. Housing, infrastructure and social services

c. Integration with host population

d. Community participation

10. Environmental protection and management

11. Organizational responsibilities

12. Implementation schedule

13. Costs and budget

14. Monitoring, evaluation and reporting

Source: SECAP (2017)

Submission, review and implementation of RAP

The Kayonza District will provide political and administrative support for the implementation of RAP. RAB and IFAD will ensure that there is compliance against the RAF and national legislation and ensure that baseline information is available in appropriate format for overall Project monitoring and evaluation. The different Government institutions will play a role in the implementation of the RAP for the different intervention sites.

Public Consultation and Participation of the RAP

Informed participation of all stakeholders, particularly PAPs is essential for the effective compliance with the safeguards articulated in the RAP. Stakeholder consultations in the Project preparation, planning and RAP development processes will be recorded for attendance and participation. Records will include views and concerns put forward by community members, opinion leaders, NGOs and CBOs as well as responses received from local authorities, consultants or technical managers and political leaders. Camera photo may be captured and follow up of any issues that are not resolved at anyone particular meeting recorded.

Stakeholder consultation ensuring informed participation and consent should focus on the following:

- Alternative Project design
- Assessment of Project impacts
- Resettlement strategy
- Compensation rates and eligibility for entitlements
- Choice of resettlement sites and timing of relocation
- Development of opportunities and initiatives
- Development of procedures for redressing grievances and resolving disputes

- Mechanisms for monitoring and evaluation and for implementing corrective actions

Data Collecting Phase

Consultations are essential for completion of the preparation of the subprojects and will be a basis for monitoring of the performance and outcome of the interventions. The levels of consultation will vary from households to community groups, based on the particular context of the subprojects. The RAP team will validate the information from the households, organizations, and institutions its effectiveness through feedback mechanisms including focus group meetings with women, farmers' associations, individuals who own farms, etc. as well as primary and/or secondary schools, health centres, and agricultural cooperatives.

Monitoring and Evaluation Phase

PAPs representatives will participate in the subproject workshops at the launch, mid-term and at the end of RAP implementation. The RAP will include social accountability tools such as the citizen cards to assess the quality of the RAP, its implementation, and in some cases, assist the RAP team in tracking expenditures. The latter will be significant in helping PAPs with money management and restoring their livelihoods. PAPs will be able to suggest corrective measures, as needed, to improve RAP implementation in the subproject(s). Prior to closing the RAP, PAPs will participate in a feedback survey as part of the RAP's independent impact evaluation exercise.

8. GRIEVANCE REDRESS MECHANISM FOR RESETTLEMENT PURPOSES

Rwandan law on expropriation provides for grievance resolution that will be applied to KIIWP physical and economic resettlement requirements. For the purposes of the RAP, the grievance redress provisions of Rwandan law as adapted from FONERWA (2017) and MININFRA (2016)⁵⁶ will be applied.

Grievance Redress Procedure

The grievance procedure for the RAP will follow the following steps based on Rwandan law:

- During the initial stages of the valuation process, the affected persons will be given copies of grievance procedures as a guide on how to handle the grievances.
- The process of grievance redress will start with registration of the grievances to be addressed for reference, and to enable progress updates of the cases.
- The Project will use a local mechanism, which includes resettlement committees, peers and local leaders of the affected people. These will ensure equity across cases, eliminate nuisance claims and satisfy legitimate claimants at low cost.
- The response time will depend on the issue to be addressed but it should be addressed with efficiency.
- Compensation will be paid to individual PAPs only after a written consent of the PAPs, including both spouses.

A grievance can be made by an individual, a household, or a group/community - anyone can lodge a grievance it is their choice whether to make a formal or informal approach. Grievances may be raised informally or formally.

⁵⁶ MININFRA (2016), Resettlement Policy Framework. Development of Urban Infrastructure in six Secondary Cities of Rubavu, Rusizi, Musanze, Muhanga, Huye and Nyagatare of Rwanda, and the City of Kigali.

An informal grievance is one raised verbally, mostly requesting for clarification of facts or process, it can be entered through a community coordination structure for KIIWP that will be set up by the Kayonza District. A formal grievance is a written complaint raised through the Cell or Sector offices, mostly on issues of misinformation, exclusion from Project opportunities, discrimination, inadequate communication or inadequate response to previously raised issues. A grievance form will be prepared as part of the RAP.

Informal grievances shall be raised verbally with a community coordination committee during common public meetings that may be held weekly and verbal responses given to the satisfaction of the complainant. Failure to redress the grievance results in an escalation to a formal grievance that is put in writing and submitted to the cell or sector office. All accepted informal grievance in such meetings shall be referred to the KIIWP Project for action, while the formalised grievance shall follow procedure elaborated hereafter. Actions taken by the KIIWP Project to redress the accepted informal grievance shall be documented and considered at the Project Steering Committee (PSC) that will still at a year to be agreed regular time of the Project cycle.

Formal grievances shall be raised at cell or sector offices by recording them on grievance forms. Forms shall be consolidated into a report and sent weekly to the Kayonza District Good Governance Unit that is normally responsible for grievance resolution at district level. The Good Governance unit keeps record of all grievances lodged. Grievances shall then be considered by the Good Governance committee chaired by the District Executive Secretary to redress the grievance. A written response to the complainant prepared by the District Good governance office and circulated through sector and cell offices. Unresolved grievances escalated for redress to the District Joint Action Development Forum (JADF) and then to PSC and to the district office of Ombudsman. At each level, the grievance and redress response, status reports of all grievances, resolutions and actions taken shall be documented. Records of such reports shall be kept at the District Good governance unit and the KIIWP Project Management Team. All responses to complaints at any level shall not exceed 14 days.

Grievance Log

The management of the Kayonza District Good Governance unit will ensure that each complaint has a unique reference number, and is appropriately tracked until the grievance is resolved. The log will contain records including the complaint and dates for the following events:

- Date the complaint was reported;
- Date the grievance log was added onto the Project database;
- Date and information on proposed corrective action sent to complainant;
- The date the complaint was closed; and
- Date when response was sent to complainant.

Monitoring Complaints

The District Project Coordination officer will be responsible for providing a weekly report detailing the number and status of grievances to KIIWP and monthly reports, including analysis of the type of complaints, levels of complaints, actions to reduce complaints and initiator of such action.

9. SOCIO-ECONOMIC BACKGROUND

Identifying Project Affected Persons

Involuntary utilization of land results in physical relocation or loss of shelter; and loss of assets or access to assets or loss of income sources or means of livelihood, whether or not the PAPs must move to another location. Meaningful consultations with the affected persons, local authorities and

community leaders will therefore allow for establishment of criteria by which displaced persons will be deemed eligible for compensation and other resettlement assistance.

FONERWA (2017) suggests the following three criteria for eligibility:

- (a) Those who have formal rights to land recognized under Rwandan Law.
- (b) Those who do not have formal legal rights to land at the time the census begins but have a claim to such land or assets provided that such claims are recognized under the laws of Rwanda or become recognized through a process identified in the resettlement plan.
- (c) Those who have no recognizable legal right or claim to the land they are occupying, using or getting their livelihood from before the cut off date, but are recognized under SECAP's Guidance Statement #13.

Those covered under (a) and (b) above are to be provided compensation for the land they lose and will also receive compensation for assets on the land and other assistance in accordance with this Project. Persons covered under (c) above are to be provided with resettlement assistance in lieu of compensation for the land they occupy, and other assistance, as necessary, to achieve the objectives set out in this RAF, if they occupy the Project area prior to a cut-off date established by the Project in close consultation with the potential PAPs, local community leaders and the respective local leader.

Persons who encroach on the area after the cut-off date are not entitled to compensation or any other form of resettlement assistance. All persons included in (a), (b) or (c) above are to be provided with compensation for loss of assets. It is therefore clear that all Project affected persons irrespective of their status or whether they have formal titles, legal rights or not, squatters or otherwise encroaching illegally on land, are eligible for some kind of assistance if they occupied the land before the entitlement cut-off date.

Baseline Information PAPs

A socio-economic survey should be conducted identify the numbers and potential socio-economic impact on PAPs. The survey will acquire quantitative household survey of the Project PAPs or households. The target population for the quantitative household survey will be those affected persons within the KIIWP intervention sites in Kayonza District. The socio-economic survey will be commissioned by the Kayonza District designated office for managing KIIWP. PAPs considered to be eligible for resettlement and compensation include the following:

- Landowners losing part or all of their land;
- Tenants leasing privately owned land;
- PAPs losing trees and crops located on required land for activities under the Project; such as terraces, construction of communal ponds, construction of new homes, etc;
- Traders that maybe affected by Project activities.

10. METHODS FOR VALUING ASSETS

Organization Procedures

Land and assets needed for implementing the KIIWP Project will be valued and compensated for according to the following guidelines:

- The Kayonza District administration through the Project will compensate for assets and investments (including crops, buildings, and other improvements) according to the provisions of the RAP.
- Eligibility for compensation will not be valid for new persons occupying/using the Project sites after the cut-off date, in accordance with this policy.

- Compensation cost values will be based on replacement costs, as of the date that the replacement is to be provided or at the date of Project identification, whichever is higher.
- The market prices for cash crops will have to be determined based on the values as determined by independent valuers.

However, since SECAP's Guidance Statement #13 on Physical and Economic Displacement makes no distinction between statute and customary rights, a user of state owned land will be compensated for land, assets and investments including loss of access, at replacement costs. Compensation for all land use and assets in kind or cash will be required for buildings and structures, cultivated crops and trees; and loss of businesses or employment.

Table A4.4 Types of Compensation in Rwanda

Type of Compensation	Description
In-kind Compensation	Compensation may include items such as land and buildings, of equal or better value. If building materials are provided, transport and labour costs must also be provided. Cash compensation for full replacement value will be considered only if the affected land is less than 20% of the total land.
Cash Payments	Compensation will be calculated at new replacement value, and paid in Rwandan Francs
Resettlement and Economic	Resettlement assistance may include moving allowance, transportation and labour associated with resettlement as well as financial assistance for the period when access to land, income/ subsistence crops is unavailable.
Rehabilitation Assistance	Economic rehabilitation Assistance may include training, capacity building as well as provision of assistance to facilitate reestablishment of livelihood activities such as provision of seedlings, agricultural inputs and financial credits for equipment.

Source: FONERWA (2017)

The Kayonza District Land Bureau and the designated KIIWP Project will determine rates as part of the preparation of each subproject, using rates prevailing for other government land acquisition schemes in the district as a benchmark. In-kind compensation is preferred as cash payments raise issues regarding inflation and security. In addition, provision of cash does not ensure that the PAP's income will be restored. Alternative locations will have to be decided during the RAP process for payment of in-kind compensation.

Entitlement Matrix

Resettlement and economic rehabilitation assistance will be provided as outlined in the Entitlement Matrix displayed in Table A4.5 below. This provides an indication of resettlement and compensation measures to restore livelihoods impacted by the loss of land and guides resettlement and compensation packages to be developed for each KIIWP subproject.

Table A4.5 Entitlement Matrix

Categories of PAPs	Type of Loss	Eligibility Criteria	Entitlement
PAPs losing temporarily or permanently their land, those losing crops, properties (houses or cattle sheds for example)	Loss of Land (Urban or Rural)	Owners of land affected by Project works	For PAPs who are losing the land, first option is a land replacement. Full monetary market value compensation for strips of land lost, should be the last option. If PAPs receive monetary compensation, they should receive some guidance/training on managing the funds. PAPs losing temporarily their land would be compensated only for their affected assets as described below.
	Loss of Structure	Owners and users (tenants) of land affected by Project works	Resettlement and Compensation. Resettle and compensate full market value for the structures to be demolished Provide development assistance in addition to compensation measures described (water and energy supply for example)
	Business Losses	Businesses that operate in areas to be affected by Project works	Compensation for structures and assets that cannot be moved Provide assistance with relocation, and cover all the costs of moving any salvageable parts of existing structures and reinstallation and start ups Provide assistance to restore business including training and capacity building if required.
	Loss of trees and crops	Various rights and interest holders – Sharecroppers, Licensees, Lessees	Resettle and compensate full market value for assessed crops/plants/trees
Vulnerable including women and child headed households, physically disabled people and elderly people			In addition to the above compensation measures according to the different types of loss; vulnerable will be given special consideration by providing to them any assistance they may need to get back or above their previous livelihoods status. Assistance would be continuously be continuously rendered to them until such status is attained.

Source: Adapted from FONERWA (2017)

Compensation, Project Schedule and Cut-Off -Date

Compensation shall always be done before any Project activities, and hence, before any assets are affected. In order to prepare and implement a RAP, a census will be conducted to identify all the PAPs and the related levels of impact. The date that the census begins is the cut-off date for eligibility for resettlement and compensation. It is important that this date is fully communicated to all potential PAPs in the Project affected area with sufficient time for these people to ensure their availability for the Census.

To ensure all the stakeholders and PAPs are informed, communication relevant to each subproject will be done through existing community consultation frameworks and will be in line with the consultation procedures. Community leaders and representatives will also be charged with the responsibility to notify their members about the established cut-off date and its significance. The potential PAPs will be informed through both formal notification in writing or by verbal notification delivered in the presence of the community leaders or their representatives. After the census has been undertaken, the lists will be verified and validated by the District. The list will also be verified and approved by IFAD through KIIWP (through prepared subproject RAPs). Once these lists have been approved, no new cases of PAPs will be considered. Once land users have been identified, their details and eligibility will be submitted to the KIIWP Project. Once PAPs have been verified and validated by the District and IFAD, they will be considered eligible for compensation. The establishment of a cut-off date is required to prevent opportunistic local migration into intervention sites. Persons who encroach on the area after the cut-off date are not entitled to compensation or any other form of resettlement assistance. It should be noted that the cut-off date should be determined before the census is conducted and agreed by all the stakeholders, especially the PAPs.

Estimates of Affected Population and Inventory of Assets

At this stage of the Project preparation, the study will not able determine the number of trees and crops and numbers of affected people to be displaced. Feasibility studies will give more details on required land and assets that are likely to be affected.

Categories of affected population

PAPs will include those losing temporarily or permanently their land, those losing crops, properties (houses or cattle sheds for example), vulnerable including women and child headed households, physically disabled people and elderly people as described in the entitlement matrix table below.

In addition to the above entitlements, affected households (PAPs) will be prioritized for job opportunities during Project works implementation and provided with health insurance if they happen to be Ubudehe category 1 and other government support. Capacity building of severely affected PAPs and vulnerable groups will be provided to maintain and/or improve their income generation potential.

Valuation of Assets and National Law

According to Rwandan Expropriation Law, any expropriated assets are to be fairly compensated with valuation undertaken by an independent valuer. This RAF provides the basic principles for the valuation of affected assets. During consultation with the PAPs, the Social Safeguard Officer will guide the Districts to provide available options and their advantages to PAPs, to assist them to make informed decisions.

Valuation methods (adopted from FONERWA, 2017)

Replacement Cost Approach

The replacement cost approach is based on the premise that the costs of replacing productive assets is based on damages caused by subproject operations. These costs are taken as a minimum estimate of the value of measures that will reduce the damage or improve on on-site management practices and thereby prevent damage. In applying this method of valuation, depreciation of structures and assets should not be taken into account. For losses that cannot easily be valued or compensated for in monetary terms such as access to water sources, public services, customers, and suppliers; or to fishing, grazing, or forest areas), attempts will be made to establish access to equivalent and culturally acceptable resources and earning opportunities. Where domestic law does not meet the standard of compensation at full replacement cost, compensation under domestic law is supplemented by additional measures necessary to meet the replacement cost standard. The approach will involve direct replacement of expropriated assets and covers an amount that is sufficient for asset replacement, moving expenses and other transaction costs.

Gross Current Replacement Cost

Gross Current Replacement Cost (GCRC) is defined as the estimated cost of erecting a new building having the same gross external area as that of the existing one, with the same site works and services and on a similar piece of land.

Other methods

Rates from Contractors: When rate schedules do not exist, or are out of date, recent quotations by contractors for similar types of construction in the vicinity of the Project can be used for calculating replacement costs. In calculating cash compensation payable, the construction cost estimates for alternative accommodation could be used.

Calculating compensation for assets

The following methods of calculation should be adopted for the preparation of the aforementioned standardized asset valuation tables and/or the application of specific case by case valuations in the case of projects that have significant impacts.

Compensation for Land

Land for land is the first compensation option and compensation in cash at full replacement value will be considered only if the affected land is less than 20% of the total land. Replacement land should be of equivalent productive value and size, and located in the community or at a nearby resettlement area, with similar social and physical infrastructure systems as well as secured tenure status. Cash compensation should be valued based on the prevailing market value in the locality as calculated by an independent valuer. In addition, any associated costs of purchasing the land including land rates, registration fees will need to be included in the compensation calculation. Where land lost is only a small proportion of total land owned by the PAP, but renders the remaining land as unusable, the compensation provided should be calculated based on the total land affected (the actual land lost plus the remaining unusable land).

Compensation for houses and other Structures

There are two options for compensating structures in lands that will be expropriated. The preferred option for structural compensation will be to provide alternate structures (huts, houses, farm outbuildings, latrines, storage facilities and fences among others) of improved quality where possible. In case of residential structures, the replacement should provide better standards of living. Alternative method of structure compensation will be to provide cash compensation at full replacement value. Replacement costs will be based on:

- Sizes of structures and materials used
- Average replacement costs of different types of structures based on information on the numbers and types of materials used to construct different types of structures
 - Prices of materials used in the structure based on local market rates
 - Transportation costs for delivery of these materials acquired for replacing the structure
 - Estimates of construction of new buildings including labour required
 - Any associated costs including rates, taxes, and registration fees among others.

Furthermore, resettlement assistance will be provided in the form of a moving allowance (at full costs of transport expenses). Affected people may be offered plots in selected sites in organized villages for house construction.

Compensation for Crops and Trees

PAPs will be encouraged to harvest their produce before loss of asset. In order to ensure that this is possible, and that appropriate market prices are received for yields, there needs to be sufficient consultation beforehand so that harvesting can be properly planned. In the event that crops cannot be harvested, compensation for loss of crops and trees including value of fruit trees will be provided as follows.

- Provision of cash compensation for value of crops lost, as per the Rwandan expropriation law;
- Provision of good quality seed or seedlings appropriate for the resettled areas, fruit tree materials inclusive;

In addition to compensation for tree and shrub losses, the planting of tree species will be done along the improved roads for the road protection and replacement of tree species lost.

Compensation for Community Assets

Compensation will be provided for community assets identified through the socio-economic survey. In all cases, these will be provided in kind and new facilities will be provided even if there are existing facilities at the new location.

Compensation for Sacred Sites

This policy does not permit the use of land that is defined to be cultural property by the IFC's Performance Standard 5. Sacred and genocide memorial sites and other cultural or historical sites including but not restricted only to; museums, altars, initiation centres, ritual sites, tombs and cemeteries. It includes other such sites or places/features that are accepted by local laws (including customary), practice, tradition and culture as sacred. To avoid any possible conflicts between individuals and/or communities/homesteads, the use of sacred/religious sites or any other site with cultural interests under Project is not permitted.

11. BUDGET AND SOURCES OF FUNDING

The cost of implementing the RAF has been kept to a minimal through using of already existing institutions and structures, plans and programs as well as manpower within and without the Project. The estimated total cost of the resettlement program for the Project requiring land acquisition, is estimated at US\$ 350,000 is based on that estimated for the FONERWA supported "Resettlement Policy Framework for the Strengthening Climate Resilience of Rural Communities in Northern Rwanda". The cost breakdown is presented below. Because the exact unit prices, the number of people to be affected, and the scope of land acquisition are estimates, the exact figures will not be known until the RAPs are prepared. The District will provide funds for RAP preparation and compensation using government budget.

The costs outlined include those relating to preparation and implementation of each individual RAP, capacity building and technical assistance required to ensure that implementers of each RAP are fully able to do so.

Table A4.6 Estimated Cost for the Implementation of the RAF

Activity	Total Cost (USD)	Basis of Estimates
RAP preparation for 7 subprojects	280,000	This estimation includes cost for census, public consultations and RAP report preparation by a hired consultant
RAP Implementation, including compensation of affected assets and resettlement	300,000	Based on comparable projects
Capacity building for Resettlement committees	15,000	Based on comparable projects
Provision of technical assistance		Assumes assistance will be provided by Project at no additional cost.
Total	595,000	

Source: Based on FONERWA (2017) and ESMF Study estimates

12. MONITORING AND EVALUATION

In order to assess whether the goals of the resettlement and compensation plan are being met, a monitoring plan should be developed. This M&E component of this RAF is adapted from FONERWA (2017). The monitoring plan defines and identifies monitoring activities that will take place, when and by whom and identifies the indicators and data collection methods, and training and capacity building needs of the institutions and persons to implement the plan.

The objective of the monitoring and evaluation process will be to determine whether PAPs have been paid in full and before implementation of the subproject, and people who were affected by the subproject have been affected in such a way that they are now living a higher standard than before, living at the same standard as before, or they are actually poorer than before. The arrangements for monitoring the resettlement and compensation activities will fit into the overall monitoring program of KIIWP, which will fall under the overall responsibility of Kayonza District under guidance and oversight by RAB/MINAGRI and IFAD.

Monitoring will be done on behalf of the District committee responsible for resettlement compensation. The committee will be mandated to carry out independent monitoring of the implementation of the resettlement and compensation plans at periodic intervals of monthly, quarterly or half yearly (as circumstances dictate) during the KIIWP Project life cycle.

Monitoring Indicators

Verifiable indicators are needed for measuring the impact of physical relocation on the health and welfare of affected population and the effectiveness of impact mitigation measures, including livelihood restoration and development initiatives. These verifiable indicators shall be used to monitor

the impacts of the compensation and resettlement activities. Monitoring indicators to be used for the RAP will have to be developed to respond to specific site conditions.

Indicators to Determine Status of Affected People

A number of indicators would be used in order to determine the status of affected people (land being used compared to before, standard of house compared to before, level of participation in Project activities compared to before, how many children in school compared to before, health standards, etc). Therefore, the resettlement and compensation plans will set two major socio-economic goals by which to evaluate its success: Affected individuals, households, and communities are able to maintain their pre-Project standard of living, and even improve on it; and the local communities remain supportive of the Project.

Indicators to Measure RAP Performance

In order to access whether these goals are met, the resettlement and compensation plans will indicate parameters to be monitored, institute monitoring milestones and provide resources necessary to carry out the monitoring activities. The following provides a list of potential indicators for monitoring, which assess the change in the following for those who have been resettled.

In terms of the resettlement process, the following indicators could be used to understand the success of the measures identified and the working of the relevant parties in implementation the RAP:

- Percentage of individuals selecting cash or a combination of cash and in-kind compensation;
- The number of contentious cases as a percentage of the total cases;
- The number of grievances and time and quality of resolution;
- The ability of individuals and families to re-establish their pre-displacement activities, crops or other alternative incomes;
- Number of impacted locals employed by the civil works contractors;
- General relations between the Project and the local communities.

These will be determined through the following activities:

- Questionnaire data will be entered into a database for comparative analysis at all levels of local government;
- Each individual will have a compensation dossier recording his or her initial situation, all subsequent Project use of assets/improvements, and compensation agreed upon and received.

The District authorities will maintain a complete database on every individual impacted by the subproject land use requirements including relocation/resettlement and compensation, land impacts or damages; and should prepare Resettlement Completion Reports for each RAP, in addition to other regular monitoring reports.

It is the responsibility of the District authorities to document information ideally integrated into existing databases. The District authorities will need to design a robust reporting system at the beginning of the Project to ensure that these data are collated at appropriate intervals and in sufficient quantity and quality.

The KIIWP designated Project staff will facilitate coordination of information collation activities (such as surveys, supervising documentation) in accordance with procedures put in place. KIIWP will provide training, technical support and funding to ensure that this happens. In order to assess whether these goals are met, the resettlement and compensation plans will indicate parameters to be monitored, institute monitoring milestones and provide resources necessary to carry out the monitoring activities.

Monitoring of RAF Implementation

The District will compile basic information on all physical or economic displacement arising from the Project, and convey this information to KIIWP, on a monthly basis. They will compile the following statistics:

- Number of subprojects requiring preparation of a RAP;
- Number of households and individuals physically or economically displaced by each subproject;
- Length of time from subproject identification to payment of compensation to PAPs;
- Timing of compensation in relation to commencement of physical works;
- Amount of compensation paid to each PAP household (if in cash), or
- Nature of compensation (if in kind);
- Number of people raising grievances in relation to each subproject;
- Number of unresolved grievances.

KIIWP will scrutinize these statistics in order to determine whether the resettlement planning arrangements as set out in this RAF are being adhered to. KIIWP will monitor compensation and loss of wages. Financial records will be maintained by the District and KIIWP, to permit calculation of the final cost of resettlement and compensation per individual or household. The indicators will be used to monitor implementation of the RAF will include:

- Outstanding compensation not completed;
- Project activities unable to settle compensation after one year;
- Grievances recognized as legitimate out of all complaints lodged.

Financial records will be maintained by KIIWP and the District to permit calculation of the final cost of resettlement and compensation per individual or household.

Storage of PAPs Details

Each PAP household will be provided with a signed report recording his or her initial situation, all subsequent Project use of assets and compensation agreed upon and received. At the same time, before compensation all household heads representing the PAPs will be required to provide passport size photographs to the District, and KIIWP will maintain a complete database on every individual impacted by the Project land use requirements including relocation, resettlement and compensation, land impacts or damages.

Each recipient of compensation will have a record containing individual bio-data, number of household dependents and amount of land available to the individual or household when the report is opened. Additional information to be acquired for individuals eligible for resettlement and/or compensation include the level of income and of production, inventory of material assets and improvements in land and debts.

Annual Audit

The annual audit of RAP implementation will include (i) a summary of the performance of each subproject vis-à-vis its RAP, (ii) a summary of compliance and progress in implementation of the process and (iii) a presentation of compliance and progress in the implementation of the RAP.

The audit will verify results of internal monitoring and assess whether resettlement objectives have been met irrespective of whether livelihood and living standards have been restored or enhanced. The audit will also assess the resettlement efficiency, effectiveness, impact and sustainability, drawing

lessons for future resettlement activities and recommending corrections in the implementation. Finally, the audit will ascertain whether the resettlement entitlements were appropriate to meeting the objectives and whether the objectives were suited to PAPs conditions. Annual audit reports will be submitted for scrutiny to RAB/MINAGRI and IFAD.

Socio-economic monitoring

The purpose of socio-economic monitoring is to ensure that PAPs are compensated and recovering on time. During implementation of each subproject RAP, an assessment will be undertaken on payment of compensation, restoration of income delivery of resettlement objectives. Monitoring of living standards will continue following resettlement.

A number of indicators will be used to determine the status of affected people and appropriate parameters and verifiable indicators will be used to measure the resettlement and compensation plans performance. For each subproject with adverse social impacts, a monitoring and evaluation plan of the mitigation measures will be established. As part of the preparation of each RAP, a household survey will be conducted of all PAPs, prior to physical or economic displacement, and this will provide baseline data against which to monitor the performance of the RAP.

Capacity assessment and capacity building need

The Project will require KIIWP to hire within its structure, a team of staff that will form the Project Management Team to manage exclusively the Project implementation. At the local level, the Project activities will be implemented through the Kayonza District level under MoUs with RAB/MINAGRI and IFAD, in accordance with the national decentralization policies. The District already has land administration unit within its one-stop-centre (OSC) and a staff in charge of social affairs, on which the Project may add a Social Safeguards Specialist.

Early in the Project implementation, KIIWP will organize training for its safeguards responsible staff, and those from District, on social safeguards implementation according to Government guidelines and IFAD's SECAP. Capacity building will also be conducted for compensation committees after their set up. This capacity building will be done periodically throughout the Project period.

Disclosure of Social Safeguards Instruments

IFAD will disclose this RAF as part of the ESMF. The RAF will be disclosed at RAB/MINAGRI and Kayonza District websites. Likewise, all RAPs to be prepared under KIIWP will be disclosed by IFAD at national level, and Kayonza District at district level.

Annex 5: FPIC Implementation Plan for KIIWP

BACKGROUND

The International Fund for Agricultural Development (IFAD) intends to support the Government of Rwanda (GoR) to design and implement interventions with the goal to contribute to poverty reduction in the drought prone Eastern Province of Rwanda through the Irrigation & Integrated Watershed Management Project (KIIWP). The Project will provide improved food security and incomes of 50,000 rural households on a sustainable basis in the 8 administrative sectors of Kayonza District that are most affected by drought comprising Ndego, Kabare. Murama, Rwinkwavu, Kabarondo, Mwiri, Murama, Gahini and Murundi.

As described in the main document under Sub-components 1.1 and 1.2, four sites have been selected for pumped irrigation in Ndego and Kabare Sectors totalling 2000 ha, about 275 ha of land will be developed for marshland irrigation in Rwinkwavu, Kabare and Kabarondo Sectors; and in Muruma Sector, farm ponds will be constructed for rainwater irrigation of some 10ha of land. Catchment rehabilitation and protection interventions will include terracing and agroforestry and will cover an estimated 1300ha. Other planned interventions in Ndego, Gahini, Murundi and Mwiri sectors include construction of 7 new valley tanks, rehabilitation of 15 dysfunctional valley tanks, and installation of 20 boreholes to provide water for livestock as well as human needs.

Consultation with the public and stakeholders is considered important as it provides valuable input to develop acceptable and sustainable project design and implementation plans. Most importantly, it allows the concerned communities opportunities to voice their aspirations, concerns and preferences regarding the intended development project, including their stance to give or withhold their consent to the proposed interventions, entirely or partly. This operational principle of empowering local communities to give or withhold their consent to proposed investment and development programmes that might affect their land access and use rights, territories, natural resources, livelihoods etc. is ensured through seeking Free, Prior and Informed Consent (FPIC) of concerned communities prior to planning a development intervention. Consultations with the concerned communities in good faith are believed to constitute soliciting FPIC, which ensures that they participate in decision-making processes concerning the development project, in line with IFAD Policies.

There are many advantages to seeking FPIC:

- FPIC improves the relevance and quality of investments;
- Community ownership of the investment and its results and sustainability are enhanced;
- Partnership between local communities, government institutions and financing organizations is strengthened;
- The recognition and support of local communities' aspirations for their own development minimizes or prevents conflicts with other resource users; and,
- FPIC minimizes reputational, operational and fiduciary risks for the government, company or donor carrying out activities that may affect the land, resources and rights, and livelihood of the local communities.

At this stage of the Environmental and Social Management Framework (ESMF) in the programme development of KIIWP, Terms of Reference for comprehensive site-specific ESIA studies have been prepared for proposed KIIWP activities together with those for a comprehensive hydrological study that will inform feasibility and detailed design studies. This FPIC Implementation Plan has been prepared for the planned interventions. Preliminary consultations were undertaken to establish that the proposed interventions were indeed initiated and proposed by the communities themselves. In

other words, that they were community-driven from the start and to gain an idea of the level of consent from the target communities. The process and findings are documented here below. For all planned interventions, the feasibility studies and ESIA (and RAPs where required) will be updated during project implementation consultations leading to FPIC and Consent Agreements formalized with the concerned communities before any investment is made at community level.

The FPIC Implementation Plan for KIIWP is presented here to guide on the consultations leading to FPIC for the planned interventions and for which feasibility, design and ESIA studies are yet to be undertaken.

GUIDANCE AND LEGAL FRAMEWORKS FOR FPIC

IFAD is among the first international financial institutions to adopt FPIC as an operational principle in its policy documents, including its policies on Improving Access to Land and Tenure Security (2008); Engagement with Indigenous Peoples (2009), Environment and Natural Resource Management (2011), and Social, Environmental and Climate Assessment Procedures (2014). IFAD-funded projects are people-centred, and, for IFAD, FPIC is not only a safeguard principle, rather a proactive approach to identify development pathways with local communities and build ownership on project initiatives⁵⁷.

It should be noted here that the FPIC concept is not clearly recognised in the working procedures of the local governments. Yet, people's right to full consultation, participation and expression of views with respect to policies and projects affecting their community, individual citizens etc. are clearly stipulated in the Constitution of the Republic of Rwanda of 2003 as amended in 2015 (RoR, 2015) (Articles 22, 38, 53). The Constitutional rights are elaborated in Rwanda's Vision 2020 and Environmental Policy of 2003 and are given effect by Organic Law No. 4/2005 of 8 April 2005 as amended in 2018. The major Constitutional provisions of relevance to the FPIC process are summarised in Table A5.1 below.

Table A5.1 Provisions of the Constitution of Republic of Rwanda Relevant to the FPIC Process

Article/Title	Paragraph	Statement
16	2	Discrimination of any kind or its propaganda based on, inter alia, ethnic origin, family or ancestry, clan, skin colour or race, sex, region, economic categories, religion or faith, opinion, fortune, cultural differences, language, economic status, physical or mental disability or any other form of discrimination are prohibited and punishable by law.
22 Right to a clean environment	1	Everyone has the right to live in a clean and healthy environment.
34 Right to Private Property	1	Everyone has the right to private property, whether individually or collectively owned.
	2	Private property, whether owned individually or collectively, is inviolable.
	3	The right to property shall not be encroached upon except in public interest and in accordance with the provisions of the law.
35 Right to private ownership of land	1	Private ownership of land and other rights related to land are granted by the State.
	2	A law determines modalities of concession, transfer and use of land.
37 Right to activities promoting National Culture	1	Every Rwandan has the right to activities that promote National Culture and the duty to promote it.

⁵⁷ See IFAD (2015). How To Do: Seeking free, prior and informed consent in IFAD investment projects.

Article/Title	Paragraph	Statement
38 Freedom of press, of expression and of access to information	1	Freedom of press, of expression and of access to information are recognized and guaranteed by the State.
	2	Freedom of expression and freedom of access to information shall not prejudice public order, good morals, the protection of the youth and children, the right of every citizen to honour and dignity and protection of personal and family privacy.
	3	Conditions for exercising and respect for these freedoms are determined by law.
47 Safeguard and promotion of national culture	1	The State has the duty to safeguard and promote national values based on cultural traditions and practices so long as they do not conflict with human rights, public order and good morals.
	2	The State also has the duty to preserve the national cultural heritage.
48 Participation in the development of the country	1	The State has the duty to put in place development strategies for its citizens.
	2	All Rwandans have the duty to participate in the development of the country through their dedication to work, safeguarding peace, democracy, equality and social justice as well as to participate in the defense of their country.
53 Protection of the environment	1	Everyone has the duty to protect, safeguard and promote the environment.
	2	The State ensures the protection of the environment.
	3	A law determines modalities for protecting, conserving and promoting the environment.
141 Abunzi Committee	1	The Abunzi Committee is responsible for conciliating parties in conflict with the aim of consolidating national unity and peaceful coexistence among Rwandans.
	2	The Abunzi Committee is comprised of persons of integrity who are recognized for their conciliation skills.
	3	A law determines the organization, territorial jurisdiction, competence and functioning of the Abunzi Committee.

NB: Abunzi Committee has been integrated into the KIIWP Grievance Redress Mechanism for KIIWP under Section 10.1.6 of Chapter 10 in this report.

PRELIMINARY CONSULTATIONS

During EMSF site visits for KIIWP in Aug 2018 preliminary stakeholder consultations were conducted in Kayonza District. Consultations process started with stakeholder identification for the KIIWP Project through briefings with relevant IFAD and MINAGRI officials including RAB, SPIU staff involved in similar projects. Office visits involving discussions and interviews were carried out with officials of REMA, Water Resources Department, MINIAGRI and the Kayonza District Mayor with the heads of respective district service units. Identified potential beneficiary stakeholders were consulted at proposed Project sites within the targeted drought prone intervention sectors of Ndego, Kabare, Murama, Kabarondo, Rwinkwavu, Mwiri, Gahini and Murundi. These consultations involved mainly focus group discussions individuals, members and leaders of crop and livestock producer cooperatives and sector-level opinion leaders.

The selected schemes visited for sector-level discussions and consultations with potential beneficiary community members conducted during the mission are summarised in Table A5.2 below.

Table A5.2 Sector-Level Discussions and Consultations with Potential Beneficiary Farmers

Date	Sector	Site	Site Name	Village/Cell	No. of persons consulted	Planned Area (ha)
27/08/2018		Kayonza District Mayor and Staff			8	N/A
28/08/2018	Ndego	Milk Collection Centre staff			5	N/A
28/08/2018	Ndego		Ndego Sector Opinion Leaders		20	N/A
28/08/2018		Site 1	Kibare	Isangano	28	
28/08/2018	Ndego	Site 2	Humure	Kiyovu	20	1,400
29/08/2018		Site 3	Byimana	Byimana	38	
29/08/2018	Kabare	Site 1	Gakoma	Rubumba	6	600
29/08/2018	Kabare	Site 2	Gishanda	Cyambare	Site appraisal only	150
	Rwinkwavu			Mukoyoyo		
30/08/2018	Kabarondo	Site 1	Rwakigeri	Rwakigeri		125
		Site 2	Kayeganyege	Kanyeganyege		
30/08/2018	Murama	Site 1	Ngoma	Muko	11	Farm level ponds
30/08/2018	Gahini	Site 1	Nyabombe	Juru		
		Site 2	Rukore	Kahi		
04/09/2018	Rwinkwavu	Site 1	Rwinkwavu	Muko		
05/09/2018	Murundi	Site 1	Gakoma	Buhabwa		
		Site 2	Rwakabanda	Ryamanyoni		
05/09/2018	Mwiri	Site 1	Kageyo	Kageyo	29	
05/09/2018	Kayonza CBD		Livestock farmers meeting		37	
		Total			212	

A range of issues were discussed during community consultations, the main topics covered being:

- Cooperative Approach for Delivery
- Target Beneficiary Crop Priorities
- Target Beneficiary Willingness to Invest
- Land Use Competition and Conflicts
- Target beneficiary grievance resolution views

Consultative discussions were also held in with the relevant national agencies on issues summarised below:

- Rwanda Environmental Management Authority (REMA) officials of the Environmental Education and Mainstreaming unit regarding the beneficiary districts capacity to monitor KIIWP activities; and separately with Environmental Management and Pollution Control unit regarding the special regulations for the land use management of wetlands.
- Department of Integrated Water Resource Management regarding irrigation water use regulations and their application and relevance to KIIWP.
- The Single Project Implementation Unit of the Ministry of Agriculture and Animal Resources responsible for projects similar to KIIWP.
- The climate resilience coordination office in the Ministry of Agriculture and Animal Resources regarding potential complementarity of climate resilience strategic actions with KIIWP.
- Officials of the Agriculture Technical Assistance Facility - AgriTAF programme regarding lessons that can be learned and potential synergies with KIIWP.
- The Rwanda Agricultural Board as the operational partner of IFAD in the design, development and implementation of KIIWP

The key outcomes from these preliminary consultations as featured in the main report were as follows:

Cooperative Approach for Delivery of KIIWP

Target beneficiary stakeholders and opinion leaders generally demonstrated awareness of and experience in cooperative frameworks and expressed support for the plans to deliver KIIWP interventions in this modality. Most of the residents of the proposed Kibare pumped irrigation site indicated that they had not worked in cooperative arrangements and sought clarifications during the focus group discussion. The Kibare residents expressed support after the clarifications were provided by the local agronomist and the RAB official that were present at the forum.

Target Beneficiary Crop Priorities for KIIWP

Focus group discussions with target beneficiaries and opinion leaders in the proposed pumped irrigation sites of Kibare, Humure and Byimana in the Ndego sector and of Gakoma in Kabare sector were unanimous in indicating maize, beans and soya as priority crops. Rice, banana, sugarcane as well as vegetable crops including tomato and beetroot were indicated as priority crops. In the land husbandry support intervention areas coffee was indicated as the highest priority for reasons including drought resistance. Other priority crops indicated included pineapple, avocado and other fruit trees that include mango, orange, lemon, tree-tomato and passion fruit. Banana and cassava were also indicated as priority crops but the stakeholders lamented the widespread problem of disease infestations that destroyed most both crops.

Target Beneficiary Willingness to Invest in KIIWP

Focus group discussions indicated a willingness to invest in the necessary maintenance infrastructure for irrigation including pumping systems, dams and boreholes. Target beneficiary stakeholders indicated that they already invest resources and cash in growing crops every season for the required inputs, although the crops fail in most seasons due to drought. Willingness to invest more and to seek commercial credit with the assurance of irrigation. Some focus group discussions indicated a need for capacity development in business skills and financial management.

Land Use Competition and Conflicts

Potential conflicts were flagged in some focus group discussions and discussions with individuals. In Kageyo, it was indicated that farmers compete among themselves to irrigate rice and with watering cattle in the dry season when the flow is reduced. Stakeholders indicated a need to rehabilitated valley dams that were silted and for the construction of others as well as boreholes for livestock water requirements. Similar potential for conflict was observed in Humure and Kibare where cattle graze and drink in the pump irrigation target sites. Other conflicts flagged included wildlife, especially hippo and baboons. Hippos were flagged as a problem in most of the intervention site and were observed by the field team. There was a general aura of frustration and despair among the stakeholders as they talked about the need for help to mitigate effects of persistent droughts. The community of Humure gave an account of crop failures season after season while they see the neighbouring Bramin farm prospering with bumper harvests from irrigation. The expressed frustration that government often provides food relief purchased from neighbouring Tanzania whereas they are capable of feeding themselves by irrigating their crops from the same water source that Bramin draws from. The same frustration was expressed by residents of Byimana and Gakoma in reference to the Buffet irrigation scheme within a few kilometres from their fields.

Target beneficiary grievance resolution views for KIIWP

Stakeholders indicated confidence for the resolution of conflicts that could emerge during the development and implementation of KIIWP interventions. Focus group discussions demonstrated a

good understanding of conflict resolution mechanisms within cooperative rules as laid out in corporate constitutions as well as national laws and regulations on cooperatives. It was explained that conflict that develop within a cooperative are resolved by a grievance/conflict resolution committee. Complaints are escalated to local governance structures when settlement is not reached within the cooperative starting with sector level and district level if still not resolved. Unresolved grievances in cooperatives must be escalated to the Rwanda Cooperative Agency (RCA), the statutory body in charge of cooperative regulation and management. RCA will attempt to redress cooperative-born grievances through its mediation and arbitration system before forwarding them to the country's court system if unable to resolve them. Court systems are available to complainants if conflicts remain unresolved thought the resolution mechanisms and local governance structures.

FPIC IMPLEMENTATION PLAN

The FPIC process requires the following steps:

i) Socio-Cultural and Land Assessments

Decisions and follow up actions regarding KIIWP would be impeded in the absence of adequate information on the sociocultural and land tenure aspects of the proposed interventions. Therefore, it would be essential to carry out assessments on the sociocultural and land tenure conditions of the proposed schemes in the Project area as a priority activity by the beginning of KIIWP implementation and before any investment is made at community level. The socio-cultural and land tenure assessments will establish:

- The community stakeholders, landowners and users in the Project area (including transient resident populations such as pastoralists, as well as neighbours) who might be affected and who can gain more rights through careful scheme design based on FPIC process, and who have the right to give or withhold consent;
- Organizing practices, and claims on land ownership, occupation and use;
- Types of livelihoods and resources communities depend upon;
- Land use mapping indicating existing land use and land use as proposed by the communities to accommodate the Project, and as agreed with the Kayonza District administrations;
- Institutions, governance systems and decision-making roles;
- Existing dimensions of traditional leadership (roles and status) and traditional mutual support and solidarity/reciprocity mechanisms etc.;
- Social, economic, cultural and spiritual relations with lands; and,
- Possible consequences for local communities resulting from the change on the status of land, and resources emerging from the proposed schemes.

Participatory mapping can be a useful tool in the preparation of the socio-cultural and land tenure assessment. A critical dimension will be rights of watering rights for livestock especially cattle.

ii) Identification of Decision-Making Institutions and Representatives

In line with the Government of Rwanda's decentralization policy, the key institutional actors involved with issues of resettlement, property and land rights, access to resources etc. are the local governments at the district and sector levels according to Law n° 08/2006 of 24/02/2006 determining the organisation and functioning of the District and Ministerial Order No. 001/2006 of 26/09/2006 determining structure of land registers, the responsibilities and the functioning of land bureaus in each district and in close collaboration with national level land use and land management authorities. Expropriation is implemented under Law No. 32-2015 of Relating to Expropriation in the Public Interest. Rwandan laws provide for fair compensation only for legal land property owners and

land tenants in recognition of existing written and unwritten rights and civil and original customary rights. However, registration of these ownership rights is now mandatory under Section 4 of Article 29 of the Organic Land Law.

The practical timing for identifying decision-making institutions and representatives at community level would be at the beginning of KIIWP implementation, during preliminary consultations with the communities undertaken for the ESAs for newly proposed schemes can be done in tandem with the socio-cultural and land tenure assessment.

iii) Consultations leading to FPIC

Subsequent to the socio-cultural and land tenure assessments and the identification of key decision making institutions, consultations will be held with the scheme communities during programme implementation – when individual scheme ESAs and designs are being updated or prepared, as the case may be. Consultations will be conducted by the Kayonza District office or by an independent facilitator/advisor hired by these offices⁵⁸.

The use of participatory mapping will be instrumental for the consultation process leading to FPIC. This is because of the advantages of participatory mapping and accompanying participatory enquiry techniques allow the assessment of ownership, occupation and use of land and resources as well as the social dynamics and right holders.

Given that the schemes are initiated by the community requests to government, the consultations will:

- Confirm that the schemes and other proposed interventions are a community-driven initiatives;
- Share the objective and scope of proposed scheme with the communities directly, farmer organizations such as cooperatives or communities' representatives (existing or elected by the communities in the process);
- Clearly inform the communities' representatives on the actors financing and implementing the Project and their respective responsibilities;
- Provide clear and transparent information on the benefits and risks of the Project;
- Share the findings of the socio-cultural, land tenure and environmental assessment and reality check/confirmation of findings;
- Engage selected community members or communities' representatives in the resources and social mapping activities, in order to assess ownership, occupation and use of land and resources;
- Share the objective and scope of the mapping exercise with the communities;
- Ensure inclusive participation - men, women, young people, the elderly, representatives of different communities present on the same land, and neighbouring villages - and provide for multiple maps by the different communities;
- Share the maps with all stakeholders and actors; and,
- Formalise ownership of the land use maps by the communities that have developed them.

It is important that:

- Where there is universal consent to the proposed scheme, communities' consent is formalized through a consent agreement between the communities and the KIIWP district office. The consent agreement will be the outcome of the collective decision-making process by the local communities. The process will be adequately documented;

⁵⁸ For a sample of terms of reference for facilitators supporting the FPIC process in IFAD-funded projects, see Annex 3 of IFAD's How to do Note on Seeking Free Prior and Informed Consent in IFAD Investment Projects <https://www.ifad.org/topic/consent/overview>

- Where there are doubts on consent, or where concerns are raised during consultations, these doubts and concerns are documented, and the communities are requested to propose means/solutions to overcome concerns;
- Feedback is provided to the scheme design engineers and Project staff on concerns/doubts raised by the communities;
- Feedback is provided to the communities on how their concerns have been accommodated in the scheme design.

The usual practice for IFAD-funded projects is to use independent, qualified⁵⁹ facilitators supporting the FPIC process. The selection of suitable facilitators for the FPIC process is critical to the success of the process. In the selection process, consideration should be given to the cultural context the facilitator will work in, to language skills, ethnicity, gender, experience in consultation and participatory processes, age (e.g. elders prefer to speak to older facilitators), technical knowledge of the Project and knowledge of IFAD policies and FPIC requirements. Where the district coordinators and their teams are not familiar with consultations leading to FPIC, the facilitator will have a double role, in facilitating the process and building capacity, while applying relevant provisions, hence supporting the local and national governments to fulfil the requirements of internal and external policies. If the right people to facilitate these exercises are selected, they can play a role as facilitators and at the same time build the capacities of Project staff, as well as of communities. Communities' representatives who participate in the mapping should be identified by the communities as their representatives in the FPIC process.

iv) Formalise the Consent Agreement

Once Project activities and Project sites requiring FPCI agreement are identified, this will be formalised in a written form in Kinyarwanda. The effective time the consent agreement would be formalised will be agreed upon during the consultation process and needs to be formalised before any investment is made.

The consent agreement will be prepared by the Kayonza District office. The format for a consent agreement would, among others, include:

- KIIWP Project activities on which consent is provided;
- Respective expectations;
- Proposed Project duration, expected results and activities;
- Participatory monitoring and verification plan and procedures;
- Identification of grievances procedures and mechanisms;
- Terms of withdrawal of consent;
- Record of process through means and languages accessible to all stakeholders and parties involved.

The FPIC Agreement and record of process will be made available through means and languages that are accessible to all stakeholders and parties involved. The FPIC Implementation Plan will be included in the Annex to the PDR and will be confirmed and/or revised at the beginning of Project implementation phase (during start-up workshop, beginning of consultations leading to FPCI, beginning of participatory mapping exercise).

⁵⁹ Minimum requirement for the facilitator is rights sensitivity and knowledge of the cultural context they will operate, together with technical knowledge of the issues under consideration. The facilitator must be neutral, trustworthy and mutually accountable to IFAD, the borrower government and the community (HTDN-IFAD, 2015).

v) Assess FPIC Implementation

In order to assess FPIC implementation, the appropriate indicators for measuring progress towards and/or attainment of agreed terms will be defined and linked with a timeframe in the FPIC agreement. Subsequent workshops and stakeholders reviews of the FPIC plan may also amend the various indicators to be established in the FPIC agreement. Joint supervision missions assessing Project progress will also assess implementation of FPIC agreements on regular basis.⁶⁰ Whenever possible, supervision and evaluation missions would include experts of relevance.

Table A5.3: Summarised KIIWP FPIC Implementation Plan

Description/Activity	Responsible	Timeframe
Conduct sociocultural and land tenure assessment:		
Identify: <ul style="list-style-type: none"> • Rwanda's laws on land ownership • Institutions and governance systems • Types of livelihoods • Mutual support and solidarity mechanisms • Community stakeholders, land users and assess who has the right to give or withhold the consent Assess: <ul style="list-style-type: none"> • Consequences from the Project that may result in the change of the status of the lands and resources 	Kayonza District authorities (who may hire consultants to carry out the scheme specific socio-cultural/land tenure assessments)	At the beginning of programme implementation phase. This could be part of the participatory mapping exercise
Identify decision-making institutions and representatives		
<ul style="list-style-type: none"> • Conduct preliminary consultations with the community and explain the nature of the Project • Allow time for communities to discuss and decide on their representatives for the consultation process leading to FPIC • Clarify responsibilities of representatives • Agree on the process leading to FPIC • Identify signatory parties for the consent agreement 	Kayonza District authorities, possibly through an independent facilitator, supported by IFAD as part of Project implementation support, as required.	At the beginning of programme implementation phase (this could be done in tandem with the socio-cultural and land tenure assessment and mapping exercise)
Conduct consultation leading to FPIC on the Project/specific component/activities		
<ul style="list-style-type: none"> • Share objective and scope of the Project with the representatives identified by the communities and identify Project component(s) requiring FPIC • Inform them on the actors financing and implementing the Project and their respective responsibilities • Provide clear and transparent information on the benefits and risks of the Project • Share the findings of the sociocultural, land tenure and environmental assessment • Formalize consent agreement 	Kayonza District authorities possibly through an independent facilitator, supported by IFAD as part of Project implementation support, as required.	At the beginning of programme implementation phase and before individual scheme construction
Formalize the consent agreement		
<ul style="list-style-type: none"> • Formalize the consent agreement (written or in other form if so requested by the community) • The format for a consent agreement would include: <ol style="list-style-type: none"> 21. Respective expectations 22. Proposed Project duration, expected results and activities 23. Participatory monitoring and verification plan and procedures 	Kayonza District authorities possibly through an independent facilitator, supported by IFAD as part of Project implementation support, as required.	Programme implementation phase. Timing agreed upon the during consultation process and before individual scheme construction begins

⁶⁰IFAD Policy on Engagement with Indigenous Peoples, 2009:16

Description/Activity	Responsible	Timeframe
<p>24. Identification of grievances procedures and mechanisms</p> <p>25. Terms of withdrawal of consent</p> <p>26. Record process through means and languages accessible to all stakeholders and parties involved</p> <p>27. Annex the FPIC agreement and documented process to the PDR</p>		
Assess FPIC implementation	Rwanda Agricultural Board (RAB), Kayonza District Administration and IFAD implementation support and joint supervision missions	Programme implementation phase - before individual scheme construction begins and throughout the Project cycle

LOAN AGREEMENT

FPIC requirements will be included in the Loan Agreement as a condition to disbursement for programme implementation.

DISCLOSURE

IFAD's Policy on the Disclosure of Documents enables Project design documents to be disclosed prior to the Executive Board session at which the Project is to be considered. Thus, this FPIC Implementation Plan will be disclosed together with the Programme Design Report (PDR), Environmental and Social Management Framework (ESMF), and other documents to be submitted to the Executive Board (and Evaluation Committee).

DOCUMENTING THE FPIC PROCESS

FPIC process will be documented through minutes of consultations, mapping documents prepared by the communities, videos where feasible, and FPIC agreements/formalisation documents.

Annex 6: Guidelines for an Integrated Pest Management Plan

This guideline is adapted from the Rwanda Environment Management Authority's Practical Tools on Soil Productivity and Crop Protection (2010) and IFAD's Social Environmental and Climate Assessment Procedures (SECAP 2017) Guidance Statement #2 on Agrochemicals.

Introduction

The use of agrochemicals has been critical to raising crops for food. Agrochemicals include fertilizers, liming and acidifying agents, soil conditioners, pesticides, and chemicals used in animal husbandry such as antibiotics and hormones. "Pesticides" are chemicals that are used to kill or control pests. In agriculture, this includes herbicides (weeds), insecticides (insects), fungicides (fungi), nematocides (nematodes), and rodenticides (vertebrate poisons). Different categories of pesticides have different types of effects on living organisms. In agriculture, pesticides are used to kill pests that damage crops. By their nature, pesticides are potentially toxic to other organisms, including humans, and need to be used safely and disposed of properly. Absence of safety precautions can result in accidents, sometimes with serious consequences. Those at greatest risk are those who experience the greatest exposure — these typically being smallholder farmers, farm workers and their families. These groups are also often poor since bigger farms are more likely to provide training on pesticide risk avoidance to their workers. The unsafe use of agrochemicals also poses serious negative risk on the environment (soil, water, plant, wildlife, microorganisms, etc.). In the Rwandan context, the proximity of agricultural activities using agrochemicals to sensitive ecological receptors such as national parks (in the case of KIIWP, the Akagera National Park) and wetlands raises concern in regard to the impacts these chemicals may have on those receptors.

Where there is a significant increase in the use of agrochemicals, IFAD requires a pest management or mitigation plan to be prepared. While IFAD projects promote the use of agrochemicals directly, as a project component for increased crop productivity, or – more commonly – indirectly, by increasing the availability of short-term credit for farm inputs or water for irrigation, which encourages increased use of agrochemicals. IFAD emphasises the need for careful selection of the type of agrochemicals and management of their use (timing, dosage, mode of application, etc.) can reduce to acceptable levels the environmental risks they pose while providing the needed benefits for increased production with lower financial and health risk costs.

Policy and Regulatory Frameworks in Rwanda Related to Pest Management

National Legislation

Major pieces of legislation governing and regulating the use of agrochemicals in Rwanda are:

- Organic Law N° 04/2005 Of 08/04/2005 Determining the Modalities of Protection,
- Conservation and Promotion of Environment in Rwanda which aims to: conserve the environment, people and their habitats; set up fundamental principles related to protection of environment, any means that may degrade the environment with the intention of promoting the natural resources, to discourage any hazardous and destructive means; promote the social welfare of the population considering equal distribution of the existing wealth; consider the durability of the resources with an emphasis especially on equal rights on present and future generations; guarantee to all Rwandans sustainable development which does not harm the environment and the social welfare of the population; set up strategies of protecting and reducing negative effects on the environment and replacing the degraded environment.

- Law No. 30/2012 of 01/08/2012 governing Agrochemicals which governs the manufacturing, importing, distribution, use, storage, sale and disposal and burial of agrochemicals for the protection of human and animal health and the environment, to avoid injury and contamination which may result from their use.
- Prime Minister's Order N° 26/03 of 23/10/2008 determining the list of chemicals and other prohibited pollutants, gives list of chemicals and other pollutants that are prohibited to purchase, sell, import, export, transit, store and pile chemicals, diversity of chemicals and other pollutants.
- Ministerial Order No. 006/2008 of 15/08/2008 on the Regulation of Ozone Layer Depleting Substances which regulates imports, exports and reexports of substances that deplete the Ozone Layer (ODS) products and equipment containing such substances.
- Ministerial Order No. 005/2008 of 15/08/2008 establishing Modalities of Inspecting Companies or Activities that Pollute the Environment provides for officers competent to investigate environmental crimes shall conduct an inspection aimed at protecting the environment.

International Conventions and Regional Agreements

Rwanda is also party to the following international conventions which have a bearing on the use and impacts of agrochemicals, including pesticides:

- Convention on the Conservation of Migratory Species of Wild Animals (CMS), which is a framework convention which provides a global platform for the conservation and sustainable use of migratory animals and their habitats.
- UN Framework Convention on Climate Change (UNFCCC) provides a framework for international cooperation to combat climate change by limiting average global temperature increases and the resulting climate change, and coping with its impacts.
- Kyoto Protocol to the UNFCCC (1997) legally binds developed country Parties to emission reduction targets.
- The Rotterdam Convention (formally, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade) promotes shared responsibilities in relation to importation of hazardous chemicals. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans.
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (the Basel Convention, 1989), and is designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries (LDCs). It is also intended to minimize the amount and toxicity of wastes generated, to ensure their environmentally sound management as closely as possible to the source of generation, and to assist LDCs in environmentally sound management of the hazardous and other wastes they generate.
- Stockholm Convention on Persistent Organic Pollutants (1992) aims to eliminate or restrict the production and use of persistent organic pollutants (POPs).
- The Montreal Conventional on Substances that Deplete the Ozone Layer, The Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.

Regional regulation on pesticide use and control include the Pesticide Control Act of the East African Community, East Africa Pesticide Regulation. The Inter-Africa Phytosanitary Council (IAPSC) was established in 1954 to secure a common and effective action to prevent the spread and introduction of pests of plants and plant products as well as the need to promote appropriate measures.

Impacts of Agrochemicals

Several potential environmental and social consequences are associated with the use of agrochemicals:

- *Air pollution:* Pesticides can contribute to air pollution as pesticide drift occurs when pesticides suspended in the air as particles are carried by wind to other areas, potentially contaminating them. Ground spraying produces less pesticide drift.
- *Water pollution* from the use of agrochemicals may affect both groundwater and surface water through leaching and run-off. High concentrations of nitrates and phosphates can lead to eutrophication in rivers, lakes and coastal waters. High levels of nitrogen and phosphorus cause the depletion of oxygen in lakes and reservoirs by excessive algal and bacterial growth (eutrophication), eventually reducing aquatic life. The problem is aggravated by organic effluents, especially human sewage, and eutrophication in drinking water reservoirs is a public health concern. In addition, the toxic compounds contained in some pesticides and herbicides may pollute groundwater and surface water, posing threats to both human and animal health, including marine and freshwater fish.
- *Hazards to humans and animals:* Improper application of pesticides, overuse and neglect of safety periods between application and harvest often result in high residues in harvested crops and processed food and unnecessary exposure of farmers and their families to toxic material. Contact can be direct (skin or eye) or through inhalation or ingestion. Agrochemical residues are also known to persist in contaminated clothing. Pesticides may move off target and poison fish, cattle, beneficial insects, pollinators, soil organisms and nearby communities. Pesticides may have acute or chronic toxic effects. While people are aware of their acute effects, which vary from mild irritation to death, their chronic toxicity results from the accumulation of small amounts of residue in consumed food – of both plant and animal origin – in the human body over a long period, leading to various toxicity symptoms and diseases.
- *Bioaccumulation* implies that toxic levels increase over time and along the food chain (e.g. in carnivorous mammals or predatory fish). The bioaccumulation of toxins resulting from agrochemical use is a very serious issue, causing biodiversity loss and disease in both animals and humans, especially in poor rural communities that rely on wild food. Bioaccumulation is also very serious for the marine and freshwater life that is critical to a large proportion of the poor.
- *Pest resurgence:* Misuse of pesticides can cause elimination or suppression of the natural enemies that keep insect pest populations under control and at economically acceptable levels. This suppression leads to outbreaks of secondary pests previously not considered important. This not only affects crops, but can also affect livestock and community health.
- *Pest resistance:* The misuse of pesticides can lead to the build-up of resistance in insect pests, pathogens and weeds. This resistance has great economic and ecological consequences because increasing amounts of more expensive and toxic pesticide formulations are required to achieve pest control. In some areas of the world, pesticide overuse has created a population of resistant pests, which threaten subsistence and cash crops, livestock and human health.
- *Loss of bees and other beneficial insects:* Pesticides can kill bees and other beneficial insects that are essential for the pollination of indigenous plants, honey production, etc., thus causing negative impacts on the food production, livelihoods and incomes of poor rural communities.

- *Soil fertility loss* may be related to excessive or inappropriate application of chemical fertilizers, which could result in soil salinization, sodicity or acidification, depending on the inherent soil chemistry, the quality of irrigation water and other external factors (such as acid rain). Soils may also lose their fertility due to the lack of, or insufficient application of fertilizer, which causes a decline in natural nutrient availability. Degraded agricultural land that has lost its fertility may retain its capacity to recover through fallowing. However, beyond a critical point, fertility loss may become an irreversible phenomenon. While inorganic fertilizers may improve soil fertility, various forms of organic inputs such as manure, also improve the soil structure, which enhances microbial activity, air and water infiltration and retention.
- *Soil loss* is caused by wind and water erosion on lands that have been overgrazed or overutilized for crops. Marginal and poor soils are particularly vulnerable to erosion, especially if soil fertility is depleted and natural vegetation fails to regenerate adequately. Loss of topsoil and valuable organic matter is usually irreversible.
- *Greenhouse Gases:* Agrochemicals are among the most important secondary sources of greenhouse gas (GHG) emissions in the agriculture sector.
- *Climate change* is expected to affect the population and life cycles of several pests and diseases, mainly through the influence on their distribution and expansion ranges. More invasions by introduced or migrated alien species of pests and diseases are expected, with higher intensities of infection. However, the impact of climate change will be most clear through its effect on crops, as crops growing under various types of climate stress will be more susceptible and vulnerable to pests and diseases. Anticipated effects include reduced tolerance and resistance levels in crops, and losses in biodiversity, especially of wild crop species needed for resistance breeding. Because of higher pest and disease pressure, more pesticides will be applied, which might lead to increased misuse and overuse if not well managed (World Bank, 2009). Environmental instability and increased incidence of extreme weather may also reduce the effectiveness of pesticides on target pests, or result in more injury to non-target organisms. However, climate change may affect biological control negatively or positively.

Potential Mitigation Measures

The use of agrochemicals can also be reduced or eliminated by promoting indigenous farming practices, such as the cultivation of locally adapted crops and varieties, which are often resistant to local pests and diseases; the use of locally available natural biopesticides and pest-repellent crops, with adapted cultivation strategies (seeding periods and methods, etc.); the use of natural on-farm animal and green manure; and organic farming techniques. Ensuring diversity in the crops and varieties cultivated on a farm, especially indigenous crops, reduces the risk of high-level pest infestations and disease epidemics and facilitates enhanced ecosystem services, including through pollinators and active soil fauna and flora.

Some measures for management of agrochemicals are described here:

Fertilizer management:

- Ensure that dressings do not exceed recommended doses.
- Reduce leaching through appropriate choice of fertilizer to suit soil conditions, split applications and fertilizer placement.
- Reduce run-off through incorporation of fertilizer into soil, timing of applications to avoid erosive rains, and soil and water conservation measures.
- Limit nitrate use in sensitive watersheds serving urban areas.
- Select non-ammonium sources of nitrogen such as urea.
- Carry out liming (usually to pH 5.5 for tropical crops).

- Explore the potential for increasing production without the use of chemical fertilizers, especially using indigenous technologies, including organic fertilizers, and supporting integrated soil fertility systems.
- Promote community education on improving indigenous practices to maximize production, avoiding chemical fertilizers in favour of local options that are available on farm.
- Support crop management practices that increase the nutrients available to crops, including by: (i) using more organic and less inorganic fertilizer; (ii) increasing the efficiency of fertilizer use through appropriate fertilizer selection, timing and split applications; (iii) increasing nutrient recycling using crop residues and livestock grazing after crop harvest (mixed farming); use of nitrogen fixing trees, where feasible (agroforestry); and (iv) improving rotations (e.g. inclusion of legumes, multicropping).
- Monitor receiving water courses and soil for fertility to avoid overapplication of agrochemicals.

Pesticide management:

- The project should be explicit about the pesticides it proposes, including those that farmers are expected to use when credit for input purchases is made available. **For projects that entail significant pesticide use or have the potential to result in increased pesticide use, a pesticide management plan is prepared, either as a stand-alone document or as part of the Environmental and Social Impact Assessment (ESIA) or ESMP.** The most important criteria for assessing the environmental impact of a pesticide **are its toxicity level and the degree of biodegradability. Consideration should also be given to residue-level guidance** for countries that intend to export crops. Unregistered, restricted-use or experimental-use pesticides should be avoided, unless their use in the project has been reviewed and approved by the Food and Agriculture Organization of the United Nations (FAO)/World Health Organization (WHO) Joint Meeting on Pesticide Residues.
- Pesticides in WHO Class Ia and Class Ib₅ should generally be avoided.
- For general use, the formulated product should be at a low enough concentration to be in at most a WHO Class II. Low-toxicity formulations should be favoured: from least toxic to most toxic, the options are granule, dust, wettable powder, flowable, emulsifiable concentrate, ultra-low volume and fumigant.
- Low-concentration granulars, seed dressings, bait formulations and pheromone traps generally present the least hazard to users and are especially suitable for small-scale farmers unfamiliar with pesticide use; they cause minimal environmental contamination and minimal adverse effects on non-target organisms.
- Aircraft application should be avoided whenever possible, and used only when speed in covering large areas is essential, such as in the emergency control of migratory pests.
- Safe application equipment and servicing facilities should be promoted, along with correct calibration of equipment. Training should be provided for personnel and farmers applying the pesticides.
- Protective clothing, including masks, gloves and boots, should be provided or promoted, especially for pesticides that are absorbed through the skin. However, improper use of protective clothing may be even more hazardous than doing without protection: unless it is washed, protective clothing can become saturated with pesticides – such as in the lining of boots and gloves – and can greatly increase pesticide absorption. Training should be provided.
- Training is crucial to the safety, use and cost-effectiveness of pesticides, and is recommended for inclusion in any project that increases the availability or accessibility of pesticides. A range of actors will require education: users, operators, extension officers, retailers, health workers treating cases of poisoning, and legislators in pesticides law.
- Application guidelines for pesticide use should be made clear to the borrowing country, and a legal document should be drawn up providing assurance that the guidelines will be followed.

- All the pesticides used in the project should be properly labelled, and all labels and application guidelines should be provided in the local language.
- Monitor water courses, soil and community health on a regular basis to ensure that pesticide concentrations are within legal environmental and health limits.

Integrated Pest Management Approach

An Integrated Pest Management Plan (IPMP) is a tool to prevent, evaluate and mitigate the occurrences of pesticides or pesticide breakdown products. The IPMP includes components promoting prevention and developing appropriate responses to the detection of pesticides or pesticide breakdown products, and provides responses to reduce or eliminate continued pesticide movement to groundwater and surface water. It encourages the use of a combination of pest management techniques, such as integrated pest management to suppress pest populations in an effective, economical and environmentally sound way, and minimize adverse effects on beneficial organisms, humans and the environment.

Whenever an IFAD project includes the purchase, promotion or use of agrochemicals, the following should be addressed:

- Identification of specific crops and their existing or potential pests requiring pest management;
- Investigate the options for using available safe pesticides and non-pesticide alternatives such as natural deterrents.
- Identification of nationally approved and available pesticides, and management and application techniques for their judicious and effective use to protect human and environment health.
- Assessment of local and national capacity for the safe handling, use, storage, disposal and monitoring of agrochemicals: Identify training needs for regulatory institutions, agro-dealers, extension agents and farmers, and assess the needs for building community environmental awareness.
- Development of an IPM programme for minimizing/optimizing pesticide application, including – if possible – provisions for monitoring residues on crops and in the environment. The programme should include IPM strategies for enhancing the resilience of vulnerable agroecosystems to climate variability and changes, and the adoption of IPM practices to deal with pests in different climatic conditions (World Bank, 2009).
- Reduction of environmental impact: As fertilizers have a high carbon footprint, it is prudent to enhance the efficiency of nitrogen use (by minimizing losses caused by erosion, leaching and volatilization) and to identify alternative sources using integrated nutrient management strategies, such as biological nitrogen fixation, animal manure and the recycling of nutrients in crop residues (Lal, 2004).

Thus the key steps in developing an integrated pest management plan are:

- i. Evaluate pests' impact before control programs are implemented, to identify pests, size of problems and possible natural controls. This includes describing:
 - a. Common pest problems and estimated economic impact, current and proposed practices, including non-chemical preventative techniques, biological and chemical control. Is optimum use being made of agro-ecosystem management techniques to reduce pest pressure and of available non-chemical methods to control pests? Do farmers and extension staffs get sufficient information about IPM approaches that reduce reliance on chemical control?

- b. Relevant IPM experience within the project area, district or country, existing IPM practices, projects/programs, research
- c. Discrepancies where the current or proposed practices are not consistent with the principles of an IPM
- d. approach, to be able to propose a strategy to bring pest management activities into line with IPM.
- ii. Evaluate non-pesticide management options, including a range of preventive measures and alternative pest control methods (physical, mechanical, and biochemical)
- iii. Evaluate whether synthetic pesticides are necessary or not, whether less toxic varieties are available for the purpose, and how to minimize exposure for users and the environment

Note that risk is a function of both toxicity and exposure. Reducing risk means (1) selecting less toxic pesticides and (2) selecting pesticides that will lead to the least human exposure before, during and after use.

Pesticide Management

1. Screening Pesticides

The use of any pesticide should be based on an assessment of the nature and degree of associated risks, taking into account the intended users. With respect to the classification of pesticides and their specific formulations, reference is made to the World Health Organization's *Recommended Classification of Pesticides by Hazard and Guidelines to Classification*. The following criteria apply to the selection and use of pesticides:

- a) They must have negligible adverse human health effects.
- b) They must be shown to be effective against the target species.
- c) They must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed at minimizing damage to natural enemies. Pesticides used in public health programs must be demonstrably safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them.
- d) Their use must take into account the need to prevent the development of resistance in pests.
- e) They do not fall in WHO classes IA and IB, or formulations of products in Class II if (a) country lacks restrictions on their distribution and use; or (b) they are likely be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.

2. Reduce exposure time or the degree of exposure

Before use

Transporting

- Separate pesticides from other materials being transported
- Avoid private distribution
- Never transport leaking or badly deteriorated containers
- Do not transport food, beverages or animal feed together with pesticides.
- Load and unload pesticides very carefully to minimize the chance of dropping containers.

Packaging

- Follow international and national norms and guidelines
- Use packaging adapted to needs eliminate re-use of packaging materials (even when cleaned, pesticide containers are too dangerous to re-use

- The container for the product shall be of sufficient strength and shall provide all the necessary
30. Protection against compaction, atmospheric moisture, oxidation, loss by evaporation and
 31. Contamination to ensure that the product suffers no deterioration under normal conditions of transit and storage, etc.

Storing

- develop strict guidelines for farm level storage
- ensure permanent, well-marked labeling
- follow and respect national norms
- use appropriate language and approved pictograms
- use and respect appropriate toxicology colour codes
- should be located far from human dwellings, and personal use items
- should be sited far from rivers and bodies of water, to prevent chemical contamination from entering and poisoning the water
- should not be sited in an area subject to flooding, especially during seasonal rains
- be secured from public access
- have a warning sign affixed to the exterior door, entrance or gate of the storage facility
- have a floor or base that is protected from pesticide absorption

Labeling

The purpose of a labeling is to convey a message about what the product is, who makes it and how it may be used safely and effectively. Label should specifically indicate:

- Hazard symbol
- Trade and chemical name
- Ingredient statement
- Type of formulation
- Net content of the package
- Purpose for which it is to be used
- Name and address of manufacturer, distributor
- Registration or license number
- Directions for use
- Safety precautions
- Warnings and statements of good practice
- Hazards to humans and domestic animals
- Environmental hazards
- Physical and chemical hazards
- First-aid instructions and advice to health personnel
- Storage and disposal directions
- Warranty statement

During use

- Continuous training for farmers on transportation, storage, application, protective equipment and clothing, mixing of chemicals, disposal of containers, disposal of expired agrochemicals, etc

Pre-application

- Read and understand labeled instructions and any other information provided with either the agrochemical, the application equipment or the protective clothing

- Assess the risks of application to people, animals and the environment and decide what action is necessary to reduce or eliminate them
- Ensure that the user is competent and that he or she has received effective training in application techniques and the precautions to be observed
- Arrange health monitoring as may be necessary for certain hazardous agrochemicals based on their frequency of use
- Check application equipment to ensure that it operates satisfactorily without leaking or spilling and is calibrated for the necessary application rates
- Check that protective clothing and other safety equipment including breathing apparatus, 32. if required, is complete, is of the correct quality and is in good condition. Replace any items that are worn or missing. And is in good condition. Replace any items that are worn or missing
- Decide how the work is going to be done and set up an action plan to cover its implementation, together with any emergencies that may arise.
- Check that weather conditions are satisfactory, particularly to avoid excessive wind speeds and consequent spray drift
- Ensure the safe disposal of empty containers, tank washings and surplus pesticides

During application

- Do not apply agrochemicals without adequate training
- Wear appropriate protective clothing as prescribed on the label or information sheet for handling concentrated products
- Avoid blow-back from granule or powdered materials when transferring container contents into the application unit. A slow, steady release causes least disturbance of air and reduces the risk of particles becoming airborne and being inhaled
- Mix only the correct amount of agrochemical required for a particular task so as to avoid the need to dispose of any surplus.
- Handle containers carefully to prevent gurgling or spillage during pouring into an applicator.
- Pour correctly from large containers with the spout uppermost so as to allow air to flow into the container at the same rate as the contents flow out
- If two or more agrochemicals have to be mixed, ensure that they are compatible and without risk of a chemical reaction that would cause a "tank mix" operator hazard Do not eat, drink or smoke while applying agrochemicals
- Ensure that dangerous practices such as putting a blocked nozzle to the mouth to blow it clear are prohibited. Clean the nozzle with water or a soft probe, such as a grass stem
- Do not allow other workers in the field, particularly when pesticides are being applied.
- Take particular care to observe that children are neither allowed to spray nor are exposed to pesticides
- Take notice of changing weather conditions, such as an increase in wind speed. This would cause drift and could blow the spray towards sensitive areas such as a drinking water supply, resulting in health hazards. It may also blow the spray towards the operator, causing an inhalation hazard.

After use

Know, respect and enforce any exclusion period after application during which humans, livestock, etc., must be kept away from the treated area; assure proper cleaning and rinsing off; and develop a workable monitoring and evaluation system). The following precautions have to be followed after applying the pesticide:

- Thoroughly wash hands, face and neck as well as other parts of the body which may have become contaminated. If gloves have been worn, wash them before removal
- Return unused pesticide to safe storage and safely dispose of empty containers and any surplus in the application equipment

- Decontaminate application equipment by washing it thoroughly. The washings should be drained into a soak-away or similar chamber to be safely confined and without risk to the environment.
- Decontaminate protective clothing by thoroughly washing items such as apron, boots and face shield. Launder the work clothing each day after spraying. Gloves should be washed inside and out and allowed to dry. Respiratory protection equipment should be wiped clean
- Bathe or wash thoroughly again after completing the above four actions.

Disposal of unused and obsolete pesticide, and empty pesticide containers

The safe management and disposal of pesticide-related waste (*unused and obsolete pesticide, and empty pesticide container*) should be provided and coordinated by regulatory authorities, pesticide distributors and suppliers. Other organizations that support and advise pesticide users, such as extension and health promotion services, non-governmental organizations (NGOs), agricultural colleges and schools, also have important roles to play.

MINAGRI is responsible for regulating the manufacture, import, distribution and use of pesticides. These responsibilities should be extended to include the management of pesticide related waste products, including empty containers, which are often overlooked.

A mechanism has to be designed to collect all empty pesticide containers from farmers and safely disposed and never reused. It is extremely dangerous to use them for anything else. Consult the pesticide label, the manufacturer, or the manufacturer's representative for specific recommendations regarding container clean-up and disposal.

The management plan has to be prepared when there is the plan to use pesticide to mitigate all the impacts associated with the pesticide using the above-mentioned measures. The implementation of the plan has to be supervised, monitored and audited, and a monitoring plan has to be prepared.

In Summary

The IPMP should include:

- i. A description of present, proposed and/or envisaged pesticide use and assess whether such use is in line with IPM principles. Provide purpose of pesticide use, type of products used, frequency of applications, and application methods. Is pesticide use part of an IPM approach and is it justified? Justification of pesticide use under the project should (a) explain the IPM approach and the reason why pesticide use is considered, (b) provide an economic assessment demonstrating that the proposed pesticide use would increase farmers' net profits, or for public health projects, provide evidence that the proposed pesticide use is justified from the best available (probably WHO supported evidence) public health evidence.
- ii. An indication of type and quantity of pesticides envisaged to be financed by the project (in volume and monetary value) and/or assessment of increase in pesticide use resulting from the project.
- iii. Circumstances of pesticide use and the capability and competence of end-users to handle products within acceptable risk margins (e.g. user access to, and use of, protective gears and appropriate application equipment; users' product knowledge and understanding of hazards and risks; appropriateness of on-farm storage facilities for pesticide).

- iv. An assessment of environmental, occupational and public health risks associated with the transport, storage, handling and use of the proposed products under local circumstances, and the disposal of empty containers.
- v. Pre-requisites and/or measures required to reduce specific risks associated with envisaged pesticide use under the project (e.g.: protective gear, training, upgrading of storage facilities, etc.).
- vi. A selection of pesticides authorized for use, taking into consideration: (a) criteria set at national (if there is any) or international, (b) the hazards and risks and; (c) the availability of newer or less hazardous products and techniques (e.g. bio-pesticides, traps).
- vii. A description of activities that require local monitoring during implementation.
- viii. A description of activities that require monitoring during supervision visits (e.g. regarding effectiveness of measures to mitigate risks; progress in strengthening regulatory framework and institutional capacity; identification of new issues or risks arising during implementation).
- ix. Monitoring and supervision plan, implementation responsibilities, required expertise and budget.

Annex 7: Guidelines for Dam Safety

This annex is sourced from IFAD's Guidance Note #8 on Dams, their safety and SECAP.

INTRODUCTION

Dams provide a variety of benefits, including water for irrigation, livestock and domestic supplies and fisheries, as well as flood mitigation – and all these activities have had significant impacts on poverty reduction. However, they also may have significant adverse social and environmental impacts. Dams are prone to various forces which may exist throughout their life, which can cause failure, sometimes resulting in loss of life. Thus, dams present a serious safety hazard.

CLASSIFICATION OF DAMS

Dam classification is used to determine the level of engineering design skills required to build a dam, establish the types of contingency plans to be put in place appropriate to the hazard risk presented, and the significance of environmental and social impacts that may be caused by the dam.

Classification by Size

IFAD distinguishes between three sizes of dam, namely “small”, “medium” and “large”, defined as follows:

- Small: any dam of 5 m or less in height.
- Medium: any dam of between 5 m and 15 m in height.
- Large: any dam of more than 15 m in height.

In addition, any medium dam should be treated as a large dam if it meets at least one of the following conditions:

- Its crest length is 500 m or greater;
- Its reservoir capacity is 3 million m³ or greater;
- Its maximum incoming flood is 2 000 m³/s or greater; or
- It is located in a zone of high seismicity.

Classification by Hazard Potential

A hazard is anything that has the potential to cause harm, while a risk is the likelihood that a hazard will cause harm. For example, a large dam may be rated a high hazard structure because its location is such that its failure or misoperation could cause catastrophic loss of life and property downstream. However, the same dam also could be at a low risk of failure because it is well engineered, receives regular inspections, and is exceptionally well maintained. In contrast, a smaller sized dam located miles from human habitation may be rated a low hazard structure by virtue of its location, yet be at a high risk of failure or misoperation because it was poorly designed, has never been inspected and is poorly maintained. IFAD defines three hazard classes as shown in Table 1 below:

Table 1: Hazard Potential Classification of Dams

Classification	Loss of human life	Economic loss, environmental loss and/or disruption of livelihoods
High	Probable (one or more expected)	Yes (but not necessary for this class)
Significant	None expected	Yes
Low	None expected	Low and generally limited to the owner

A high hazard rating for a new or existing dam indicates a need to adopt more stringent design standards than might be applied to a lower hazard rating dam. For example, while the design engineer for a low hazard dam might select a spillway design flood return period of say 1 in 500 years, the same engineer might select a flood return period of 1 in 10,000 years for a high hazard dam. For the same reason, a high hazard structure indicates a need for a higher standard of instrumentation and more frequent inspections than might otherwise be the case because of the potential consequences of failure or misoperation.

Environmental and Social Classification

In line with IFAD's screening categories as presented in SECAP (2017), any project that supports or induces the construction or use of a large or medium dam would be considered category A, and would require a full Environmental and Social Impact Assessment (ESIA) to be carried out for the whole programme/ project together with elaboration of an Environmental and Social Management Plan (ESMP) for implementation. Where a Programme involves a number of dam subprojects, an Environmental and Social Management Framework (ESMF) for the overall programme will suffice, provided that an ESIA is prepared during programme implementation, and an ESMP implemented, for each subproject that includes a large dam.

A project that includes only small dams would be considered category B, requiring no formal ESIA. In some cases, medium-size dams may only require an environmental analysis be carried out to confirm that there will not be any displacement and/or resettlement. Where displacement or resettlement is expected, the project design report should specify the required process for obtaining FPIC2 and a Resettlement Action Plan (RAP) should be developed and implemented. In the case of a programme containing a number of dam subprojects, a Resettlement Action Framework will suffice, provided that a RAP is prepared and implemented for each subproject.

ENVIRONMENTAL, SOCIAL & CLIMATE-RELATED IMPACTS OF DAMS

Benefits of dams have been mentioned above. However, dams can have a number of environmental and social impacts, including:

- Hydrological changes affecting availability for downstream users, including human and ecological/ecosystem needs;
- Barrier effect the upstream and downstream movement of migratory river animals such as fish;
- Barriers for sediment transport, affecting water quality and nutrient replenishment downstream;
- Impacts on cropping and/or dry season grazing that depend on seasonal flooding of the river floodplain
- Loss of natural ecosystems due to inundation of land;
- Involuntary displacement of people from their lands;
- Upsurge in diseases such as malaria and, in many cases, and HIV/AIDS transmitted by migrant construction workers;

- Damage to property or loss of life due to dam failure due to overtopping during floods because of an undersized or obstructed spillway, inadequate provision for energy dissipation at the downstream end of a spillway, erosion of the embankment or foundations due to continuous and concentrated leakage, or earthquakes/landslides;
- Slope instability as a result of inadequate internal drainage
- Functional failure of dam due to sedimentation.

Climatic events present three potentially adverse impacts on dams, i.e. increased floods, reduced inflows and increased evaporation. Increased floods has the most significant impact in terms of dam safety since the magnitude of floods and their return periods determine the validity of the spillway design flood. However, the estimation of probable maximum flood for any given location in the world remains an imprecise science, and therefore it is difficult to calculate the additional allowance for climate-related events in dam design. The spillway width and freeboard is usually designed using a flood return period selected on the basis of the hazard rating of the dam. The spillway of a major dam such as Kariba (in Zambia and Zimbabwe), for example, would normally be designed on the basis of an estimated probable maximum flood (equivalent to a 1:10,000 year flood). But the spillways of many lower hazard rating dams, including large dams, are often designed for much smaller floods of, say 1:500 years or 1:1,000 years return period. Given the problem of estimation referred to above, the best approach for the time being would be to initially ignore the impact of climate change, adopt the same design parameters as before, but then carry out a “what if” check to see how an increase in return period affects the required freeboard or spillway width. A value judgement by a qualified and experienced engineer can then be made on whether to increase the dimensions.

In addition to the above impacts, climate change may also impact negatively on the average amount of rainfall that would have contributed to the moisture available to a crop. The effect of this would be an increase in the average net irrigation requirement per unit area of crop and, possibly a reduction in the average area that could be irrigated from the dam. This needs to be taken into account when estimating net benefits.

DAM SAFETY

The serious consequences if a dam malfunctions or fails – including loss of life or injury, property losses and environmental damage – requires stringent safety measures to be put in place, whether for new or existing dams that IFAD is considering financing. IFAD requires the loan agreement to contain a covenant to ensure that dams and reservoirs are designed, constructed, operated, maintained, superintended and eventually decommissioned to the highest possible

Responsibility of the Owner

In the case of KIIWP, the owner of the proposed dams will be the Rwanda Agriculture Board in the Ministry of Agriculture and Animal Resources Development. In general, a “community” is not the owner of a dam – even if it is known as a “community dam” and even if the community has constructed the dam on its own initiative/at its own cost. RAB will be responsible for the safety of the dam throughout its life. RAB has a duty of care to take appropriate measures to ensure the safety of the dam, from investigation and design through construction, operation, maintenance, periodic inspections, emergency preparedness and eventual decommissioning. This duty of care includes ensuring that, as a workplace, the dam is safe for those engaged in its construction and those employed in subsequent operation and maintenance, as well as other persons who may enter the site, such as livestock herders, fishers and recreational users. It also includes making sure, if necessary by insistence on appropriate wording of construction contracts, that working conditions for all personnel

employed in construction, operation and maintenance comply with the norms of good practice established for the construction industry and set out in the national labour laws.

RAB must ensure that the dam wall should be fenced, and signs should be provided to warn the public of the particular depth of water there and possibly elsewhere in the reservoir. While the reservoir may seem to be a convenient point for drawing livestock and domestic water supplies, this should be discouraged on health grounds. Instead, if supplies are required, the project should include drinking troughs for livestock, just downstream from the dam and supplied by gravity.

MINAGRI and RAB will be expected to comply with the national legal system of such legislation, regulations, directives, and other standards and measures as may be necessary to effectively fulfil all of its national responsibilities and, where relevant, its international obligations regarding dams. These include the enforcement of environmental laws, including enforcement of environmental management/mitigation plans, as well as health and safety regulations.

IFAD's Role

IFAD's role is to finance the project in accordance with its own policies and operational procedures. It is responsible to its Governing Council to ensure, in close collaboration with RAB, that dam safety procedures and SECAP are complied with throughout programme implementation and that it will provide support to national implementation teams to achieve this. IFAD's role is not, however, to direct, adjudicate on or take responsibility for technical decisions relating to the design, construction, commissioning, operation, maintenance or inspection of dams.

While responsibility for the technical adequacy and safety of IFAD-financed dams rests with RAB/MINAGRI and its technical staff/consultants, and while "no objection" does not imply approval or any sharing of the RAB or MINAGRI's responsibilities, IFAD will need regular and ready access to consistent, qualified engineering advice on all matters that it is not objecting to. Continuity will be key. This may require the engagement, on an as-required basis, of a dam engineer, either by the country programme manager or, depending on the anticipated demand, by the policy and Technical Advisory Division.

Design and Construction of Dams

For the construction of a new dam, RAB must ensure that the dam is designed, and its construction is supervised, by suitably qualified and experienced engineers. RAB must also adopt and implement dam safety measures for the design, bid tendering, construction, operation and maintenance of the dam and associated works.

For small dams, generic dam safety measures (such as ensuring adequate spillway capacity, freeboard and protection of the downstream outfall, an adequate foundation key/cut off, protection of the outlet works from differential settlement and leakage, upstream and downstream slopes appropriate to the properties of the material used for construction, adequate drainage, avoidance of unsuitable materials and adequate compaction under competent supervision) are usually all that is required, and the FAO irrigation and drainage paper may be used as a reference⁶¹. Nevertheless, RAB will be required to provide IFAD with details of the qualifications and experience of the civil engineer responsible for supervision for review.

⁶¹ FAO. 2010. Manual on Small Earth Dams: A Guide to Siting, Design and Construction. FAO Irrigation and Drainage Paper No. 64. Rome. Available at: www.fao.org/docrep/012/i1531e/i1531e00.pdf.

The requirements for a medium-sized dam are more stringent. For such dams, IFAD requires that a suitably qualified and experienced independent consulting engineer, acceptable to IFAD, be engaged by to provide recommendations directly on all aspects of the quality assurance stage at the key stages of the dam development, including:

- The specification for, and completion of, site investigations;
- Detailed design of the dam and appurtenant works;
- Preparation of the works specifications and bidding documents;
- Excavation of the cut-off trench and outlet works; and
- Construction of the dam wall, through to commissioning, filling and start up of the dam.

The consulting engineer will also review and comment on the operation and maintenance plan and emergency preparedness plan, as well the arrangements for periodic inspections. The consulting engineer's reports will be made available to IFAD during supervision missions for review and "no objection".

If the proposed dams are classified as large dams, IFAD will require:

- reviews by an independent panel of experts (the Panel) of the investigation, design and construction of the dam and the start of operations;
- preparation and implementation of detailed plans for construction supervision and quality assurance, instrumentation, operation and maintenance and emergency preparedness; and
- periodic safety inspections of the dam after completion.

The Panel will consist of three or more experts, appointed RAB and acceptable to IFAD, with expertise in the various technical fields relevant to the safety aspects of the particular dam. The primary purpose of the Panel should be to review and advise RAB on matters relative to dam safety and other critical aspects of the dam, its appurtenant structures, the catchment area, the area surrounding the reservoir and downstream areas.

RAB must contract the services of the Panel and provide administrative support for its activities. Beginning as early in project preparation as possible, RAB should arrange for periodic Panel meetings and reviews, which should continue through the investigation, design, preparation of the specifications for the works, construction, and initial filling and start-up phases of the dam. RAB should inform IFAD in advance of the Panel meetings, to which IFAD should normally send an observer. After each meeting, the Panel should provide RAB with a written report of its conclusions and recommendations, signed by each participating member, copied to IFAD for review and "no objection". Following the filling of the reservoir and start-up of the dam, IFAD would review the Panel's findings and recommendations on the event. If no significant difficulties are encountered in the filling and start-up of the dam, RAB would then disband the Panel.

For existing dams, or dams under construction, IFAD requires, depending on the size and hazard rating of the dam, that RAB arrange for one or more independent dam specialists to:

- i. Inspect and evaluate its safety status, its appurtenances and its performance history;
- ii. Review and evaluate the operation and maintenance procedures, including its emergency preparedness plan; and
- iii. Provide a written report of the findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam or dam under construction to an acceptable standard of safety.

All necessary additional dam safety measures or remedial work should be financed under the proposed project. When substantial remedial work is needed, IFAD requires that:

- i. The work be designed and supervised by appropriately qualified and experienced engineers; and
- ii. The same reports and plans as for a new IFAD-financed dam be prepared and implemented.

For high-hazard cases involving significant and complex remedial work, IFAD would also require that an independent consulting engineer or panel of independent experts be employed to inspect the work on the same basis as for an IFAD-financed new medium or large dam.

Selection of Engineers and Other Professionals

It is absolutely essential to ensure that the design, construction operation, maintenance, surveillance and eventual decommissioning of a dam are carried out only by appropriately qualified and experienced engineers and other professionals, such as hydrologists, geotechnical engineers and geologists. The key is to employ engineers and others with the qualifications and experience appropriate to the height and hazard potential of the dam concerned. The table below summarises the level of engineering and design expertise required for the construction of small, medium and large dams.

Table 2: Level of Engineering Expertise Required in Relation to Dam Classification

Classification of dam	Expertise required	
	Site investigation/design/construction supervision	Overall technical guidance/direction
Small	Junior engineer/technician having undergone a short course in dams as part of the training	Civil engineer with > 5 years' experience of design and construction of dams
Medium	Civil engineer with > 5 years' experience of design and construction supervision of similar or larger dams	Senior civil engineer with > 10 years' experience in design and supervision of dams
Large	Full-time senior civil engineer with > 10 years' experience, with most of that experience in the design and construction of similar or larger dams	Senior civil engineer with > 15 years' experience, with most of that experience in the design and supervision of dams

The independent panel of experts required for all large dams should be composed of a dam engineer specialized in the type of dam to be constructed (e.g. an arch dam specialist for an arch dam and so on), hydrologist, geotechnical engineer, engineering geologist, and any others with expertise in the various technical fields relevant to the safety aspects of the particular dam. Each member of the panel should be an internationally recognized high-level specialist in his/her respective field.

Operation and Maintenance

IFAD requires that, for any dam that it finances – whether large, medium or small or high or low hazard – an ***Operation and Maintenance Manual*** is prepared during the construction stage, to be ready for immediate use upon completion of the work and first filling of the dam. The O&M Manual should:

- i. Define practices that will ensure safe operation;
- ii. Specify a maintenance programme appropriate to the hazard rating of the dam to ensure timely repair of the facilities; and
- iii. Identify who is responsible for operation and maintenance of the dam on behalf of RAB, from day to day and in terms of engineering.

The O&M Manual must be submitted to IFAD (and, in the case of a large dam, also to the independent panel of experts) for review prior to the completion of construction. The manual should cover the functions of the dam and reservoir and describe the procedures to be followed to ensure dam safety during flood conditions. Operational procedures should be specified that ensure:

- Inflows do not endanger the dam structure (eg. by overtopping);
- Outflows achieve the required environmental (compensation) flow rate where this is applicable; and
- Outflows are delivered in such a way as not to endanger the dam or to cause damage downstream.

RAB must ensure that there is extra vigilance during the first filling of the dam, as this process may expose weaknesses that require the dam to be drained. In some cases, security measures may have to be taken to protect structures from damage by vandals or saboteurs, as well as from unauthorized operation of outlet or spillway gates. For dams with a significant or high hazard potential, an effective communications system must be maintained between the site and relevant government departments (such as MININRA, MINIRENA), as well as with the emergency services.

A maintenance schedule must be prepared, with instructions and checklists indicating the required procedures for each component of the dam. Protective measures for an embankment dam are likely to include:

- Generally minimizing erosion by: (a) establishing and maintaining grass cover on the embankment and spillway; and (b) fencing the embankment, spillway and other sensitive areas to keep livestock and people from establishing paths;
- Preventing the growth of bushes and trees on the embankment; and
- Making ongoing minor repairs of erosion damage.

Special attention should be given to known problem areas, and incident-specific maintenance instructions should be issued following floods, earthquakes and other natural phenomena.

Operation and maintenance personnel should be selected on the basis of their capability to acquire the knowledge needed to perform the many functions of operation and maintenance, should be trained for their duties at each specific project, and should enjoy similar, if not better, working conditions to those employed earlier on the construction of the subproject. Maintenance staff must possess the requisite skills to ensure that any repair works are carried out to the same, or higher, standard as the original works and provide adequate supervision to ensure that this is achieved.

Periodic Inspection Programme

A **Periodic Inspection Programme** is necessary to check the structural integrity of a dam and appurtenant structures on an ongoing basis throughout their operating life, and to ensure protection of human life and property. Periodic inspections are intended to detect conditions that might disrupt operation or threaten dam safety in time for them to be corrected. Three levels of periodic inspections will be required: “informal”, “intermediate” and “formal/special”. Generally, the required frequency of each type of inspection will depend on the rated hazard potential of the dam. However, the proposed schedule should be specified in the O&M Manual, listing each feature to be inspected. While IFAD would not be involved in inspections (since these would mostly take place after the project has closed), it requires assurances at loan negotiations that MINAGRI will ensure that the requirement for regular periodic inspections would be subsequently respected. The table below summarises the types of inspection and respective expertise required.

Table 3: Levels of Inspection and their Requirements

Level of inspection	Purpose	Frequency	Carried out by	Reporting to
Informal inspections	To have, as far as practicable, continuous surveillance of dam, to identify and report abnormal conditions in accordance with instructions prepared by owner's engineer	Frequent observations of dam and appurtenances scheduled according to hazard potential of the dam. Schedule modified if necessary by owner's engineer to respond to any changing conditions.	Operating personnel at dam, such as dam superintendent, extension officer, water user association officers or the like, as integral part of operation and maintenance activities.	Owner/owner's engineer
Intermediate inspections	Thorough inspection of the dam and appurtenant structures, as well as review of the last formal inspection	Annually for dams rated as having a significant or high hazard potential; at most biennially. Frequency may be reduced by the owner's engineer to once every five years for lower hazard dams.	Qualified engineers experienced in design, construction, operation and maintenance of dams, and trained to recognize abnormal conditions. Dam operator should participate.	Owner/owner's engineer
Formal and special inspections	To determine if the structure meets current accepted design norms and practices	Interval of five years or less for dams rated as significant or high hazard potential, although depending on their history, some dams may require more frequent inspection. Special inspections must be carried out immediately after the dam has passed a large flood or after the occurrence of a significant earthquake, sabotage or other unusual event.	Formal and special inspections should be conducted under the direction of a high-level specialist dam engineer and other specialists, selected on a site-specific basis considering the nature and type of the dam.	Owner/owner's panel of experts

Emergency Preparedness Plan

IFAD requires that an ***Emergency Preparedness Plan*** be prepared for all dams with a “significant” or “high” hazard potential. This plan should specify the roles of parties responsible for the safety of a dam if and when failure is considered imminent, or when the expected operational flow release threatens downstream life, property or economic operations. The plan will include the following items:

- Clear statements on the responsibility for dam operations decision-making and for related emergency communications;
- Maps outlining inundation levels for various emergency conditions;
- Flood warning system characteristics; and
- Procedures for evacuating threatened areas and mobilizing emergency forces and equipment.

The broad framework of the plan and an estimate of the cost of preparing the plan in detail should be provided to IFAD prior to project design completion. The plan itself should be prepared during

implementation and given to the panel of experts (in the case of a large dam) and IFAD for review not later than one year before the projected date of initial filling of the reservoir.

Emergency action planning is likely to be of less importance for small dams with a low hazard rating.

Decommissioning

Decommissioning of a dam would eventually be required when it has reached the end of its economic life. In such cases, the dam must be entirely removed or at least made incapable of storing any water temporarily or permanently. Decommissioning other than by removal is normally done by breaching one or more sections of the dam wall or embankment. MINAGRI would remain responsible for the safety of the dam while it is in the process of removal/decommissioning – and indefinitely thereafter if it is not removed. Even though removal/decommissioning may not be carried out until two or three decades after construction, IFAD requires assurance that when the time comes the owner of the dam would exercise due diligence and comply with national regulations for safeguarding: (i) any affected persons; and (ii) the environment. This should include a ***Removal/Decommissioning Plan*** based on professional engineering advice to ensure that, to the satisfaction of the environmental authority:

- The breaching process would be carried out safely, both in terms of the dam itself and in terms of potential damage or loss of life downstream;
- The unbreached section would be left in a permanently stable condition;
- The proposed breach would be wide enough not to impound significant quantities of water under flood conditions; and
- Stability of the sediment deposits within the reservoir area would be assured before commencement of the breaching operation.

The plan should also include proposals for reinstatement and/or regeneration of the inundated area.

Annex 8: Sample Contract Clauses for Environmental and Social Management

SAMPLE GENERAL CONDITIONS OF CONTRACT

Sub-Clause XX: Rights of Way and Facilities

The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which he may require, including those for access to the Site. The Contractor shall also obtain, at his risk and cost, any additional facilities outside the Site which he may require for the purposes of the Works.

Sub-Clause XX: Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

- a) The convenience of the public, or
- b) The access to and use and occupation of all roads and footpaths or other property, irrespective of whether they are public or in the possession of the employer or of others.
- c) The contractor shall indemnify and hold the employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

Sub-Clause XX: Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site and other areas where the Works are to be performed under the Contract (if any). The Contractor shall use all reasonable efforts to prevent any road or bridge or docking facilities from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in the Contract:

- a) The Contractor shall be responsible for any maintenance which may be required for his use of access routes;
- b) The Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- c) The Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route,
- d) The Employer does not guarantee the suitability or availability of particular access routes, and
- e) Costs incurred to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

Clause XX: Staff and Labour

Sub-Clause XX: Engagement of Staff and Labour

Except as otherwise stated in the Employer's Requirements, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, housing, feeding and transport.

The Contractor shall, to the extent practicable and reasonable, employ staff and labour with appropriate qualifications and experience from sources within the Country.

For non-skilled labour, the Contractor must demonstrate its best efforts to ensure that the communities in the immediate area of influence of the project are given priority in the recruitment process and will demonstrate this through a local recruitment plan to be provided and approved by the Employer.

The Contractor shall develop and implement a human resource policy (the "Human Resources Policy"), which shall include a labour and employment plan and a worker grievance mechanism where employment and health and safety issues can be voiced without fear of repercussion. The Human Resources Policy shall be passed on to any Subcontractors appointed by the Contractor and each Subcontract with any such Subcontractor shall include an obligation for the Human Resources Policy to be passed down to any further Subcontract entered into by such Subcontractor with any other Subcontractor.

Sub-Clause XX: Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out or prescribed by applicable Laws. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

Sub-Clause XX: Persons in Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.

Sub-Clause XX: Labour Laws

The Contractor shall comply with all the relevant labour legislation including Occupational Health and Safety Act 2007, and the International Labour Organization Labour Standards to which Rwanda is party, applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

Sub-Clause XX: Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours permitted by applicable Law and the Consents, unless:

- a) otherwise stated in the Contract,
- b) the Employer gives consent, or
- c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Employer.

Sub-Clause XX: Facilities for Staff and Labour

Except as otherwise stated in the Employer's Requirements, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

Sub-Clause XX: Health and Safety

The Contractor shall:

- a) Comply with all applicable safety regulations;
- b) Take care for the safety of all persons entitled to be on the Site,
- c) Use reasonable efforts to keep the Site and works clear of unnecessary obstruction so as to avoid danger to these persons;
- d) Provide fencing, lighting, guarding and watching of the works until taking over of the whole of the works; and
- e) Provide any temporary works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the works, for the use and protection of the public and of employers and occupiers of adjacent land.

The Contractor shall to the extent permitted by applicable Laws fully bear and discharge any health and safety-related obligations and liabilities arising under applicable laws and shall issue any notices to Governmental Authorities as may be required in order to give effect under applicable laws to the apportionment of responsibility made by this paragraph⁶².

The Contractor shall develop and implement an occupational health and safety plan, which shall be subject to the Employer's final approval, not to be unreasonably withheld or delayed.

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of all individuals on and about the Site and any areas that may adjoin those areas (including the Contractor's Personnel and members of the local communities) or otherwise affected or potentially endangered by the Works. In collaboration with local health authorities, the Contractor shall ensure: that first aid facilities are available at all times at the Site, that suitable welfare, hygiene and epidemic prevention arrangements are made to comply with the relevant laws of the Country relating to health and safety and/or the health and safety requirements specified in the Schedules to the Contract are complied with.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send to the Employer details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Employer may reasonably require.

⁶² Subject to local law compliance check regarding the appointment of the Contractor as "principle contractor" (or the similar concept applicable in Rwanda).

The Contractor shall to the extent permitted by applicable Laws fully bear and discharge any health and safety-related obligations and liabilities arising under applicable Laws and shall issue any notices to Governmental Authorities as may be required in order to give effect under applicable Laws to the apportionment of responsibility made by this Sub-Clause.

The Contractor shall, in carrying out and completing its activities under this Contract comply with (and ensure the Contractor's Personnel comply with), the detailed health and safety plan for the performance to be provided by the Contractor in accordance with the Employer's Requirements.

Clause XX: Protection of the Environment

Sub-Clause XX: Environmental Management Laws

The Contractor shall abide by the Organic Law determining the modalities of protection, conservation and promotion of environment in Rwanda (2005), and all the conditions attached to the EIA License issued by the Rwanda Development Authority (RDA). The Contractor shall be responsible for ensuring that he is compliant with all relevant national laws at all times.

Sub-Clause XX: Environmental and Social Management Plan

The Contractor shall develop a Contractor's Environmental and Social Management Plan (CESMP) and a Contractor's Environmental and Social Management System (CESMS) applicable to his works and activities associated with the Project within one month of award of contract, for approval by the Employer. The Contractor shall carry out and complete the Works and its other relevant obligations under this Contract in accordance with the requirements of the Environmental and Social Management and Monitoring Plan prepared for the ESIA study [attached in Schedule XXX] and the CESMP. He will provide itemised costs for implementing the CESMP and CESMS to ensure they are fully implemented throughout the duration of the construction contract.

Sub-Clause XX: Environmental Protection

The Contractor shall take all necessary and reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations activities.

The Contractor shall ensure that noise levels, air emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values indicated in the Employer's Requirements and otherwise shall not exceed the values prescribed by applicable Laws, Permits and Licences.

The Contractor shall carry out and complete the Works and its other relevant obligations under this Contract in accordance with the requirements of the Environmental and Social Management and Monitoring Plan and the Construction (Environmental) Management Plan.

SAMPLE SPECIAL SPECIFICATIONS OF CONTRACT

REQUIRED REPORTS

The Contractor shall submit to the Employer the following reports and records:

- The Contractor shall develop an environmental summary report that will form part of the monthly progress reporting that is issued to the Employer. The environment sections shall detail the following:
 - Number of employees on Site.
 - Any significant changes in the approved Contractor's ESMP (significant changes include but are not limited to the number and type of Contractor's equipment, changes in the construction programme and mitigation measures).
 - The details of environmental incidents and issues.
 - A summary of any grievances lodged against the project.
 - A brief summary of the number and type of any medical conditions or treatments dispensed by the medical centre.
 - The planned environmental and social works to be undertaken in the next two months.
 - The results of any sampling or monitoring that occurred.
- A copy of the quarterly self-monitoring report should be provided to the Employer.

Reports required by the Rwanda Environmental Management Authority (REMA) and the Rwanda Development Authority (RDA) are detailed in the licence conditions. These reports shall first be submitted to the Employer not less than 30 days prior to the required submission date to REMA and RDA, so that the Employer can review labour and working conditions and environmental and social management issues.

LABOUR AND WORKING CONDITIONS

The Contractor is required to protect the fundamental rights of its workers in the course of economic growth, employment creation, and income generation. The Contractor is expected to treat workers fairly and provide them with safe and healthy working conditions.

International Labour Organisation (ILO) Requirements

The Contractor shall familiarise himself with the 33 ILO Conventions ratified by Rwanda as listed in the following table⁶³. The Contractor will determine which Conventions are applicable and ensure that they and their subcontractors comply with the requirements of these Conventions.

No.	Conventions in Force
C029	Forced Labour Convention, 1930
C087	Freedom of Association and Protection of the Right to Organise Convention, 1948
C098	Right to Organise and Collective Bargaining Convention, 1949 (No. 98)

⁶³ https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103460

No.	Conventions in Force
C100	Equal Remuneration Convention, 1951 (No. 100)
C105	Abolition of Forced Labour Convention, 1957 (No. 105)
C111	Discrimination (Employment and Occupation) Convention, 1958 (No. 111)
C138	Minimum Age Convention, 1973 (No. 138) <i>Minimum age specified: 14 years</i>
C182	Worst Forms of Child Labour Convention, 1999 (No. 182)
C081	Labour Inspection Convention, 1947 (No. 81)
C122	Employment Policy Convention, 1964 (No. 122)
C144	Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144) <i>(will enter into force on 29 June 2019)</i>
C011	Right of Association (Agriculture) Convention, 1921 (No. 11)
C012	Workmen's Compensation (Agriculture) Convention, 1921 (No.12)
C014	Weekly Rest (Industry) Convention, 1921 (No.14)
C017	Workmen's Compensation (Accidents) Convention, 1925 (No. 17)
C018	Workmen's Compensation (Occupational Diseases) Convention, 1925 (No. 18)
C019	Equality of Treatment (Accident Compensation) Convention, 1925 (No. 19)
C026	Minimum Wage-Fixing Machinery Convention, 1928 (No. 26)
C042	Workmen's Compensation (Occupational Diseases) Convention Revised), 1934 (No. 42)
C062	Safety Provisions (Building) Convention, 1937 (No. 62)
C089	Night Work (Women) Convention (Revised), 1948 (No.89)
C094	Labour Clauses (Public Contracts) Convention, 1949 (No. 94)
C118	Equality of Treatment (Social Security) Convention, 1962 (No.118)
C123	Minimum Age (Underground Work) Convention, 1965 (No. 123) <i>Minimum age specified: 16 years</i>
C132	Holidays with Pay Convention (Revised), 1970 (No. 132). <i>Length of holiday specified: 18 working days</i>
C135	Workers' Representatives Convention, 1971 (No. 135)
C154	Collective Bargaining Convention, 1981 (No. 154) <i>(will enter into force on 29 June 2019)</i>
C155	Occupational Safety and Health Convention, 1981 (No. 155) <i>(will enter into force on 29 June 2019)</i>
C181	Private Employment Agencies Convention, 1997 (No. 181) <i>(will enter into force on 29 June 2019)</i>
C187	Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) <i>(will enter into force on 29 June 2019)</i>

Employment of Labour

The Contractor shall make arrangements for the engagement of staff and labour, local or otherwise, and for their payment, feeding, transport and when appropriate accommodation.

The Contractor shall be solely responsible for recruiting his labour force and satisfying the relevant obligations under the Contract and the laws and regulations in force in Rwanda. Notice shall be posted in conspicuous places and work places to inform the workers of their rights and the conditions of work.

The Contractor is encouraged to recognize that, in order to maintain good community relations as required under the Contract, to the extent that suitable options for recruiting labour locally exist and provided that other selection factors are equal he should make every reasonable effort to recruit his workforce according to the priorities of the local population and in particular those affected directly by the Project. These recruitment priorities should follow the following order:

- Project Affected People (PAPs);
- People from villages directly affected by land acquisition for the Project;
- Residents of the Project area.

The Contractor shall strictly comply with the agreed prioritization system to avoid discord among the local communities.

The Contractor shall coordinate with the local / national / government administration(s) to organize and set-up a prioritization scheme. The announcement for hiring can be done through the government offices and actual hiring done by the Contractor.

The contractor shall provide the Employer with a copy of the agreed system for prioritizing hiring of the host communities.

The cost of hiring shall be part of the construction costs. The Contractor shall indemnify the Employer in respect of all claims that may be made against the Employer of non-compliance thereof by the Contractor.

The Contractor shall provide each member of staff or labour force with a letter of employment or contract. The Contractor is required to keep proper wages books and such other records as are required by the prevailing Laws of Rwanda governing the employment of labour.

The Contractor shall pay rates of wages and observe conditions of labour as defined in the Labour Code of the Republic of Rwanda (2001). The minimum wages are defined in the Labour Code and the contractor will abide by any revisions at any given time by the Minister in charge of Labour.

Health and Safety of Workers

The Contractor shall ensure the health and safety of all its workers. Further requirements for health and safety are specified in Employer's Requirements, Part 1 (Annex 1A).

The Contractor shall be responsible for equipping the workers including unskilled labours with as a minimum the following Personal Protective Equipment (PPE) of acceptable quality approved by the Employer:

- Safety Hard Hat equipped with a chin strap.
- Safety boots with steel toe caps or equivalent safety toe caps.
- Leather construction gloves.
- Safety glasses.

The Contractor will be responsible to ensure that PPE is worn by all workers and subcontractors whilst undertaking construction activities and whilst on the construction Site.

The Contractor is encouraged to provide all workers with a recognisable uniform of a colour that readily distinguishes workers as belonging to the project.

The Contractor shall not employ forced labour, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty.

The cost of ensuring the health and safety of the workers shall be part of the construction cost.

When using public roads, the Contractor shall take all necessary measures to minimise the risk of accidents, injuries to local people and damages to public and private properties. No workers shall be allowed to travel in the back of flatbed trucks or pickup trucks.

The Contractor shall liaise and coordinate with the Rwandan Police and local administration as it might be necessary.

Medical Facilities

The Contractor shall provide and maintain a medical facility for the projects construction workers during the construction phase. The facility shall be operational prior to the commencement of the projects construction. It shall be equipped to the satisfaction of the Employer and as a minimum the following:

- hot and cold running water
- electrical power facilities
- a refrigerator for keeping medicines at a constant temperature
- a private examination room
- sufficient first aid equipment and supplies for the number of staff on Site
- a lockable cupboard for the storage of medicines.

The medical facility shall be staffed and managed by a qualified and experienced nurse to the satisfaction of the Employer.

Records shall be kept of every medical treatment and patient's condition. The records will be classified as kept confidential by the medical staff. The Contractor and Employer shall be entitled to receive summarised and anonymous information from the records, not the actual workers record themselves.

The medical facility shall have a designated four wheel drive operational vehicle that can be used as an ambulance in case of emergency.

A fully stocked comprehensive first aid kit shall be available at each main construction area when construction works are in progress and at the main Site office.

Working Hours

The contractor shall develop policies regarding the Projects working hours, overtime and holiday pay and conditions. These shall be in accordance with the relevant Rwandan Legalisation and the ILO conventions. The ILO conventions require that staff must have a period of rest comprising at least twenty-four consecutive hours in every period of seven days worked. It also states that the period of rest shall, wherever possible, be granted simultaneously to the whole of the staff.

As a minimum the Contractor shall give workers a thirty-minute rest and/or refreshment period every five hours of work. The normal working hours shall be 8 hours. Beyond that all work shall be considered as overtime.

Minimum Wages

The Government of Rwanda has a no mandated minimum wage. The Contractor shall pay reasonable wages as defined by the Ministry of Public Service and Labour (MINFOTRA) and as required in the Labour Code (2001). The Contractor shall pay overtime at a rate of 1.5 times of normal wages rates.

Grievance Mechanism

The Contractor shall develop and provide a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns.

The Contractor will inform the workers of the grievance mechanism at the time of recruitment and make it easily accessible to them. The mechanism should involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism should also allow for anonymous complaints to be raised and addressed. The mechanism should not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.

Employment of Workers with HIV/AIDS

Africa continues to be the region most severely impacted by the HIV/AIDS pandemic, it is therefore likely that the project will employ workers with HIV. The Contractor shall adopt and implement the recommendations detailed in the IFC's 'Good Practice Note - HIV/AIDS in the Workplace' which shall include:

- Defining the nature of the problem and the company's level of risk with respect to HIV/AIDS.
- Identifying on-going initiatives, resources and stakeholders in the wider area of operations.
- Adopting a collaborative approach to devising an HIV/AIDS strategy based on the building of partnerships and the integration of key action areas and stakeholder groups.

The Contractor shall develop workplace policies and guidelines which adopt the following key principles:

- **Recognition of HIV/AIDS is a workplace issue**, not only because it affects the workforce, but also because the workplace can play a vital role in limiting the spread and effects of the epidemic.
- **Non-discrimination** - There should be no discrimination or stigmatization against workers on the basis of real or perceived HIV status.
- **Gender equality** - Equal gender relations and the empowerment of women are vital to preventing the spread of HIV infection and enabling women to cope with HIV/AIDS.
- **Healthy work environment** - The work environment should be healthy and safe, and adapted to the state of health and capabilities of workers.
- **Social dialogue** - A successful HIV/AIDS policy and program requires cooperation, trust and dialogue between employers, workers, and governments.
- **Screening for purposes of employment** - HIV/AIDS screening should not be required of job applicants or persons in employment, and testing for HIV should not be carried out at the workplace except as specified in the ILO code.
- **Confidentiality** - Access to personal data relating to a worker's HIV status should be bound by the rules of confidentiality consistent with existing ILO codes of practice.
- **Continuing the employment relationship** - HIV infection is not a cause for termination of employment. Persons with HIV-related illnesses should be able to work for as long as medically fit in appropriate conditions.

- **Prevention** - The social partners are in a unique position to promote prevention efforts through information and education; and support changes in attitudes and behaviour.
- **Care and Support** - Solidarity, care and support should guide the response to AIDS in the workplace. All workers are entitled to affordable health services and to benefits from statutory and occupational schemes.

Equal Opportunities Employment

The Contractor shall adopt and implement Rwandan Labour Code and adopt the recommendations detailed in the IFC's Good Practice Note; Non-Discrimination and Equal Opportunity.

The Contractor shall adopt the principle that all employment decisions have to be based on the ability of the individual to do the job in question without regard to personal characteristics that are unrelated to the inherent requirements of the work.

The Contractor shall not discriminate with respect to:

- recruitment and hiring
- compensation (including wages and benefits)
- working conditions and terms of employment
- access to training,
- job assignment,
- promotion,
- termination of employment or retirement, and
- disciplinary practices.

The Contractor shall undertake the following to ensure it is an equal opportunity employer:

- Identify need for non-discrimination strategy.
- Prepare baseline information.
- Review and change recruitment policies.
- Assess its payment practices.
- Implement an anti-harassment policy.
- Develop family-friendly policies.
- Understand cultural and religious diversity.
- Involve underrepresented groups in the workforce.
- Devise a strategy to deal with disability and health issues.
- Communicate its policies to all workers.

Labour Organisations

The Contractor and its subcontractors must allow workers to belong to worker's organisation or unions as per the ILO convention.

The Contractor will not discourage workers from electing worker representatives, forming or joining workers' organizations of their choosing, or from bargaining collectively, and will not discriminate or retaliate against workers who participate, or seek to participate, in such organizations and collective bargaining. The Contractor shall not discriminate against unionized workers.

The Contractor shall allow access for representatives of workers' organizations to the workers they represent. Workers should be free to meet and discuss workplace issues on the premises during scheduled breaks, and before and after work. Furthermore, workers should be allowed to choose representatives to speak with management, inspect working conditions in an appropriate manner and in a way that does not disrupt productivity, and carry out other organizing activities

The Contractor shall provide workers information on worker's rights to join worker's unions.

Child Labour

The Contractor shall comply with Rwandan Labour Code and the ILO Minimum Age Convention, 1973 (No. 138) whereby the Minimum age specified is 16 years.

The Contractor shall not employ children in any manner that is economically exploitative, or is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

The contractor shall use a minimum work age of 18 and shall develop a corporate policy against employing, using, or benefiting from child labour. The policy shall include procedures for age verification in hiring that also includes their sub-contractors. The Contractor shall review and retain copies of verifiable documentation concerning the age and employment profile of all people under 18 working on the project, and retain copies of the documentation.

The Contractor shall ensure children under the age of 18 are not employed in hazardous work. All work undertaken by persons under the age of 18 shall first be subject to an appropriate risk assessment and the Contractor shall undertake regular monitoring of their health, working conditions, and hours of work.

ENVIRONMENTAL MANAGEMENT

Resource Efficiency: Conservation of Water and Energy

The Contractor will implement technically and financially feasible and cost effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs, with a focus on conserving raw materials, energy, and water.

Pollution Prevention: General Requirements

The Contractor shall not pollute any rivers, ponds, marshes, streams or waterways with fuels, oils, bitumen, acids, concrete residues or other harmful materials. The Contractor shall not pollute any water bodies or waterways with sediments that have been disturbed as a result of the projects construction.

The Contractor shall investigate and comply with all applicable Rwandan laws and regulations, applicable international standards and guidelines and the projects ESMP that concern the pollution of water bodies and waterways.

Maintenance of Pollution Control Equipment and Facilities

During the Contract Period, the Contractor shall maintain all erosion, sediment and pollution control facilities as long as the operations creating the particular pollutants are being carried out or until the materials concerned have become stabilized to the extent that the pollution is no longer being created.

Spillages and Disposal of Pollutants

Special measures, as approved by the Employer, shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides, insecticides and cement from entering water bodies. Disposal of any materials in areas adjacent to streams shall require the prior written approval of the Employer. If any waste material is dumped in unauthorised areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area.

Soil Erosion and Sediment Control

The Contractor shall conduct his operations in conformance with his approved Soil Erosion and Sediment Control Plan. The area of bare soil exposed at any given time by construction shall be restricted to a minimum. Vegetated areas shall not be cleared until immediately prior to construction occurring in the area. Cuts, fills and cleared areas within the limits of work shall be graded and drainage installed to prevent and control erosion.

Work areas, construction roads, quarries, and borrow and spoil areas shall be located and constructed in a manner that will keep sediment from entering streams or other bodies of water. Construction roads and the excavations for the headrace channel that are located on the steep valley sides will be constructed in a manner that will keep excavated soil and blasted rock from falling on to down-gradient areas.

Soil and rock excavated from these areas shall be loaded into trucks, covered and hauled to the designated spoil disposal area. The features of the Work areas, construction roads, quarries, and borrow and spoil areas shall be so controlled, both during and after completion of the work, so that erosion will be minimized and sediment will not enter streams or other bodies of water. This may require segregating such areas by a dyke or other barrier, treating sediment polluted water prior to discharge by the use of a settling basin or other means sufficient to reduce the sediment content to the adopted guideline.

The Employer has the authority to limit the surface areas of erodible materials exposed by clearing and grubbing, and to direct immediate permanent or temporary sediment control measures to prevent the transport of sediment. This includes, but is not limited to, the construction of berms, dykes, dams, drains, sediment, collection ponds or basins, and the use of temporary seeding, mulches, matting, stone, riprap or other control devices as necessary to control erosion and the transport of sediment.

The Contractor shall install all necessary drainage and sediment control devices prior to the start of any land disturbance including the construction or upgrading of existing access roads. Soil erosion and sediment control facilities shall be adapted or expanded as construction proceeds to meet the requirements specified. Temporary erosion and sediment control measures shall be provided and maintained until the permanent drainage and erosion control facilities are completed and operative. The Contractor shall inspect and maintain all erosion and sediment control facilities on a daily basis.

Sediment-laden water shall not be pumped from trenches or excavations into surface waters drainage channels or either natural or man-made leading to any waterbodies. Sediment-laden water shall be discharged into settling basins located away from watercourses so that only clear water enters the watercourse after the silt has settled out in the settling basin.

The flow line of any stream or watercourse shall not be disturbed or altered unless indicated, specified or directed by the Employer. The construction of a spillway or a structure to facilitate the spilling of water for the project into a natural gully or stream can only be undertaken if planned and if the stream or gully has been shown to be capable of taking the water.

Excavated soil shall not be stockpiled adjacent to watercourses in a manner that will cause siltation of the watercourse. Fills and waste areas shall be constructed by selective placement of materials to eliminate silts or clays on the surface which may erode and contaminate adjacent waterways.

All erosion and sediment control facilities shall be left in place until construction is completed or the area is stabilised, or as directed by the Employer. At the completion of the work, the Contractor shall remove any sediment deposited behind any sediment control facilities which are to remain, and shall repair or replace all damaged facilities as directed by the Employer. The Employer will direct the Contractor as to which facilities shall remain, and which shall be removed.

Noise and Vibrations

The Contractor shall ensure noise levels are kept within acceptable limits as stipulated in the Rwandan Environmental Management Noise and Excessive Vibration Pollution, Control rules. The Contractor shall indemnify the Employer from any liability damages due to noise, vibrations and/or other disturbances caused by his construction operations and also from all claims relating to such liability.

Night-time blasting, pile driving or other operations producing a high level of noise and/ or vibration shall be performed only at times and places approved by the Employer and people living within potentially impacted areas shall be notified ahead of time of the length and noise intensity of the proposed night-time construction.

Location of Storage Facilities

The Contractor's storage and other construction buildings, which are required for the performance of the work, shall be located upon cleared portions of his Work Areas. The preservation of the landscape shall be an essential consideration in the selection of all such sites and in the construction of buildings.

Location of Other Work Areas

The Contractor shall receive written approval from the Employer prior to establishment of any lay down areas, stockpile or waste areas, and other work areas. Quarries, borrow and spoil disposal areas shall be so excavated that water will not collect and stand therein. During construction, excavated areas shall be maintained in such a condition that they will be well-drained or pumped dry at all times. Surface water, subsurface and groundwater shall be prevented from flowing into and accumulating in excavations.

Dust Control

As necessary in the vicinity of populated areas, the Contractor shall maintain all excavations, embankments, stockpiles, haul roads, permanent access roads, waste areas, borrow areas, and all other work areas free from excessive dust which would cause a hazard or nuisance to others. Temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods shall require the written approval by the Employer prior to their use. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor shall have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

The Contractor shall propose methods and actions to control dust resulting from construction related activities, including quarry sites, crushing and concrete batching plants, earthworks including road construction, embankment and channel construction and haulage of materials.

The Contractor shall spray water as needed on dirt roads, cut areas and soil stockpiles or fill material. The frequency of spraying near local communities shall be done as directed by the Employer. The Contractor shall ensure the exhaust gases from construction machinery and vehicles are accepted. However, the engines shall be inspected and serviced to manufacturer's levels to minimize pollution levels.

Disposal of Wastes

Disposal in or adjacent to the Site of any debris, wastes, effluents, trash, oil grease, chemicals, etc. will not be permitted, except as authorized in writing by the Employer. Unless written authorization or burning or on-site disposal is received from the Employer, all wastes and debris resulting from construction operations shall be removed and disposed of off the Site. The Contractor shall make all necessary arrangements with the appropriate local authorities for obtaining suitable disposal locations and the cost involved shall be at the Contractor's expense.

If any waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to its original condition. If necessary, ground contaminated from such unauthorized disposal operation shall be excavated, disposed as directed by the Employer, replaced with suitable fill material, compacted and finished with topsoil, and planted as required to re-establish vegetation, all at no additional cost to the Employer.

Hazardous Materials

Hazardous Materials (Hazmats) can be classified according to the hazard as: explosives; compressed gases, including toxic or flammable gases; flammable liquids; flammable solids; oxidizing substances; toxic materials; radioactive material; and corrosive substances.

The project may use and store explosives, compressed and flammable gases (welding), flammable liquids (fuels) and toxic materials (waste oils batteries florescent light bulbs etc.). The Contractor shall record and report on a monthly basis the types and amounts of hazardous materials present on the project Site. The report shall include:

- Name and description of the Hazmat
- Classification (e.g. code, class or division) of the Hazmat;
- Internationally accepted regulatory reporting threshold quantity or national equivalent of the Hazmat;
- Quantity of Hazmat used per month;
- Characteristic(s) that make(s) the Hazmat hazardous (e.g. flammability, toxicity).

The Contractor shall construct a storage area for the projects hazardous materials and fuel. The storage area shall have an impermeable surface and shall be walled or bunded to reduce potential surface and ground water pollution in the event of a spill. The design of contained storage areas shall conform to national regulations and international best practices.

The Contractor shall regularly collect and store all used oil and lubricants, which will be collected into drums/barrels or tanks.

The storage of liquid hazardous wastes shall be in a roofed and bunded well ventilated enclosure or should have a lockable valve in the drainage system so that rainwater can be checked for contaminants prior to discharge.

The Contractor shall develop a waste management plan, which will detail the use, storage and disposal of all solid waste materials.

When pest management activities are required that include the use of chemical pesticides, the Contractor shall select chemical pesticides that are low in human toxicity, that are known to be effective against the target species, and that have minimal effects on non-target species and the environment.

The Contractor shall only use pesticides that have been manufactured by an entity currently licensed by relevant regulatory agencies. The pesticides shall be packaged in safe containers and be clearly labelled for safe and proper use.

The Contractor shall not use material or products containing asbestos or polychlorinated biphenyl (PCBs).

Hazardous Wastes

The Contractor shall avoid the generation of hazardous and non-hazardous waste materials (e.g. waste oil filters, tyres, batteries, bulbs and chemical wastes).

Where waste generation cannot be avoided, the Contractor shall reduce the generation of waste, and recover and reuse waste in a manner that is safe for human health and the environment.

Where waste cannot be recovered or reused, the Contractor shall treat, destroy, or dispose of it in an environmentally sound manner that includes the appropriate control of emissions and residues resulting from the handling and processing of the waste material.

If the generated waste is considered hazardous, the Contractor shall adopt Good International Industry practise alternatives for its environmentally sound disposal.

When hazardous waste disposal is conducted by subcontractors or third parties, the Contractor shall use subcontractors that are reputable and legitimate enterprises licensed by the relevant government regulatory agencies.

The Contractor shall obtain chain of custody documentation to track the waste to its final disposal destination. The Contractor shall conduct an assessment to ascertain whether licensed disposal sites are being operated to acceptable standards and that the disposal site(s) deemed acceptable by the Employer will only be used by the Contractor.

If the disposal site is not acceptable the Contractor and Employer together shall consider alternative disposal options, including the possibility of developing their own recovery or disposal facilities at the project Site.

Explosives

The Contractor shall develop an explosives management plan and appoint a competent full time employee to be in charge of storage, transportation, and use of explosive material (explosives manager). The plan shall ensure the projects compliance with Rwandan legislation.

The explosives management plan and credentials of the manager shall be submitted to the Employer at the start of the construction phase for acceptance prior to any blasting occurring at the Site.

The nominated employee (explosives manager) shall have sufficient knowledge and experience in:

- Storage, transportation, and use of explosives.
- The handling and use of explosives
- Rwandan laws and regulations that apply to the importation, handling, storage, transport and use of explosives.
- The explosives manager shall be responsible for:
- The purchase of all explosives,
- The transportation of all explosives.
- Liaisons with the Rwanda police and officials of the mines and geological department regarding the transportation and storage of all explosives.
- Planning and conducting all blasting required for the construction of the project.
- Undertaking regular audits on stocks,
- Monitoring recording and the reporting of explosive handling and usage,
- Maintaining the permits issued by regulating agencies.

The Contractor shall provide the adequate resources shall be provided to the explosives manager to carry out his work effectively.

Stockpiling of Topsoil

Excavated material suitable for topsoil shall be stockpiled separate from other materials at such places that the topsoil can be reused for landscaping and reclamation purposes. No topsoil shall be removed from the Site without prior written approval from the Employer.

Location of Storage Facilities

The Contractor's storage and other construction buildings, which are required for the performance of the work, shall be located upon cleared portions of his Work Areas. The preservation of the landscape shall be an essential consideration in the selection of all such sites and in the construction of buildings.

Reclamation of Quarries, Borrow and Spoil Disposal Areas

Final restoration of quarries, borrow and spoil disposal areas shall include grading, establishment of vegetative cover, or other necessary treatments that will blend into the surrounding area. Overburden shall be stripped from all quarries, borrow and spoil disposal areas and stockpiled for later use in reclamation of the Site. After an excavation has served its purpose, all waste material that may have been temporarily stored outside of the excavation

shall be moved back into the excavation. The excavation shall be neatly sloped and trimmed, and side slopes flattened to the maximum extent possible, consistent with the slope of the natural ground surface. The stockpiled overburden material shall then be spread uniformly over the sides and bottom of the excavation area. No separate payment will be made for this work.

Fire

The Contractor shall not create, cause or allow to be caused by his activities or those of his employees or subcontractors the burning of waste or other materials as a method of disposal. The contractor and his employees or subcontractors must take all reasonable measures to ensure that any accidental bush fires are not started. The Contractor shall be responsible for any liability whatsoever arising from fires so caused.

Post Construction Clean-Up

The Contractor shall, as far as reasonably possible, remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction, to the approval of the Employer. The Site shall be restored as necessary to permit the growth of vegetation thereon. Disturbed areas shall be graded and 150 mm of topsoil applied to the extent that topsoil is available from stockpile.

BIODIVERSITY AND CONSERVATION OF NATURAL RESOURCES

Vegetation

Limits of clearing shall be within the boundaries shown on the construction drawings or to the limits staked on the ground by the Employer. Except in areas specified to be cleared as indicated on the Drawings the Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without the written approval of the Employer. Trees in construction zones that interfere with the movement of the Contractor's equipment shall not be removed until inspected and/or tagged by the Employer.

All trees bordering any construction zone shall be protected by acceptable methods. Trees shall be felled in such a manner as to avoid damage to trees left standing. Where, in the opinion of the Employer, trees that are to remain may be defaced, bruised, injured or otherwise damaged by the Contractor's equipment or operations, the Contractor, shall adequately protect such trees. When earthwork operations are liable, in the opinion of the Employer, to cause rock, earth or other materials to be displaced into uncleared areas, the Contractor shall protect the trees. Rock, earth or other material that is displaced into uncleared areas shall be removed and any resulting vegetation damage will be required to be rehabilitated.

Ropes, cables or guys shall not be fastened to or attached to any nearby trees for anchorages unless specifically authorized by the Employer. Where such use is authorized, it shall be performed in such a manner as to avoid damage to the trees. The Contractor shall be responsible for any damage resulting from such use.

Specific trees and groups of trees to be protected on the Site will be field-marked.

The Contractor shall take all reasonable precautions to avoid damaging these trees. Protection of the marked trees does not relieve the Contractor of his responsibility for obtaining the written

approval of the Employer prior to defacing, injuring, destroying, removing or cutting any trees outside areas specified to be cleared.

The Contractor shall unless otherwise agreed by the Employer, make a reasonable effort to utilize materials of value resulting from clearing operations into beneficial uses. He shall provide his labour camps with electricity or non-wood fuels (such as paraffin and or container gas) in sufficient quantity, frequency and cost to meet all domestic needs of his personnel and to preclude unauthorized cutting of trees and gathering of wood for fuel.

All timber, logs, and branches 50 mm in diameter or larger removed or cut by the Contractor shall be stockpiled and utilized in construction or as fuel wood. Cleared and grubbed materials smaller than 50 mm in diameter, with the approval of the Employer, may be disposed of by removal from the Site. The location and procedures utilized to dispose of materials must be approved by the Employer.

Wetlands

The Contractor shall not at any time encroach on any wetlands deemed to be totally protected by the Rwanda Environmental Management Authority (REMA). Any Works permitted under the EIA licence in conditional wetlands will adhere to all the requirements in that licence, and national regulations on the protection of wetlands. Limits of clearing shall be within the boundaries shown on the construction drawings or to the limits staked on the ground by the Employer, and will allow an appropriate buffer zone between the wetlands and Works areas, as approved by the District Environmental authorities and REMA. Except in areas clearly specified to be cleared as approved by the District Environmental authorities and REMA, and as indicated on the Drawings, the Contractor shall not deface, injure or destroy wetland vegetation, nor remove or cut them without the written approval of the relevant Authority.

All wetlands bordering any construction zone shall be protected by acceptable methods. Wetland vegetation shall be removed in such a manner as to avoid damage to the wetland ecosystem. When earthwork operations are liable, in the opinion of the Employer, to cause rock, earth or other materials to be displaced into uncleared areas, the Contractor shall take appropriate measures to protect the wetlands that may be potentially damaged or otherwise affected by rock, earth or other material debris that is displaced.

Protection of Wildlife

The Contractor shall not be permitted to conduct his Works in nationally and locally protected areas. He will ensure that all contracts with his workforce prohibit them from collecting or harming wildlife, hunting, poaching, and will impose meaningful consequences for violation such as employment termination and reporting them to the Wildlife authorities.

In the event that Works are hampered by wildlife, the Contractor will immediately inform the Employer who will contact the relevant Wildlife authorities. The Contractor will then work with the said authorities to address any such events.

Restoration of Landscape

Any tree, grassed or other landscape feature which has been scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original conditions and to a condition satisfactory to the Employer. Restoration of scarred and damaged trees shall be performed in a manner approved by the Employer. When directed by the Employer, trees shall be trimmed to remove branches or roots which interfere with or were damaged by construction traffic.

All scars made on trees by equipment, construction operations, or by the removal of limbs larger than 50 mm in diameter shall be coated as soon as possible with a tree wound dressing approved by the Employer. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted.

Trees determined by the Employer to be damaged beyond restoration shall be removed and utilized in construction or provided to the labour camps. Such trees shall be replaced at the Contractor's expense by nursery-grown trees of the same or alternative species, the species size and quality being approved by the Employer. Any disturbed grassed areas shall be seeded and mulched as directed by the Employer.

HISTORICAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

In the event the Contractor discovers archaeological sites, historical sites, remains and objects, during excavation or construction, the Contractor shall: (a) Stop the construction activities in the area of the chance find; (b) Delineate the discovered site or area; (c) Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, the Contractor shall immediately notify the Employer for his instruction. Where appropriate, by reason of chance find the Employer may order delays in the time of performance, or changes in the work, or both. If such delays, or changes, or both, are ordered, the time of performance and contract price shall be adjusted in accordance with applicable sections of this contract.

COMMUNITY HEALTH AND SAFETY

General Requirements

The Contractor will avoid or minimize risks and impacts on the health and safety of the local community during the project life cycle from both routine and non-routine circumstances.

The Contractor will ensure that the safeguarding of Project personnel and property is carried out in a legitimate manner that avoids or minimizes risks to the community's safety and security.

Water Quality and Availability

The Contractor shall ensure that all project activities involving wastewater discharges, water extraction, diversion or impoundment will prevent adverse impacts to the quality and availability of groundwater and surface water resources.

The Contractor shall ensure that the quality of water that may be used for drinking, cooking, washing, and bathing, should comply with national standards or in their absence the current edition of with WHO Drinking Water Guidelines.

Structural Safety of Project Infrastructure

The Contractor shall design and construct the structural elements or components of the project in accordance with good international industry practice.

All buildings shall be designed, constructed, and made ready for safe operations in full compliance with local building codes, local fire department regulations, local legal/insurance requirements, and in accordance with an internationally accepted life and fire safety (L&FS) standards.

Life and Fire Safety (L&FS)

The Contractor shall undertake the Works in full compliance with the requirements of any Rwandan Legislation applicable to the execution of the Works.

The Contractor shall comply at all times with any mandatory requirements of Rwandan Legislation, local safety and security and other regulations in force and to which the works are subject.

Traffic Safety

The Contractor shall promote traffic safety by all project personnel during displacement to and from the workplace, and during operation of project equipment on private or public roads. The Contractor shall adopt safety measures that are protective of project workers and of road users, including those who are most vulnerable to road traffic accidents. Road safety initiatives shall include:

- Adoption of best transport safety practices across all aspects of project operations with the goal of preventing traffic accidents and minimizing injuries suffered by project personnel and the public
 - Emphasizing safety aspects among drivers
 - Improving driving skills and requiring licensing of drivers
 - Adopting limits for trip duration and arranging driver rosters to avoid overtiredness
 - Avoiding dangerous routes and times of day to reduce the risk of accidents
 - The use of speed control devices (governors) on trucks, and remote monitoring of driver actions
 - Regular maintenance of vehicles to minimize potentially serious accidents caused by equipment malfunction.
- Where the project may contribute to a significant increase in traffic along existing roads the Contractor shall:
- Minimize pedestrian interaction with construction vehicles
- Collaborate with local communities and responsible authorities to improve signage, visibility and overall safety of roads, particularly along stretches located near schools or other locations where children may be present.
- Collaborate with local communities on education about traffic and pedestrian safety (e.g. school education campaigns)
- Coordinate with emergency responders to ensure that appropriate first aid is provided in the event of accidents
- Use locally sourced materials, whenever possible, to minimize transport distances.
- Locate associated facilities such as worker camps close to project Site and arrange worker bus transport to minimizing external traffic.
- Employ safe traffic control measures, including road signs and flag persons to warn of dangerous conditions.

The Contractor shall implement driver and traffic safety programs for all staff that are required to drive for the project.

Security Personnel

The Contractor shall, if it retains employees or contractors to provide security to safeguard its personnel and property, assess risks to those within and outside the project Site posed by its security arrangements. In making such arrangements, the Contractor will be guided by the principles of proportionality, good international practices in terms of hiring, rules of conduct, training, equipping and monitoring of such personnel, and applicable law.

The Contractor shall:

- Satisfy itself that the provider of the security is not implicated in past abuses.
- Ensure the provider is adequately trained in:
 - the use of appropriate force
 - if applicable the use of firearms
 - appropriate conduct toward workers
 - appropriate conduct toward the local community
 - applicable laws.
- Monitor the personnel or company providing the security services.
- Investigate any credible allegations of unlawful or abusive acts by security personnel.
- Report unlawful and abusive acts to public authorities when appropriate.

Hazardous Materials

The Contractor shall prevent or minimize the potential for community exposure to hazardous materials that may be released by the project.

Emergency Preparedness and Response

The Contractor shall establish and maintain an emergency preparedness and response system so that they and other relevant parties, are prepared to respond to accidental and emergency situations associated with the project and prevent and mitigate any harm to people and/or the environment.

This preparation will include the identification of areas where accidents and emergency situations may occur, communities and individuals that may be impacted, response procedures, provision of equipment and resources, designation of responsibilities, communication, including that with potentially Affected Communities and periodic training to ensure effective response.

The Contractor shall review its emergency preparedness and response plan at least annually and review and revise the plan necessary to reflect changing conditions.

The Contractor shall collaborate with the affected communities, local government agencies, and other relevant parties, to prepare a plan to respond effectively to emergency situations, especially when their participation and collaboration are necessary to respond to such emergency situations.

Public Morality / Code of Conduct (Behaviour)

The Contractor shall establish a Code of Conduct to outline the importance of appropriate behaviour, drug and alcohol abuse, and compliance with relevant laws and regulations. Each employee shall be

informed of the Code of Conduct and shall be bound by it while in the employment. The Code of Conduct shall be available to local communities at the project information centres or other place easily accessible to the communities. The Code of Conduct shall address the following measures (but not limited to them):

- Sneaking illegal substances, weapons and firearms to the construction areas/site;
- Bringing school children to the construction areas/site for the purposes of illicit sex;
- Sale of pornographic material to the local community;
- Fighting (physical or verbal) in public places;
- Hunting, fishing or trading in wild animals without permission from relevant Government Departments;
- Creating nuisances and disturbances in or near communities
- Maintenance of appropriate standards of dress and personal hygiene.

Disease Prevention

The Contractor shall prevent or minimize the potential for community exposure to water-borne, water-based, water-related, vector-borne disease, and other communicable diseases that could result from project activities.

The Contractor shall explore opportunities during the project life cycle to reduce the impact of specific diseases that are endemic in the local communities in the project area environmental conditions that could help reduce their incidence.

The Contractor shall implement strategies and measures to prevent or at least minimize the transmission of communicable diseases that may be associated with the influx of temporary or permanent project labour.

HIV/AIDS Prevention

The Contractor shall throughout the Contract period (including Defects Notification Period) conduct the HIV/AIDS Awareness and Prevention Campaign in accordance with the Rwandan Ministry of Health (MINISAN) and District prevention plans among the Contractor's personnel and the local community, to promote awareness and prevention.

The Contractor shall institute an HIV/AIDS Awareness and Prevention Campaign amongst the workers for the duration of the contract. As a part of the campaign the Contractor will be required to display AIDS awareness posters in all buildings frequented by workers employed on the contract, where such buildings fall under the control of the Contractor. In addition, at least two (2) of the Contractors vehicles, regularly used on Site shall display HIV/AIDS awareness posters. The posters shall be printed on the gloss paper and shall be at least A1 SIZE on buildings and A3 size, or other approved size on vehicles. As part of the campaign the Contractor shall be required to make condoms available to workers. The condoms shall be from an approved manufacturer and comply with the current ISO Standards or WHO/UNAIDS specifications and Guidelines for Condoms, 1998, or any more recent equivalent publication. The Contractor shall distribute available adequate condoms every month, through dispensing machines or other approved method of distribution throughout the contract period.

Malaria Prevention

The Contractor shall throughout the Contract period (including Defects Notification Period) conduct a Malaria Awareness and Prevention Campaign in accordance with the District malaria prevention strategy, among the Contractor's personnel and the local community, to promote awareness and

prevention of malaria. The Campaign will include the planting of tree species as recommended by the District Health authorities that are known to repel mosquitoes. The Campaign will also focus on raising awareness on, and the elimination of, mosquito breeding sites.

Damage of private property

The Contractor shall avoid any damage to private property as much as possible, where this occurs the contractor is required to compensate the damaged property at agreed market rate with the property owner.

Annex 9: Notes on Community Consultations

Tuesday 28th August 2018: Ndego sector

Key highlighted points by local communities met at Kibare Village (near Kibare lake)

- Concerning the issue related to the priority crops to be cultivated; the community in this village proposed the followings crop commodities: maize, beans, soya beans and cassava and tomato
- On the issue related to the farmer's perception on idea of working through cooperative; farmers indicated that it is not a new approach for them, since most of them are already members of producer cooperative or farmers groups such as such as "Twigire muhinzi" farmers groups. Therefore, they indicated that they are ready to adopt this approach
- Few farmers were confused on the approach of working into cooperative due to the fact that they own different size of farmlands (some own 1ha, 2ha, 3ha or less than 1 ha). So they wondered how peoples with different size of farmlands will work together.
- Farmers highlighted that, presently, there are a big number of farmers who own farmlands closer to the shores of the lake who are not able to farm it due to the high cost of irrigation. Consequently, those farmers have either abandoned their farmlands or rented them. Therefore, they indicated that once this project started, they will return back to their farmlands.
- The community in this site appreciated the support given by government throughout the acquisition of pumping machines for irrigation although the cost of fuel for feeding the pumps is expensive
- Farmers claimed that there is a Government project (implemented by REMA) which recently taken a big portion of their farmland for bamboo plantation as a buffer to Kibare lake. Briefly, farmers were not happy to the new boundaries of the lake shores set by REMA as part of lake protection
- In general farmers in this site were so aggressive since they are facing an issue of food shortage while they own big farmland and they are more energetic to cultivate it in order to produce food for HH consumption and extra for marketing.
- In this community, it is mentioned that there is also a big issue linked to wild animals especially hippos and baboons which come regularly and destroy their crops.
- The community also recommended that should the project to support construction of water tanks on the hillside

Key highlighted points by the opinion leaders met at Ndego sector office

- The participants indicated that they excited by this project since it target irrigation infrastructures since this is an area prone to drought. Therefore, they mentioned that with this project , the community are confident that this region will become a national food basket,
- They indicated that some of the marshland in ndego sector has a kind of clay soils (ibumba), this is the case of humure marshland.
- It is recommended that the project may expands its interventions up to the human settlements,
- They asked question if it is possible for this project to irrigate farmlands that are located within 1 km ahead of the water source.
- Concerning the issue related to the proposed approached of working through cooperative, the participants expressed that they are ready to go even beyond cooperative level up to union once they have an irrigation infrastructures. they added that the only one limiting factor is the lack of reliable access of water for crop watering
- Participants proposed that this project may support also pumping water from main water source up to water tank/ponds for hillside crop irrigation and cattle watering

- The participants wondered if a cooperative will be formed at the level of each project site or if one cooperative will be formed to cover all project sites
- Concerning the issue related to the priority crop, the participants proposed maize to be given high priority mainly due to the fact that it is a stable commodity and it is consumed into different forms
- Some participants recommended that maize cropping should be rotated with horticulture crops such tomato
- Concerning the issue of beneficiary contribution, the participants agreed that they are ready to provide their own contribution, however, they want the project to consult them prior to determine/ fixe beneficiary contribution further to avoid the overestimation of their capacity.
- The participants also added that with this project, they will be even able to produce enough forage for cattle feeding.
- In conclusion , they recommended that this project should start as soon as possible.

Key highlighted points by local communities met at Humure village

- Local communities indicated that since the time they settled in this region they have been facing consecutive crop failure due to drought events
- They indicated that a big number of local peoples have been moved to other village such as Kagese village with the purpose to look for food there.
- They raised their concerns on how they are going to work through cooperative while some of them own a big farmlands, other own a small farmland, while other do not own any land especially young peoples,
- Farmers expressed their enthusiasm to the irrigation project in this region and request that the project should start immediately so that women can be employed in their own farmland which are located closer to their homestead further to be able to take care of their children. On the other side men indicated that they want this project to start in order to be able to generate money to cover all HH needs and generate extra income for saving further to improve the living condition of their family
- Concerning the issue related to settlement of disputes/grievances which may arise from cooperative, they indicated that under the existing producers cooperatives there is always a special committee in charge of solving all issues arising from cooperative. Once an issue is not solved by this committee , the local authority become the next level to handle issues within the cooperatives .

Wednesday,29th August 2018: Ndego and Kabare sectors

Key highlighted points by local communities met at Byimana village (Byimana cell, Ndego sector, Kayonza District)

- Most of farmers in this site indicated that they are excited by the upcoming irrigation project in this region due to the fact that it is very well known that this is a drought prone area,
- Some farmers indicated that it is obviously that all farmers in this region need irrigation infrastructures due to the fact that this is a drought prone area. However, the main concern is that we will not be able to mobilize our own contribution at the beginning of the project due to the fact that we have been affected by drought events over a long time to the extent that we become the most poorest community,
- A woman from this village indicated that some of local peoples in this region has been forced to leave this village and went to their neighboring regions for looking for foods and generate money to cover HH needs. Therefore they indicated that they believe that once this project starts none will move to other area with the same purpose to find out foods.

- Some farmers expressed that there is a project called "Hinga weze" which recently come here to mobilize farmers to form farmers groups composed by 30 farmers and then we planted our crops by promising us that they will come back here to irrigate our farmlands. so how are you going to be sure that once we planted our crops the project will come back to irrigate our farmlands?

Key highlighted points by local communities met at Gakoma village, (Gakoma Village, Rubumba Cell, Kabare sector, Kayonza District)

- At this site local community participation to the consultation meeting were many, around 60 peoples
- Most of farmers were excited by this project. Some of them indicated that their children have already left them in order to look for jobs somewhere else, others indicated that they are happy since they will be able to produce enough food for HH consumption and extra for marketing in order to make money
- Concerning beneficiary contribution, the community indicated that they are ready to provide their own contribution due to the fact that the drought is a major threat in this region. They also added that they need to become self-reliant. Furthermore, farmers indicated that they used to invest in their farmlands without knowing if it will rain or not, therefore it is obvious that once they get access to irrigation system, they will certainly invest a lot in their farmlands
- Concerning the issue related to how they plan to handle the disputes and grievances that may arise from cooperative; the community indicated that, the cooperative leadership should be in charge of the handling them
- Concerning the priority crops to be cultivated in this site, the farmers proposed that the maize, soya beans and beans should be given priority

Thursday 30th August 2018: Murama, Rwinkwavu and Kabarondo sectors

General field observations at Murama in Ngoma site

- Land husbandry practices such radical terraces are in place and there is a stream called Ngoma, that stream was used for Rwinkwavu Dam
- Some farmlands are planted with pineapples, others are planted with coffee, others are empty,
- There is a coffee washing station in place

Key highlighted points by local communities met at Murama sector office (Ngoma village, Muko cell, Murama sector)

- Some farmers raised their concerns in relation to the fact that their farmlands are located at high slope hillside to the extent that they are not sure that their farmlands will be irrigated.
- Concerning the issue related to cooperative approach, the participants firstly indicated that it is always good to work through cooperative. They added that most of them have experience with cooperative farming approach since they used to be members of a producer cooperative called "Twidika" which were created under the support of RSSP project (MINAGRI Project Funded by World bank),
- Concerning their priority crops, they indicated that maize would come as their first priority once the irrigation facilities are in place. However, a big number of local community proposed perennial crops such as coffee, banana and cassava, mango, avocado orange, passion fruit trees, etc.. This choice is mainly based on the facts that this area is too dry and most of their farmlands are located on hillside where they are not quite sure that their farmlands will be

irrigated. Furthermore, community indicated that in the past the maize growers in this site faced consecutive crop failure while coffee growers were enjoying good harvest.

- Concerning sustainability issue in terms of providing their own contribution, farmers indicated that they are aware that they have to contribute to any development activities benefiting them. They also added that, they need to work with financing institutions as long as you want to go far in development.
- Concerning the issue of handling disputes that may arise from cooperative: farmers indicated that under cooperative structure, there is always a special committee in charge of solving all disputes that may arise within cooperative
- Participants recommended that in case there is a planned land husbandry activity to be carried on in the project, the project team should communicate to the concerned the local peoples early prior to the commencement of the civil works in order to allow timely preparation
- Key highlighted points by local communities met at Kabarondo sector office
- The local community met at this site highlighted that the biggest challenges that they are facing is drought
- The participants met at this site were wondering if this project will support to address the issue of Rift valley fever (RVF) disease which recently led to a big number of cattle losses in this area.
- Concerning the priority crop to be cultivated, they proposed maize, beans, cassava, banana, soya beans, tree tomato and vegetables such as carrot,
- Although cassava were proposed, they mentioned that they are now facing an issue of lack of cassava cuttings due to the facts that the existing cassava varieties were attacked by cassava diseases,
- Concerning the issue of project sustainability throughout provision of beneficiaries' contribution to the project investments, farmers indicated that they are already working with financial institutions whereby they took credits for purchasing agricultural inputs. However, farmers recommended that they need to be involved at early stage of determining the reasonable amount of beneficiary contribution to the project,

Wednesday 5th September 2018: Meetings with livestock farmers

Key highlighted points by livestock farmers met at Midland Hotel on September 5th 2018

- The farmers indicated that they do appreciate the support given by the Rwandan Government whereby they have been supported with valley dam's construction although they are not enough for all of them.
- Farmers met at this site were concerned with access to water for livestock and HH activities including water for consumption,
- Farmers wondered if there is a planned intervention targeting those who own one or two cows at their homestead.
- Farmers presented in issue related to soil erosion and marshland siltation whereby most of the existing valley dams are threatened by siltation.
- Concerning the issue of working through cooperative approach, most of farmers indicated that they have an experience since they are now members of farmers cooperative or farmer's group whereby, some activities are conducted throughout them.
- Some farmers indicated that Farmers indicated that the only one activity that they conducted as a cooperative is milk collection, the remaining one - animal husbandry – is done individually. Therefore, farmers wanted to know if the project will support individual farmers to get access to water by creating a valley dam/ pond in its own grazing land

- Farmers indicated that there is already conflicts between Crop growers and Cattle keepers whereby there is one shared marshland and cattle keepers are located downstream of the rice growers which led to fighting among them
- Farmers indicated that tsetse fly is also a big issue to the cattle keeper in this area and there is no solution.
- Farmers recommended the project to explore the possibilities to build the capacity of local peoples on how to repair/ maintain machines and other technologies which will be supported by the project since the main constraints to the sustainability of the project investments is the lack of local level technical capacity to repair/maintain supported machines/technologies.
- Concerning the issue of disputes settlements, the farmers proposed that prior to receive support from project, the cooperative should be requested to elect a special committee in charge of disputes settlement.

Key highlighted points by livestock farmers met at Kageyo MCC Hotel on September 5th 2018

- Farmers indicated that the critical issue here is the water scarcity to the extent that they always use to fight among them, especially between cattle keepers and crop growers
- Concerning the issue of working through cooperative approach, farmers at this site indicated that they do not have objection about this approach since they are already working into cooperative. Most of them belong to a livestock farmer's cooperative managing Kageyo Milk collection Center (MCC). Farmers at this site indicated that they aware of all benefit associated with working into cooperative since those who are weaker get strengthened by the stronger one. They also indicated that they have already started to mobilize other local peoples who are not yet member of cooperative to joint
- Concerning the issue of disputes settlement: they indicated that within cooperative they should be a special committee in charge of disputes settlement

Annex 10: List of Potential Beneficiary Consultation Participants

Ndego Sector Office 28.08.18

List of participant to the consultation meeting at Ndego Sector / 28/8/2018 At Ndego Sub office (day 2)			
Participant : Opinion leaders / Amatinu	Postcode : Umuhanga - muvuzi	Numero ya telofono	Umutano
01. HATSEKIMANAAPHONSE	9yo Okora	0788659674	<i>Sign</i>
02. NDEGOHUMMINGWUZI SYLVESTER	postulant Muhinguzi, kicukiro	0788418536	<i>Sign</i>
03. KABAYIZA Phovis	Umuhanga - muvuzi	0786663568	<i>Sign</i>
04. KANJABAZA - Jules	E/S Kigaro cell	078466985	<i>Sign</i>
05. HABYAKOMEYE Vincent	Chair man/Kader	078919676	<i>Sign</i>
06. MUKAMUNGUZI Beatrice	E/S Isangiro cell	0789610930	<i>Sign</i>
07. Nyirakurama Floride	E/S Byimana cell	0787111088	<i>Sign</i>
08. AHINDOYE Pascal	Indorezezi	0788883136	<i>Sign</i>
09. BISCHUVEL Silviane	Indorezezi	0789779802	<i>Sign</i>
10. Kekantaha Serephine	Indorezezi	0784509868	<i>Sign</i>
11. Kiyamashyambanezzi Madeline	Indorezezi	0284763649	<i>Sign</i>
12. Mukamukomeje Selaphine	Indorezezi	0783649892	<i>Sign</i>
13. Ndareye Senga Leonie	Indorezezi	0782944165	<i>Sign</i>
14. Nshimbimana Ernest	Umukuru w. Umudugudu	078338	<i>Sign</i>
15. Ndayisenga Daniel	Chepte Village	0782893333	<i>Sign</i>
16. Ntibinyumwami Michel	Umuhanga	0784920114	<i>Sign</i>
17. Habarabuzima Charles	Indorezezi	0788742943	<i>Sign</i>
18. KUGURANEZA Pierre Etienne	Indorezezi	0787675764	<i>Sign</i>
19. CSTAHAYO Jean	V Mu47N2i	0783321599	<i>Sign</i>
20. Ngenuhorwariye Samuel	Umuhanga	0783370460	<i>Sign</i>
		0782928890	<i>Sign</i>

Ndego MCC 28.08.18

Urutoreke ru abahabiringe Inama Denu Ma ya Ndego			
Amatinu	Postcode : muvuzi	Telofono	Umutano
01. Du janga Eustach	Umuyinganya	0784818752	<i>Sign</i>
02. NSENENYUMA Pierre	U.F. Veterinary	0781038231	<i>Sign</i>
03. MATSUMURA T. David	Accountant	0783014255	<i>Sign</i>
04. UWINEZI Mandu	Association manager	688751926	<i>Sign</i>
05. Mubaro Sengimuye	Chairman of cooperative	0788669478	<i>Sign</i>



Kibare Village 28.08.18

List of participants to the consultat^o meeting on 28/8/2018
 Venue: Kibare village near the lake
 Site 1

(Day 2)

Videorecorder
 Videorecorder
 all
 20

① Amatina	Responsible / Name phone	ICP registration	Munno yekifwe
1. UWAMAHORO Godwin	St		
2. RUGUMBA Muteseby	0782525385		
3. NIYONSAWA AITALYA	Os		
4. HALIMI Ntwale Damiane	St		
5. MU NYAKUUKU Mburi Juvenal	Re		
6. MTEZIRYO Theogene			
7. NDABEREYE Filipo			
8. NYIRAHAKUMANA Sorosera			
9. BIGWIRAMBERE	Sturde	0782525385	
10. BIBOYI Ki	J. Klinna		
11. BIZAMWE	Oswinelli		
12. BIZAMANA	SAMUEL		
13. MANIAFASHA	J. BAPTISTE		
14. KAGA BD	MATIYASI		
15. KAYITSINHA Celestine	St		
16. SAMUERA Polycarp	St		
17. MSANTUMANA Caravelli	D		
18. BARENKA TA Bo Gasparali	Gary		

② AMALIMA

(Day 2)

19. NYIRABO MIDEKA Maligedika	0782855407
20. KAMACI Aloris	0782855407
21. MUNDA NIKURE Zamuda	0784105275
22. MUDUMURANGA Naleuci	0782456588
23. BIZIMUNGU Hamudu	0782456588
24. SIBORUREMA Joseph	0785321400
25. MDAKAYO Suedo	0785321400
26. Sebora Theogene	
27. NDATOMBA Je Clement	
28. NKURI KIRUMANA Theogene	

Humure Village 28.08.18

File 4 1 Humure meeting in marshland at 17:00 (day 2)			
Amrina	imo adunue Mworo	telefoni	umshona
① Murekasi Nicolas	umijana nama mu' mwobuzi / humure village	0784822622	Han
② Emmanuel Kadwirye	Uchaparwige iibyo/ Zambo - Humure	07 0786509453	Ajio
3. NTIBANYENDELA INNOCENT	Humule	0788391380	Abd
4. Ngabawula Noel	Bemukuru witsito	0782712459	BBT
5. Kuvudimwe Elias	Ramiro umijana 0784015858		ggy
6. Mukashyaka Ruth	Ramiro umijana 0786001197		Abd
7. Nzabawuka Venuste	umufashanyumire 0783553764		Kib
8. Wijitamane Eugene	Tramito Herambwe 0786073171		Kib
9. Kabulo EMANWEKI	Tramito TSibo 0784821971		Kib
10. Zafashwaswana	Tramito TSibo 0784821971		Kib
11. NSengiyu Mwosokati Ramiro TSibo 07887793383			
12. HAREPIMA A Recado HUMURE imwanda			
13. HAREPIMA A Recado HUMURE imwanda			

P2

Mukamunge Seline	Humure	0782928913	umijana wobuzina
Mycenomug Genzera	Ramiro	0783967791	imiberetko mg. 3a
Ngerageze Faboto Sita	ramiro	0785263278	
Mbaboje kolo Blilomyene	Ramiro	0782928917	
Ngobonira J. cause	Ramiro	078630196	
Bemengimwino Emanuel	Humure	0782928918	
Mahayo Ntateur	Humure	07842708083	
Mukauabiko Nariia	Humure	0786661489	

Gakoma Village 29.08.18

29/8/2018 at 15:00pm (day 3)			
Brekonde nu' abitabirwe Inoma kuri sile zo Gakoma/Pulumbu village cell			
Nama/Amatano	Ikyo akora	Telefon	Umukono
① Karisa Thomas	umuhimbi	0783346727	✓
Renzako Sifamiga	Tetambere	0785756890	✓
MANIRAGDDE Adeline	umuyanduwe	0786021460	✓
Mufizi Fredegan	umuhimbi		✓
MARIMPAHEN Elie	MUDUGU - UMUHIMBI	0782897726	✓
Neeli Alphonse	MUTEBYO	0796292664	✓

Byimana 29.08.18

29/8/2018			
Urutonde nu' abitabirwe Inoma kuri sile zo byimana			
Amatano	Ikyo akora	numiro ya telephone	Umukono
① BALAGI RITE Yemaya	umuhimbi	0783239273	BD
2. Nziginkiko Theophile Chef de village	umuhimbi	0782893463	Matias
3. HAZIZI NTWALI Callistus umuhimbi	umuhimbi	0785181240	Sieg
4. Mubambetegi Francisco umuhimbi	umuhimbi	0782994092	✓
5. MARY RAPORTA Clement	UMUKONO	0780492495	✓
6. Sibomana BAKITABATI	UMUKONO	0782105927	✓
7. Dusalimana Jogen	umuhimbi	0785623638	Appel
8. RIBONIA J. Catista	umuhimbi	0782291916	✓
9. Gotayagi hor ipacowati	P. S. F CELL	0782092337	✓
10. Mtagamua tubaha fesojini	umuhimbi	0783761388	✓
11. TUA gilo ste no krozo	umuhimbi	043350044	✓
12. KITANDO KORANG TORASI	umuhimbi	0785756480	✓
13. KARI NGANIRE TITE	umuhimbi	0787180526	✓
14. Mufankoko Francisco	umuhimbi		✓
15. RIZ. NOE. RAPWENTI	umuhimbi	0783384389	✓
16. Ruteseza lwanhudo	✓	0782790580	✓
17. MUNYANDONA DAMASEN	ubuzi NZI	0789962723	✓
18. MBAMANA SESTI FMANSEL	ubuzi NZI	0755797507	✓
19. Mutayimana selestni	umuhimbi		

Byimana 29.08.18

(Day 3) pag 1

Urutandi rw' Abatashirwe imama kuri sita ya Byimana

Amatina	Icys Adora	Telofone	Umukono
1. Matuyeza Ruyer Leonie	umuhinzi	0783993057	Sup
2. BDRI Mubyizga Felicienne	umuhinzi	0784268049	Sup
3. NiyomONSENGE Sophie	umuhinzi	0786189773	Sup
4. Batamuriza Anne Marie	M.F. Mudugudu	0786804916	Sup
5. Ubanjifura Dina	umuhinzi	-	Sup
6. Mukeshimana Consolée	umuhinzi	0786878010	Sup
7. Mukabazza Appolinaire	umuhinzi	-	Sup
8. Murekatete Francine	umuhinzi	-	Sup
9. Musingirehe Veredians	umuhinzi	-	Sup
10. Mukarukundo Lefonsine	umuhinzi	-	Sup
11. Gatamba Laurent	umuhinzi	-	Sup
12. Mukaruburi Mwendegatiya	umuhinzi	-	Sup
13. Mukantabara Rayya	umuhinzi	-	Sup
14. Ngonalorabare Jucyene	umuhinzi	-	Sup
15. Mgenobalimana Zorozina	umuhinzi	0782046568	Sup
16. Karibireza Fariga na	umuhinzi	-	Sup
17. Mukabaldida gurigana	umuhinzi	-	Sup
18. Muchimiyma na Elizabeth	umuhinzi	0782947007	Sup
19. KINOSHIMA MABOLIO Kintziliya	umuhinzi	-	Sup

Amatina	Icys Adora	Telofone	Umukono
20. Nyabahine Cedrine	umuhinzi	0785816596	Sup
21. Hengi manu Vienna	umuhinzi	0781972671	Sup
22. Nyamana Philonore	umuhinzi	0785506456	Olive
23. Nyugenabo Samson	umuhinzi	-	Sup
24. Ajabagabo Davide	umuhinzi	-	Sup
25. Hamimashu Venia	umuhinzi	-	Sup
26. Hengiyamva Imosa	umuhinzi	0887943164	Sup
27. NDIPIMANA Damasentu	umuhinzi	0794188036	Sup
28. sebonyi	umuhinzi	-	Sup
29. Nsengumukiza Francisca	umuhinzi	-	Sup
30. NSabimana Evalista	umuhinzi	0784062233	Sup
MAMRAHO	umuhinzi	0784062233	Sup
		0786319435	Sup

Murama Sector Office 30.08.18

Uwubure ru' abahabiri iye Inzima ^(day 4)
ihariki 30/8/2018 At 12:30'
Meeting at Sector office

Amorina Name	Function Icuso akura	Phone number tel force	Signature
1. KAKAZAMUNGU JEAN CLAUDE	Umuyyanama wubuhingi /Farm facilitator	0786693664	
2. HABAKULAMA VINCENT	Umuyyanama wubuhingi	0788900644	
3. Ayuruwanda Védraste	Umuyyanama wubuhingi	0788890060	
4. BIZIMANA Théoneste	Umuyyanama wubuhingi	0788863834	
5. Mukaroroshe Bernard	Umuyyanama wubuhingi	0783664855	
6. Mukaroroshe Elias	Umuyyanama wubuhingi	0788788694	
7. Karakeire Emmanuel	Umuyyanama	0783096527	
8. Mukeshimana Esperance	Umuyyanama wubuhingi	0781720873	
9. Habumugisha Celestin	Umuyyanama wubuhingi	0784576847	
10. Muramahigo Marie	Umuyyanama wubuhingi	0782946920	
11. INAMSYO Eric	Agronomist / PNR RNA	0788603927	
/			

Kabarondo Sector Office 30.08.18

Bwabondo rw' abitabiriye Inama. Yu murengge nra Kabarondo List of participants Share holder meeting at balarondo Sector office 30/8/2018 at 16:00"			
Amatina	Icyp adora	Telofone	Umukono
1. Habumugisha el phone	UmuNganana wabuhingi	0784159607	<u>HAB</u>
2. Muxengimana Elina	UmuNganana wabuhingi	078061645	<u>ELINA</u>
3. MUKAMUZSI Providence	SEBO KABURU	0786116745	<u>PROVIDENCE</u>
4. Juliet NUSHIMIIC	SEBO Cybogis	0785261628	<u>JULIET</u>
5. Mukandayisenga Charlotte	UmuNganana wabuhingi	0786544536	<u>CHARLOTTE</u>
6. Munyemana philbert	UmuNganana wabuhingi	0785928282	<u>PHILBERT</u>
7. Hishamunda Fenixaxi	UmuNgorozi	0788254458	<u>FENIXAXI</u>
8. RERORATO Elisee	UMWOROZI	0792575790	<u>ELISEE</u>
9. NIKURE GDESA	UmuNgorozi	0789293218	<u>GDESA</u>
10. NDAYIZIMANA Hassan	UmuNganana wabuhingi	0785472436	<u>HASSAN</u>
11. Buzimure Damasele	UmuNganana wabuhingi	0722828404	<u>DAMASELE</u>
12. Nyirishima Jean Damasele	UmuNganana wabuhingi		<u>Jean</u>

Bwabondo rw' abitabiriye Inama. Yu murengge nra Kabarondo Share holder meeting at balarondo Sector office 30/8/2018 at 30/8/2018 at 16:00" List of participants			
Amatina	Icyp adora	Telofone	Umukono
1. MULANIYE Agustin	UmuNgorozi	0789061453	<u>AGUSTIN</u>
2. MUKANZIBANDERA Olive	UmuNgorozi	07230781720734	<u>OLIVE</u>
3. MUNYAKAYANZA Elviro	UmuNgorozi	0787979708	<u>ELVIRO</u>
4. Uwasezimana. cerimie	UmuNgorozi	0733518553	<u>CERIMIE</u>
5. BAKUSANGA Cedric	SEBO	0786304149	<u>CEDRIC</u>
6. NDASITIMANA Alais	UmuNgorozi	078345552	<u>ALIAS</u>
7. Rabanya Antoine	ret / Heifer		<u>ANTOINE</u>
8. Nyakalanga guiliane	UmuNgorozi		<u>GUILIANE</u>
9. Mukamukire cleopette	UmuNgorozi		<u>CLEOPETTE</u>
10. Mukankuranga Beatrice	UmuNgorozi		<u>BEATRICE</u>

Livestock Owners Associations 05.09.18

FARMERS TRAININGS -ATTENDANCE LIST FORM											GIRATATA
HEIFER INTERNATIONAL											
Date: 5/9/2018											District: KATONZA
Theme: AP Awareness Campaign											Sector: MUKARANGE
Facilitator: Véronine UWIANGARE											Cell:
Supervisor: Dr. S. Claude MWENEDATA											Village:
Verified by:											
Name of cooperatives:											
NO	Names	Cooperative	AGE	Gender	ID No	Position	Telephone	Signature			
1	GASANA FRANCINE	GIRATATA	36	M	1198180425405083	Marketing	0786764327				
2	MURIAZERA Joss	GIRATATA	67	M	119618004495406	Marketing	078456186				
3	MULUMANGA BARY Simeone	GIRATATA	37	F	1193470124093078	Production	0781005594				
4	MULUMANGA Environment	GIRATATA	62	M	119568004453403	Social	0788949506				
5	MULUMANGA Joseph	GIRATATA	39	M	119718010461081	President	078436123				
6	MULUMANGA Véronine	GIRATATA	50	F	1198870064550077	President	0787498343				
7	MUSUMBA GABRIEL Silvère	GIRATATA	35	M	1198330464853086	Marketing	0782431073050489				
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											

FARMERS TRAININGS -ATTENDANCE LIST FORM											GAFCO & MUFCOS
HEIFER INTERNATIONAL											
Date: 5/12/2018											District: KATONZA
Theme: AP Awareness Campaign											Sector: MUKARANGE
Facilitator: Véronine UWIANGARE											Cell:
Supervisor: Dr. S. Claude MWENEDATA											Village:
Verified by:											
Name of cooperatives:											
NO	Names	Cooperative	AGE	Gender	ID No	Position	Telephone	Signature			
1	Brajeneza Godi	GAFCO	58	M	1196880065210016	Marketing	0783214982				
2	Mwakobete Samuel	GAFCO	40	F	1193710056600043	SC	0788674468				
3	Mwamwajoseph	GAFCO	34	M	1198480165991068	Marketing	0789720070				
4	Mwambage Nsilde	GAFCO	37	M	1198180422562049	Marketing	0783686119				
5	Mwambage Patrice	GAFCO	50	M	119883006404100	Marketing	0782664840				
6	Mwambage Silvère	GAFCO	60	M	1195280049815036	Marketing	0785806303				
7	Mwambage & Robert	GAFCO	43	M	1197580079014052	Marketing	0788359362				
8	Mwambage Paul	MUFCOS	49	F	119617005210070	Marketing	078714972				
9	Mwambage T. Fred	MUFCOS	42	M	119708002807000	Marketing	078872007				
10	Hechale mbae mufras	MUFCOS	48	M	119708007846100	Marketing	078535670				
11	MUSA F. R. Paul	MUFCOS	69	M	119498002310000	Marketing	078087700				
12	Kabetsiri Vedado	MUFCOS	72	M	1194580029813023	Marketing	0783184385				
13	Uvilemeza J. V. Gorangete	MUFCOS	50	F	11968100495007	Marketing	0782458340				
14	Wemawake I. Basile MUFCOS	MUFCOS	49	M	119628006522100	Marketing	0780165747				
15	Mutheng Stephen GAFCO	GAFCO	51	M	1196781005660000	Marketing	0789505492				
16											
17											
18											
19											
20											
21											

FARMERS TRAININGS - ATTENDANCE LIST FORM									PSF
Date: 31/7/2018						District: KAZENZA			
Theme: 4Ps Awareness Campaign						Sector: MUKARANGE			
Facilitator: VESTINE KWANGARE						Cell:			
Supervisor: DR. J. CLAUDE MWENEDATA						Village:			
Verified by:									
Name of cooperatives:									
NO	Names	Cooperative	AGE	Gender	ID No	Position	Telephone	Signature	
1	MARWEST ANGONDE	20	Y		11993100477899		0782142867		
2	KWIZERA DINDI	36	M		1199310061042121		0782128340		
3	MURWANA ITAKA INGOMA	34	M		119841015584408		0791076342		
4	MULABA AYUBU	46	F		119921013643023		0782128340		
5	KAZENZA MPOGO	21	F		110831002428081		0782128340		
6	MUDA BULITA	43	M		1197784079478101000		0782128340		
7	HOKIZAKA KIBANGA	47	M		1199218000861000		0782128340		
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

FARMERS TRAININGS - ATTENDANCE LIST FORM									KAFACO X COABONDE
Date: 31/7/2018						District: KAZENZA			
Theme: 4Ps Awareness Campaign						Sector: MUKARANGE			
Facilitator: VESTINE KWANGARE						Cell:			
Supervisor: DR. J. CLAUDE MWENEDATA						Village:			
Verified by:									
Name of cooperatives:									
NO	Names	Cooperative	AGE	Gender	ID No	Position	Telephone	Signature	
1	SHINGA INNOCENT	COABONDE 1970	M		11970810728100	Unnamed	0782128340		
2	UNAMWE BESAL CARBONDE 1939	51			11978001977200	farmhouse	0782128340		
3	KUTANGA ELECHIE	COABONDE 1992	M		1199280018419100	farmer	0791076342		
4	Mukankwanzana Shaka COABONDE 1947	F			119912006790000	VISITOR	0782128340		
5	UNIWAWA SHAKA	COABONDE 1967	M		1196280054188600	operator	0782128340		
6	AUDOBONGWA FAUSTIN	COABONDE 1982	M		119618006224000	operator	0782128340		
7	NYIMBINGI GEMERY	COABONDE 1958	F		11958700529000	farmer	0782128340		
8	UNIBANGWA SSOVA	KAFACO 1973	F		11972700055000	operator	0782128340		
9	UNENGWA SSOVA KAFACO	1970	M		119703001167000	operator	0782128340		
10	KAFACO TINAE CHOMA KG FEZEE	1968	M		11968000451000	Nigerian	0781041111		
11	KUDAMULABO DANI	KAFACO 1992	M		119728007144000	farmer	0782128340		
12	BATUMUNGWA CELESTIN	KAFACO 1960	M		119603003974800	M.3000	0782128340		
13	UNIBANGWA KIBERI KAFACO	1985	M		119858181400900	operator	0782128340		
14	UNIBANGWA KIBERI KAFACO	52	M		119728005167000	operator	0782128340		
15	MUTCLASI JOSEPH KAFACO	1960			119731800500	farmer	0782128340		
16					610791				
17									
18									
19									
20									
21									

State holder meeting at Mwiri MCC, 5 th /9/2018 MWIRI			
	Amartha	Igo Akira	Telephone
1.	MUKANTAGAKI Mary	Umujjare wa Kaffco	
2.	SHE MBUSITO David	Umuringo wa Langi wa Kaffco	0784680049 Ward 6
3.	KWAKUCYO Faustu	Parakati wa boro 21	078475326 Ward 6
4.	KALISA Geoffrey	Umworozi	0784262099 Ward 6
5.	GASHIMA & Vital	Umworozi	0789753950 Ward 6
6.	KATWA Samuel	Umworozi	0722671374 Ward 6
7.	KOBUKORI Jeanne	Umworozi	0729983388 Ward 6
8.	NYAYISIA John	Umworozi	0786051847 Ward 6
9.	KUTATA MBUA James	Umworozi	0722777174 Ward 6
10.	Mukabazi Wilson	Umworozi	078505676 Ward 6
11.	Mukantagaki Malisa	Umworozi	0785874422 Ward 6
12.	Masabo Sirasi	Umworozi	0783495205 Ward 6
13.		" "	0783820845 Ward 6
14.	KAYIKAMURA Emmanuel	" "	
15.	Gashima Yilas		07897539
16.	Kavis James		0782443630 Ward 6
17.	MULISHA Furanta		0780558676 Ward 6
18.	Mulire Leonard		0788439432 Ward 6
19.	Sebusimba Richard	Umworozi	0781914129 Ward 6
20.	Gashababu Jackson	Umworozi	0787287480 Ward 6
Amartha Igo Akira Telephone Umukono			
	Amartha	Igo Akira	Telephone
21.	Rwabufigiri Agnesita	Umworozi	0795226478 Ward 6
22.	KALISA Edmund	Umworozi	07824922837 Ward 6
23.	NTORE Clever	Umworozi	0738535413 Ward 6
24.	MWINKIGYINKA	Umworozi	0781026763 Ward 6
25.	Mugore Welda	Umworozi	0784875087 Ward 6
26.	Mukantagaki Jabin	Associate manager runa rice	0788861509 Ward 6
27.	KAMARIKA JOVANIE	Umworozi	0786492208 Ward 6
28.	MBABAZI Sceva	Umworozi	0787534869 Ward 6
29.	UWASE Ruth	Umworozi	0780542777 Ward 6

Annex 11: Proceedings of the ESMF Validation Workshop

KAYONZA INTEGRATED IRRIGATION AND WATERSHED MANAGEMENT PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF) VALIDATION WORKSHOP

Held at the Umubano Hotel, Kigali, on 22nd November 2018

WORKSHOP PROCEEDINGS

Workshop Purpose

The purpose of the workshop was to validate the findings of the ESMF that has been prepared for KIIWP, and to receive comments to the ESMF for inclusion into the ESMF document and also as input to the Project Design.

Participants

In all 24 participants attended the workshop. Participants represented a number of institutions including various departments in MINAGRI, RAB, NAEB, RWFA, FAO, RYAF, CIAT, REMA, Rwanda Meteorological Authority, CNFA/USAID, as well as IFAD. The list of participants is presented at the end of this report.

[The list of participants at the Validation Workshop is presented in Annex 2 of this ESMF].

Workshop Proceedings

Dr Sirikare introduced Dr. Murekezi Charles Director General of Agriculture Development (MINAGRI), Dr. Charles Bucagu, Deputy Director General of Agriculture Research and Technology Transfer and Mr. Aimable Ntukanyagwe, Country Programme Officer, IFAD. Dr. Murekezi asked the participants to introduce themselves and then proceeded to give an opening speech to the workshop.

Dr Sirikare gave an overview of KIIWP, describing the goals and objectives of the project, describing the target groups and selected project districts, the project components and infrastructure interventions.

Mrs Willetts explained the rationale and objectives of the ESMF, its purpose of providing assurance to the IFAD board that the necessary safeguard documents will be prepared, and what the ESMF covers. She explained the criteria behind the categorization of the project as Category A based on IFAD's SECAP, and that this category is in line with national (REMA) categorization of Impact Level 3 (IL3). She introduced the study team, and described the study methodology including the sites visited.

Dr Rugege then took the participants through a series of photographs illustrating the location of the project sites, describing the environmental and social observations made and concerns raised during the visits to the proposed locations of the interventions. He went on to discuss the outcomes of the consultations with the communities at the proposed project sites in regard to participation in

cooperatives, priority crops, willingness to invest in KIIWP, land use conflicts, community sentiments towards the project and existing grievance resolution mechanisms.

Mrs Willetts highlighted the key findings in terms of environmental issues, these relating to hydrology, environmental flow, dams, and climate risks. Dr Rugege discussed key findings in the social context, including community expectations, physical and economic displacement, access to water sources and grazing, health, human-wildlife conflict and the communities' desire to be involved in all stages of the project. Mrs Willetts pointed out other issues emanating from the irrigation schemes, catchment protection activities and livestock water supplies (valley tanks and boreholes).

The presentation then focused on the procedures for environmental, social and climate change management for KIIWP. This covered: implementation and coordination arrangements; subproject screening; types of safeguards documentation; processes and responsibilities for review, approvals and disclosure; grievance redress mechanisms for the project as well as for resettlement/compensation should this be necessary; monitoring; reviews; auditing; and reporting. Thereafter proposals for capacity building were described, including the target groups and training topics, and the budget for implementing the ESMF.

Dr Sirikare explained how the project would go forward. Two phases are being proposed, the first focusing on the necessary studies and implementation of Category B projects, while the second being implementation of civil works for the irrigation schemes, catchment protection, ESMPs, CSA, support to farm business development and policy dialogue, among other activities.

The presentation was followed by a question and answer session which is presented below.

The closing remarks were made by DDG of Agriculture Research and Technology Transfer (RAB).

Question and Answer Session

FAO

- FAO is interested in discussing production systems in Kayonza.
- FAO is trying to develop integrated crop/livestock/fisheries production.
- They are able to provide technical information and expertise to support integrated agricultural production.
- CSA activities need to be enhanced and the design should be aligned with the PST4.
- Water balance is very important. Irrigated systems and existing marshland schemes all need water. The 4000 ha appears to be very ambitious.
- The ESMF should decipher between direct and indirect impacts, and suggest mitigation measures.
Response: The ESMF has listed potential impacts and generic mitigation measures.
- Accessibility has not been mentioned in the Executive Summary. *Response: The ESMF includes a section on the status of accessibility in the district. It will be included in the Executive Summary.*
- Other interventions in the area also need to be assessed in terms of their impact on the proposed project. *Response: The subproject specific ESIAAs will address this.*

CIAT

- Asked for clarification with regard to at what stage in project development this ESMF is being prepared. *Response: The project is currently in its design stage*
- Would like to see a research component embedded into the project design, particularly as RAB is the lead agency for this project and research is part of RAB's mandate. *Response: This is noted.*
- Research should be geared to inform future projects in terms of for example most suitable crops to be grown, most appropriate agricultural practices, etc.

REMA

- The complexity of the environment must be taken into account during project design. Hydrology, wetlands, lakes, all of which depend on overflow from the Akagera River. Water dynamics and water balance has to be considered before any other studies. *Response: This is noted. The importance of hydrology has been highlighted and a detailed hydrological study will be done prior to feasibility studies.*
- Agroforestry – this is a good tool for catchment protection, and adds value to the project. Therefore it is hoped that a good percentage of the project funds will go towards this. *Response: Agroforestry is a key part of the catchment protection subcomponent as it also serves to protect project infrastructure, but also aims to provide means for catchment communities to grow crops.*
- Pollution from agrochemicals needs to be properly addressed given the sensitivity of the project area and its biodiversity. Organic agricultural practices should therefore be given priority. FAO is working on a project where the farmers use manure from their own livestock for fertilizer. *Response: Point is noted. This will be mentioned as a recommendation in the ESMF. This is also recommended in the IPMP which will be contained in an annex to the ESMF.*
- The IPMP needs to be comprehensive.
- Management of irrigation infrastructure has always been a challenge, especially for pumped schemes. There needs to be provision for capacity building to ensure sustainability of these schemes in terms of operation and maintenance. *Response: This is noted and will be included in the section on capacity building.*
- Project Management: There is a Project Steering Committee and a Project Management Team. It is not clear if the PSC will have technical people on it. If not it should, or otherwise there must be a Technical Advisory Committee. *Response: This is noted and will be communicated to the design team.*

MINAGRI ECC:

- Mitigation for the impacts were not discussed in the presentation. *Response: In the ESMF document there is a table with potential impacts and generic mitigation measures for these impacts.*
- Need to be clear which sites will have full ESAs and which need only partial ESAs so that those having not significant impacts will be implemented first. *Response: The subprojects have been categorized as those requiring full ESAs (IFAD Category A/REMA IL3) and those that need a partial ESA (IFAD Category B/REMA IL2). Category B projects will be implemented in Phase 1.*
- The project design needs to consider water efficiency. There also needs to be training in water efficiency. *Response: There is a component in the project that deals with efficient use of water.*

RWFA:

- The directorate of water is now promoting multi-purpose dams – eg for water supply for humans as well as provision of water for agriculture and livestock. *Response: Water for domestic use has to be treated for supply to humans and that is beyond the remit of this project. Also there is some confusion as to whether MINAGRI has the mandate to supply water for domestic use.*
- The project needs to look at groundwater as a potential source for irrigation. A groundwater study is nearly complete which indicates that groundwater recharge in the area is 23000-40000 m³/hr. *Response: This will be conveyed to the project design team.*
- MOE should also be more involved in this project (eg. approval of dam safety plans) since there are a number of environmental consequences. *Response: This is noted and will be included in the ESMF.*
- Capacity building should include capacity of RAB to inspect dams. *Response: This will be included in capacity building section of the ESMF.*

- The project should look at other projects that link with the agriculture and livestock. *Response: This is noted and will be conveyed to the design team.*
- RWFA has mapped out degraded areas as High, Medium and Low for the whole country. There is a tool called CROP which will be useful in terms of design and implementation of this project. *Response: This will be communicated to the project design team.*
- Engagement of the private sector needs to emphasized. *Response: The project design includes a "4P" (private public producer partnership) component activity.*

DDG, Deputy Director General of Agriculture Research and Technology Transfer, RAB

- PST4 goal is to double the area under irrigation within 6-7 years.
- Agroforestry should be looked at not only from a catchment protection perspective, but also in terms of multiple uses such as food production, promoting nutrition, providing firewood and satisfying energy needs. *Response: The project design takes this into consideration.*
- Conflict between farmers and wildlife will have to be addressed. Buffer zones take up good potential agricultural land. *Response: This is noted and the ESIA's will have to come up with measures to address farmer/wildlife conflict.*
- The objective of the project is to improve food security and income generation. The food security aspect has to be enhanced. The project should look at collecting food security data through M&E. Village district plans allocate land for different uses, and there should be land for food security and land for cash crops. *Response: The project design includes a food security component; that this needs more emphasis will be conveyed to the design team.*
- Marketing aspects need to be taken into consideration, where will the produce go, types of commodities that are in demand. Response: The feasibility studies will be looking at this.
- There are a number of big agricultural projects that are ongoing or will be implemented soon, eg. ATI and NETAFIM. The design team should be consulting with these projects so that experiences are shared and there is no duplication. *Response: This is noted.*

USAID

- USAID if funding an irrigation project in the same project area. The design team should be aware of this so that there is no duplication. *Response: this is noted.*
- Regarding social inclusion, there is no mention of people with disabilities. *Response: Inclusion of persons with disabilities will be mentioned in the ESMF.*
- Soil analysis has to be done beforehand to determine the amount of agricultural inputs required. *Response: Feasibility studies will include agronomic and soil studies which will give us this information.*
- It is not clear what type of pumps will be used – solar, diesel? Depending on what is opted for, they may have impacts related to emissions and spills. *Response: The design team is to confirm what types of pumps are to be used.*
- Capacity building – communities need capacity building in regard to safe use of pesticides, particularly for pests such as Fall Army Worm. *Response: The capacity building topics include environmental and social best practices which will cover pesticide application.*
- Nutrition. It is not clear how the project is addressing this issue. *Response: This will be enhanced in the project design.*

RAB

- The design is working on the links between markets and crops to be produced.
- Groundwater master plan indicates that there is plenty of water available, so the design will consider boreholes for livestock watering.
- Regarding multi-purpose dams, the proposed dams are very small and besides require treatment for supplying domestic needs.

- Climate smart agriculture is included in the design which will look at various aspects such as application of pesticides, water efficiency, etc.

DAO Kayonza District

- The district is really suffering from water shortage. Can the phasing be done so that the interventions in the most severely affected areas are implemented first? *Response: There is a process for the phasing and a number of studies that have to be improved. So it may be difficult to implement the projects according to the most severely affected areas.*

RYAF

- How were youth involved in the ESMF, and how will they be involved in further studies? *Response: Youth were involved in the discussions during the field visits. They are also among the groups that are targeted for capacity building, especially for maintenance of scheme infrastructure.*
- RYAF is prepared to help in project implementation where they can. *Response: It will be up to RAB/MINAGRI to decide how they can involve RYAF.*

Annex 12: Study Team, Sites Visited and Study Timelines

The study team is shown in the table below.

Table A.10.1: ESMF Study Team

ESMF Study Team	
Ms Arundhati Inamdar Willetts <i>IFAD Consultant</i>	Team Leader
Dr Denis Rugege <i>IFAD Consultant</i>	Team Consultant
Dr Sylvère Sirikare <i>RAB</i>	MINAGRI Focal Person for KWIIMP
Ms Madeleine Usabyembabazi <i>SPIU - IFAD</i>	MINAGRI Focal Person for KWIIMP ESMF
Eng Hussein Ngaboonziza <i>Agricultural Officer, Kayonza District</i>	Agronomist

Site visits were conducted as follows:

Table A.10.2: Project Sites Visited

Sector	Site	Site Name	Village/Cell	Date Visited
Ndego	Site 1	Humure	Kiyovu	28/08/2018
	Site 2	Kibare	Isangano	28/08/2018
	Site 3	Byimana	Byimana	29/08/2018
Kabare	Site 1	Gakoma	Rubumba	29/08/2018
	Site 2	Gishanda	Cyambare (Kabare Sector) Mukoyoyo (Rwimkwavu Sector)	29/08/2018
Kabarondo	Site 1	Rwakigeri	Rwakigeri	30/08/2018
	Site 2	Kayeganyege	Kanyeganyege	30/08/2018
Murama	Site 1	Ngoma	Muko	30/08/2018
Gahini	Site 1	Nyabombe	Juru	05/09/2018
	Site 2	Rukore	Kahi	05/09/2018
Mwiri	Site 1	Kageyo	Kageyo	04- 05/09/2018
Rwimkwavu	Site 1	Rwinkwavu Watershed	Muko	04/09/2018
Murundi	Site 1	Gakoma	Buhabwa	05/09/2018
	Site 2	Rwakabanda	Ryamanyoni	05/09/2018

The ESMF study timelines were as follows:

Table A.10.3: ESMF Study Timelines

Dates	ESMF Study Activity
19 August 2018 – 6 October 2018	Preparation, document reviews
7 October 2018	Latest submission date for draft ESMF to IFAD and MINAGRI-RAB
8 – 22 October 2018	Review period and comments on ESMF
22 – 27 October 2018	Revision of the draft ESMF by the Consultant
27 October – 7 November 2018	Disclosure of the draft ESMF in-country in line with National requirements
9 November 2018	Stakeholder workshop for validating the ESMF
10 - 14 November 2018	Finalization of ESMF
14 November 2018	Final ESMF submitted to IFAD and RAB
20 November 2018	Disclosure of the ESMF